

**Commerce Commission**

Initial Reset of the Default Price-Quality Path  
for  
Electricity Distribution Businesses

**Decisions Paper**

30 November 2009



COMMERCE COMMISSION

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## Table of Contents

|  |           |
|--|-----------|
| <b>EXECUTIVE SUMMARY .....</b>                                   | <b>I</b>  |
| <b>CHAPTER 1: INTRODUCTION .....</b>                             | <b>1</b>  |
| 1.1 Default/Customised Price-Quality Regulation .....            | 1         |
| 1.2 Decisions Paper .....  | 2         |
| <b>CHAPTER 2: REGULATORY FRAMEWORK.....</b>                      | <b>5</b>  |
| 2.1 Introduction .....   | 5         |
| 2.2 Part 4 Purpose Statement.....                                | 5         |
| 2.3 Purpose of Default/Customised Price-Quality Regulation ..... | 8         |
| 2.4 Role of a DPP in Promoting the Part 4 Purpose .....          | 9         |
| 2.5 Regulatory Framework Principles .....                        | 10        |
| 2.6 Additional Considerations .....                              | 12        |
| <b>CHAPTER 3: THE RESET DPP.....</b>                             | <b>17</b> |
| 3.1 Introduction .....   | 17        |
| 3.2 Form and Scope of the Determination.....                     | 17        |
| 3.3 Scope of the Reset DPP.....                                  | 18        |
| 3.4 Structure of the Reset DPP .....                             | 18        |
| 3.5 Dates Applying to the Reset DPP.....                         | 19        |
| 3.6 Input Methodologies.....                                     | 21        |
| <b>CHAPTER 4: PRICE UNDER THE RESET DPP .....</b>                | <b>22</b> |
| 4.1 Introduction .....   | 22        |
| 4.2 Price under the Reset DPP.....                               | 22        |
| 4.3 Allowable Notional Revenue .....                             | 31        |
| 4.4 Starting Price Adjustments during the Reset DPP.....         | 32        |
| 4.5 Starting Prices for the Reset DPP .....                      | 34        |
| <b>CHAPTER 5: RATE OF CHANGE .....</b>                           | <b>36</b> |
| 5.1 Introduction .....   | 36        |
| 5.2 Setting the X-factor for the Reset DPP.....                  | 37        |
| 5.3 Form of Productivity Analysis .....                          | 37        |
| 5.4 Results of TFP Analyses .....                                | 40        |
| 5.5 Additional Considerations .....                              | 45        |
| 5.6 Decision on the Rate of Change .....                         | 47        |
| <b>CHAPTER 6: QUALITY STANDARDS .....</b>                        | <b>49</b> |
| 6.1 Introduction .....   | 49        |
| 6.2 Overall Approach to Quality Standards.....                   | 49        |
| 6.3 Quality Standards under the Reset DPP .....                  | 51        |
| 6.4 Accounting for Extreme Events .....                          | 53        |
| 6.5 Accounting for Sampling Variability .....                    | 57        |
| 6.6 Assessment of Quality Standards .....                        | 58        |
| <b>CHAPTER 7: MONITORING OF COMPLIANCE .....</b>                 | <b>61</b> |
| 7.1 Introduction .....   | 61        |
| 7.2 Form and Content of the Annual Compliance Statement.....     | 61        |

|                    |  |           |
|--------------------|--|-----------|
| 7.3                | Statement of Compliance and Supporting Information ..... | 62        |
| 7.4                | Compliance Scenarios .....                               | 64        |
| 7.5                | Certification and Audit .....                            | 69        |
| <b>APPENDIX A:</b> | <b>GLOSSARY .....</b>                                    | <b>71</b> |
| <b>APPENDIX B:</b> | <b>PRICE PATH ASSESSMENT FORMULAE .....</b>              | <b>75</b> |
| <b>APPENDIX C:</b> | <b>QUALITY STANDARDS .....</b>                           | <b>79</b> |
| <b>APPENDIX D:</b> | <b>INITIAL RESET DETERMINATION .....</b>                 | <b>85</b> |

## EXECUTIVE SUMMARY

### *Background*

- X1 This paper (“Decisions Paper”) provides background and reasoning for the decisions of the Commerce Commission (“Commission”) on the default price-quality path applying to electricity distribution businesses from 1 April 2010 (“Reset DPP”). The Reset DPP is given effect by the *Commerce Act (Electricity Distribution Default Price-Quality Path) Determination 2010* (“Initial Reset Determination”) published on 30 November 2009.<sup>1</sup> A copy of the Initial Reset Determination is appended to this paper.
- X2 The Commission has undertaken extensive consultation as part of its process to implement the Reset DPP. In making its decisions, the Commission has carefully considered the submissions it has received from interested parties. All consultation documents and submissions are available on the Commission’s website.<sup>2</sup>

### *Scope*

- X3 The Decisions Paper addresses the following elements of the Reset DPP, which are summarised under the relevant headings below:
- the regulatory framework, as set out in the Commerce Act 1986 (“the Act”);
  - the form of the Reset DPP and content of the Initial Reset Determination;
  - the price path to apply, including how price is defined and the Commission’s decision on starting prices;
  - the Commission’s decision on the rate of change;
  - the quality standards that apply; and
  - the compliance requirements to be met.
- X4 The Reset DPP applies to all electricity distribution businesses (“EDBs”), except those that are exempt from default/customised price-quality regulation on the basis of being “consumer-owned” in accordance with section 54D of the Act. These regulated electricity distribution businesses are defined in this Decisions Paper as “Non-exempt EDBs”.
- X5 As discussed during the course of the consultation process, the Commission proposes to undertake further work on various issues not addressed by the Initial Reset Determination.<sup>3</sup> This Decisions Paper does not comment further on this future work, other than to reiterate the Commission’s intention to publish a process paper in early 2010.

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<sup>1</sup> A summary of the Initial Reset Determination was published in the *New Zealand Gazette* on 30 November 2009.

<sup>2</sup> [www.comcom.govt.nz](http://www.comcom.govt.nz).

<sup>3</sup> Commerce Commission, *Initial Reset of Default Price-quality Path for Electricity Distribution Businesses – Draft Decisions Paper*, 8 September 2009, paragraph 1.8.

### ***Regulatory Framework***

- X6 In workably competitive markets, competitive forces will put pressure on firms thereby providing incentives to invest and innovate, to improve efficiency and provide services at a quality required by consumers. This leads to the sharing of the benefits of efficiency gains with consumers and the limiting of excessive profits. The Commission considers that effective regulation—including through the use of a DPP—can play a similar role to workable competition in this regard, albeit imperfectly, and not without cost.
- X7 The manner in which a DPP is set can assist in promoting certainty for regulated suppliers and investors, which can provide businesses with the confidence to innovate and make long-life investments, consistent with the regulatory objective to promote incentives to invest and innovate under section 52A(1)(a) of the Act. A CPI-X price path also places incentives on suppliers to improve efficiency (including in respect of efficient investment) in real terms over that regulatory period, consistent with section 52A(1)(b) of the Act. This is because suppliers get to keep the benefits of efficiencies greater than those implied by their CPI-X price path for a number of years (i.e., at least until the price path is reset at the beginning of the next regulatory period).
- X8 These efficiency gains are realised by the supplier in the form of higher profits, but are shared with consumers over the long-term through prices that are lower than would otherwise be the case, consistent with section 52A(1)(c) of the Act. Given that a price path acts to limit the revenue that a regulated supplier can earn, if set appropriately it will also limit excessive profits, consistent with section 52A(1)(d) of the Act. Finally, the quality standards incorporated within the Reset DPP are intended to ensure that, in response to the cost reduction incentives provided by the CPI-X price path, Non-exempt EDBs do not lower service quality below the level demanded by consumers, consistent with section 52A(1)(b) of the Act. Overall, by setting a CPI-X price path combined with quality standards in this manner, the Commission will promote the long-term benefit of consumers, consistent with the purpose of Part 4.
- X9 In making its decisions, the Commission has given careful consideration to both the purpose statement of Part 4 and the purpose statement for default/customised price-quality regulation. Furthermore, the Commission has taken account of additional statutory considerations relating to Government Policy Statements, energy efficiency,<sup>4</sup> and the Electricity Act 1992. The regulatory framework is discussed in Chapter 2.

### ***The Reset DPP***

- X10 The regulatory provisions relating to the content of a DPP are relatively prescriptive. In addition to meeting these requirements and following consultation with interested parties, the Commission has made a number of decisions on the form and content of the Reset DPP.
- X11 The most fundamental of these decisions is the separate specification of a price path and quality standards. Failure to comply with either the price path or the quality standards will be considered a breach of the Reset DPP. Additionally, the Commission

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<sup>4</sup> *Commerce Act 1986*, section 54Q.

has set the Reset DPP to apply for a period of five years, resulting in a regulatory period commencing 1 April 2010 and ending 31 March 2015.

- X12 Given that input methodology determinations have yet to be published, the Commission has confirmed that it will amend the Initial Reset Determination to specify relevant input methodologies as soon as practicable after their publication. An annual submission date for customised price-quality path proposals will also be included at that time. The form of the Reset DPP is discussed in Chapter 3.

### ***Price under the Reset DPP***

- X13 The Commission has developed a price path that applies a weighted average price-cap based on notional revenue. To derive notional revenue, the Commission has used a formula based on the prices charged by a Non-exempt EDB and their associated quantities. These associated quantities have been defined as the quantities from the pricing year ending two years prior to the end of the relevant assessment period.
- X14 Starting prices have been specified as the prices a Non-exempt EDB charged as at 31 March 2010. The Commission has confirmed that following the publication of input methodology determinations, it will undertake profitability assessments and implement related starting price adjustments.
- X15 The price path is indexed using a CPI-X mechanism.<sup>5</sup> The CPI figure is to be derived annually based on observed historic values. Additionally, the price path provides that certain costs may be passed through by a Non-exempt EDB. These include local authority rates, Commerce Act levies, Electricity Commission levies, and transmission charges.
- X16 The maximum prices a Non-exempt EDB may charge can be derived from its allowable notional revenue. Compliance with the price path is to be assessed by comparing a Non-exempt EDB's notional revenue and its allowable notional revenue. Notional revenue may not exceed allowable notional revenue at any time during an assessment period. The price path is discussed in Chapter 4.

### ***Rate of Change***

- X17 The price path applies a single rate of change in prices (i.e., X), relative to the CPI, to all Non-exempt EDBs. The Commission's decision is that the rate of change be set at 0% per annum for the regulatory period 1 April 2010 to 31 March 2015. The rate of change is discussed in Chapter 5.

### ***Quality Standards***

- X18 The Commission's decision is to set quality standards based on reliability performance guided by a "no material deterioration" premise. In light of this, the Commission has specified quality standards using reliability limits based on the historic averages of SAIDI and SAIFI reliability data for the period 2005-2009.

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<sup>5</sup> Where "CPI" is the Consumer Price Index, as published by Statistics New Zealand, and "X" reflects the allowed rate of change (the rate of change is discussed in Chapter 5).

- X19 Recognising the impact of extreme events and sampling variability on reliability data, the Commission has developed the quality standards to mitigate the effect of extreme events and has incorporated “dead-bands” to reduce the effect of sampling variability. Compliance with the quality standards will be assessed over multiple years by comparing a Non-exempt EDB’s annual performance against its reliability limits. Each Non-exempt EDB will be required to comply with its reliability limits in no less than two out of three consecutive years. The quality standards are discussed in Chapter 6.

***Monitoring of Compliance***

- X20 Non-exempt EDBs are required to provide the Commission with an annual compliance statement that states whether or not the Non-exempt EDB complied with its price path and quality standards. In addition, the compliance statement is to include relevant supporting information, an audit report and a certificate signed by at least one Director of the Non-exempt EDB. Monitoring of compliance is discussed in Chapter 7.

## CHAPTER 1: INTRODUCTION

1.1 This chapter introduces this paper (“Decisions Paper”) and describes its scope and structure.

### 1.1 Default/Customised Price-Quality Regulation

1.2 As suppliers of electricity lines services, electricity distribution businesses (“EDBs”) are subject to the regulatory provisions under Part 4 of the Commerce Act 1986<sup>6</sup> (“the Act”). Subpart 9 of Part 4 provides that EDBs are subject to default/customised price-quality regulation. The Act also provides that consumer-owned EDBs, as defined in section 54D of the Act, are exempt from this type of regulation.<sup>7</sup> For clarity, EDBs subject to default/customised price-quality regulation are referred to in this paper as “Non-exempt EDBs”.<sup>8</sup>

1.3 Default/customised price-quality regulation has replaced the thresholds regime (“Thresholds”) that previously applied to EDBs under the repealed Part 4A of the Act. The main features of default/customised price-quality regulation include:

- a default price-quality path (“DPP”), which is a default set of regulatory provisions applying to suppliers. The DPP provides a “relatively low cost way”<sup>9</sup> of setting price-quality regulation;
- the ability for individual suppliers to make proposals to the Commission for a customised price-quality path (“CPP”) that better meets the supplier’s particular circumstances; and
- penalty provisions for breaches of price-quality paths.

1.4 The Act provides that default/customised price-quality regulation applies to EDBs from 1 April 2009. For the period 1 April 2009 to 31 March 2010, the “Thresholds Notice”<sup>10</sup> was deemed to be a section 52P determination that applied to EDBs as if it were the initial default price-quality path (“Initial DPP”). Under section 54K(1) of the Act, the Commission is required to reset the Initial DPP before 1 April 2010 using a section 52P determination that will give effect to a DPP to apply from 1 April 2010 to 31 March 2015<sup>11</sup> (“Reset DPP”). In this paper, this determination is referred to as the “Initial Reset Determination”. The determination has been published on the

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<sup>6</sup> Commerce Act 1986.

<sup>7</sup> The Commission set out its treatment of consumer-owned EDBs under the Initial DPP, including its view on the interpretation of section 54D, in its paper *Treatment of Consumer-owned Electricity Distribution Businesses under the Initial Default Price-Quality Path*, published on 16 October 2009. The Commission will use this interpretation of section 54D assessment notification guidelines when determining which EDBs are “consumer-owned” under the Reset DPP.

<sup>8</sup> While the term “Non-exempt EDBs” was not used in the Draft Decisions Paper, it is used in the Initial Reset Determination.

<sup>9</sup> *supra* n 6, section 53K.

<sup>10</sup> Commerce Commission, *Commerce Act (Electricity Distribution Thresholds) Notice 2004*, 1 April 2004.

<sup>11</sup> These dates are consistent with the 5 year regulatory period specified by the Commission (see paragraph 3.18).

Commission's website<sup>12</sup> and a copy can be found attached as Appendix D to this paper. A summary of the Initial Reset Determination was published on 30 November 2009 in the *New Zealand Gazette*.<sup>13</sup>

## 1.2 Decisions Paper

### *Scope of Decisions Paper*

- 1.5 The purpose of the Decisions Paper is to set out the reasoning for the Commission's decisions on the Reset DPP, which are given effect to by the Initial Reset Determination. These decisions build on those previously set out in the Draft Decisions Paper<sup>14</sup> and reflect the views set out in the Update Paper.<sup>15</sup> The Decisions Paper does not provide further views on the future work discussed in the Update Paper other than to reiterate the Commission's intention to publish a process paper regarding this work in early 2010.
- 1.6 In reaching its decisions on the Reset DPP, the Commission has considered all submissions received during the consultation process.

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<sup>12</sup> [www.comcom.govt.nz](http://www.comcom.govt.nz).

<sup>13</sup> This has been done in accordance with section 53M(7), which provides that no DPP applies until the commencement date specified in the relevant section 52P determination, which must be a date at least 4 months after a summary of the determination is published in the *New Zealand Gazette*.

<sup>14</sup> Commerce Commission, *Initial Reset of Default Price-quality Path for Electricity Distribution Businesses – Draft Decisions Paper*, 8 September 2009.

<sup>15</sup> Commerce Commission, *Initial Reset of Default Price-quality Path for Electricity Distribution Businesses – Consultation Update Paper*, 16 November 2009.

### *Consultation Process*

- 1.7 As part of its process to reset the Initial DPP, the Commission has undertaken extensive consultation with interested parties on a range of issues. This has included six rounds of consultation, the publication of six papers and the commissioning of three research reports relevant to the DPP reset process. The consultation steps and associated papers were as follows:
- *Regulatory Provisions of the Commerce Act 1986 – Discussion Paper* (“Provisions Paper”), published on 19 December 2008;
  - *Reset of Default Price-quality Path for Electricity Distribution Businesses – Process and Issues Paper* (“Process Paper”), published on 30 March 2009;
  - *Reset of Default Price-quality Path for Electricity Distribution Businesses – Discussion Paper* (“Discussion Paper”), published on 19 June 2009. This paper was accompanied by two research reports from Economic Insights Pty Limited (“Economic Insights”):
    - *Asset Valuation and Productivity-based Regulation taking account of Sunk Costs and Financial Capital Maintenance*; and
    - *The Theory of Network Regulation in the Presence of Sunk Costs*;
  - *Initial Reset of the Default Price-quality Path for Electricity Distribution Businesses – Draft Decisions Paper* (“Draft Decisions Paper”), published on 8 September 2009. This paper was accompanied by analysis from Economic Insights:
    - *Electricity Distribution Productivity Analysis: 1996 – 2008*;
  - *Initial Reset of the Default Price-quality Path for Electricity Distribution Businesses - Initial Reset Determination (Draft) – Consultation Paper* (“Draft Determination Paper”), published on 16 October 2009. This paper was published with an initial draft of the Initial Reset Determination for consultation; and
  - *Initial Reset of the Default Price-quality Path for Electricity Distribution Businesses – Consultation Update Paper* (“Update Paper”), published on 16 November 2009. This paper provided for a technical consultation on the Initial Reset Determination.
- 1.8 In making its decisions, the Commission has carefully considered the submissions<sup>16</sup> it has received from interested parties on the above papers. In addition to these submissions, the Commission has assessed and considered the advice received from external advisers, including those working on behalf of Non-exempt EDBs.

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<sup>16</sup> Available at [www.comcom.govt.nz](http://www.comcom.govt.nz).

***Structure of Decisions Paper***

- 1.9 The chapters and appendices that make up the Decisions Paper are set out in the following table.

**Table 1 Chapter Overview**

| <b>Chapter</b>    | <b>Title and Topic</b>   |
|-------------------|--|
| Chapter 1         | <b>Introduction</b><br>Discusses the scope and overall structure of the paper.   |
| Chapter 2         | <b>Regulatory Framework</b><br>Discusses relevant provisions in the Commerce Act 1986.   |
| Chapter 3         | <b>The Reset DPP</b><br>Sets out the form of the Reset DPP and content of the Initial Reset Determination.                             |
| Chapter 4         | <b>Price under the Reset DPP</b><br>Sets out the price path and starting prices to apply during the Reset DPP.                         |
| Chapter 5         | <b>Rate of Change</b><br>Sets out the Commission's decision on the rate of change to apply during the Reset DPP.                       |
| Chapter 6         | <b>Quality Standards</b><br>Sets out the Commission's decision on the quality standards to apply during the Reset DPP.                 |
| Chapter 7         | <b>Monitoring of Compliance</b><br>Discusses the annual compliance statement and the required supporting information.                  |
| <b>Appendices</b> | <b>Title and Topic</b>   |
| Appendix A        | <b>Glossary</b><br>Defines terms and acronyms used in the paper.   |
| Appendix B        | <b>Price Path Assessment Formulae</b><br>Sets out the formulae used to define elements of the price path.                              |
| Appendix C        | <b>Quality Standards</b><br>Sets out further detail on the quality standards, including relevant calculations, processes and formulae. |
| Appendix D        | <b>Initial Reset Determination</b><br>A copy of the Initial Reset Determination.   |

## CHAPTER 2: REGULATORY FRAMEWORK

2.1 This chapter sets out the regulatory framework under which the Initial Reset Determination has been made.

### 2.1 Introduction

2.2 Part 4 of the Act provides for the Commission to reset the Initial DPP. The Part 4 provisions are to be interpreted in light of the statutory context and the purpose of Part 4 (“Part 4 Purpose”) as set out in section 52A. Where the Commission is required to choose between available approaches it must determine the approach that in its view best gives effect to the Act. Chapters 4 to 6 discuss the provisions relevant to the main elements of the Reset DPP – starting prices, rate of change and quality standards. In resetting a DPP, the Commission must have regard to a number of other considerations, for example, relevant Government policy statements. The Commission will also seek to be guided by implementation principles, as appropriate.

2.3 This chapter includes the Commission’s interpretation of the Part 4 Purpose and the purpose of default/customised price-quality regulation. The Commission also explains its view on how economic regulation, and the DPP in particular, promotes outcomes consistent with outcomes produced in competitive markets.

2.4 The chapter also sets out the Commission’s views on the economic principles arising from the Part 4 Purpose and implementation principles relating to the Commission’s decision-making under Part 4 of the Act. The Commission has had regard to these principles when making its decisions on the Reset DPP. Finally, the chapter sets out additional statutory considerations that the Commission has taken into account when making its decisions.

### 2.2 Part 4 Purpose Statement

#### *Overview and Purpose of Part 4*

2.5 Section 52 of the Act provides an overview of Part 4.

*This Part provides for the regulation of the price and quality of goods or services in markets where there is little or no competition and little or no likelihood of a substantial increase in competition.*

2.6 Section 52A of the Act states that the purpose of Part 4 is:

*to promote the long-term benefit of consumers in markets referred to in section 52 by promoting outcomes that are consistent with outcomes produced in competitive markets such that suppliers of regulated goods or services—*

- (a) have incentives to innovate and to invest, including in replacement, upgraded, and new assets; and*
- (b) have incentives to improve efficiency and provide services at a quality that reflects consumer demands; and*
- (c) share with consumers the benefits of efficiency gains in the supply of the regulated goods or services, including through lower prices; and*
- (d) are limited in their ability to extract excessive profits.*

### *Commission's Interpretation of the Part 4 Purpose*

2.7 The following illustrates the Commission's interpretation of the Part 4 Purpose.

- The *central purpose* is to promote the long-term benefit of consumers in markets where there is little or no competition and little or no likelihood of a substantial increase in competition.
- The central purpose is to be achieved by promoting *outcomes* consistent with outcomes produced in competitive markets. The Commission has sought to identify those outcomes produced in competitive markets and promote consistent outcomes to achieve the central purpose.<sup>17</sup>
- The outcomes must achieve the *objectives* set out in section 52A(1)(a)-(d) of the Act. As clarified in the Explanatory Note to the Commerce Amendment Bill, promoting the long-term interests of consumers by promoting outcomes consistent with competition “requires suppliers to have incentives to invest and innovate, have incentives to improve efficiency and provide services at a quality required by consumers, share the benefits of efficiency gains with consumers, and limit excessive profits”.<sup>18</sup> These “requirements” are set out in (a) to (d) of section 52A(1) of the Act. In light of this, the Commission has adopted the rationale expressed in both the Explanatory Note to the Commerce Amendment Bill and the Select Committee Report on the Bill, that (a) to (d) are objectives under Part 4.<sup>19</sup>

2.8 The regulatory instruments under Part 4 (e.g., DPP, information disclosure) provide the mechanism through which the Commission is to promote outcomes consistent with outcomes produced in competitive markets. In designing these regulatory instruments, therefore, the Commission must check that they promote outcomes consistent with those produced in competitive markets, and that they are in aggregate likely to achieve the regulatory objectives in section 52A(1)(a) to (d).

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<sup>17</sup> Not all competitive market outcomes are relevant to markets with little or no competition (or those with little or no likelihood of a substantial increase in competition).

<sup>18</sup> *Explanatory Note to the Commerce Amendment Bill (201-1), Government Bill, as introduced to the House of Representatives*, Wellington, 13 February 2008, p. 4.

<sup>19</sup> The Explanatory Note refers to (a) to (d) as objectives when setting out the rationale that informed the Part 4 Purpose. References include that at page 4, under the heading “Test and processes for imposing regulation”. This is also done at page 17 as follows: “[t]here is also debate about whether the current purpose statement for Part 4A of the Act is appropriate given that there is no explicit reference to a key regulatory objective of providing for incentives to invest.” At page 19, the Explanatory Note similarly refers to “a purpose statement that explicitly states that the objective of regulation is to improve efficiency and to protect consumers from excessive prices.” Finally, at page 20, it notes that the purpose statement was adopted because it “includes both efficiency and distributional objectives, to provide for an appropriate balance between the protection of consumers and that of producers and investors.” This approach of referring to (a) to (d) as objectives is also evident at page 2 of the Select Committee Report (refer: *Commentary to the Commerce Amendment Bill (201-2), Government Bill, as reported from the Commerce Committee*, Wellington, 28 July 2008) and also at page 5 where the report explicitly refers to “regulatory objectives set out in the purpose statement” when recommending the new section 53A, which was subsequently adopted.

- 2.9 As with all other parts of the Act, “competition” in the context of Part 4 of the Act means “workable or effective competition” (i.e., section 3(1) of the Act).<sup>20</sup> The concept of workable competition provides a more realistic standard for competition policy decisions than theoretic economic models, such as the perfect competition model. The concept of workable competition emphasises that in the real world, suppliers actively seek out opportunities for profitable investment and innovation, and that competitive rivalry exerts pressures on suppliers through a dynamic, not static, process. Definitions of workable competition found in the economic literature usually encompass a variety of market *structure*, *conduct* and *performance* (SCP) criteria that would be expected to be observed in workably competitive markets.<sup>21</sup>
- 2.10 In the context of economic regulation and the Part 4 Purpose, the *structure* and *conduct* criteria are less relevant in comparison with the way that those factors may be taken into account in assessing workable or effective competition in other contexts (such as under Parts 2 and 3 of the Act). This is because there is little or no competition in the markets regulated under Part 4, and little or no likelihood of a substantial increase in competition. The *performance* criteria—reflecting desirable workably competitive market outcomes—are more relevant to economic regulation, although not necessarily all of them. The Commission considers that the following performance criteria are relevant to economic regulation under Part 4, and provide guidance as to relevant outcomes for the purposes of section 52A(1):<sup>22</sup>
- firms’ production and distribution operations should be efficient and not waste resources;
  - output levels and product quality (i.e., variety, durability, safety, reliability, etc.) should be responsive to consumer demands;
  - profits should be at levels sufficient to reward investment, efficiency, and innovation;
  - prices should encourage rational choice, guide markets toward equilibrium, and not intensify cyclical instability;
  - opportunities for introducing technically superior new products and processes should be exploited; and
  - success should accrue to suppliers who best serve consumer wants.<sup>23</sup>

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<sup>20</sup> “Workable competition” is used hereafter to refer to both workable and/or effective competition.

<sup>21</sup> While there is some criticism of the structure-conduct-performance approach, it is nonetheless a standard model used in industrial organisation for analysing competition and market power, e.g., “while the structure-conduct-performance relationship is subject to debate, it nevertheless provides a useful framework” in K. Viscusi, J. Vernon, and J. Harrington Jr., *Economics of Regulation and Antitrust*, 3<sup>rd</sup> edn., The MIT Press, Cambridge, Massachusetts, 2000, pp. 61-63.

<sup>22</sup> The Commission acknowledges that there are others, albeit very similar in scope and substance: e.g., G. C. Reid, *Theories of Industrial Organisation*, Basil Blackwell, New York, 1987, p. 125.

<sup>23</sup> Based on criteria set out in F. Scherer and D. Ross, *Industrial Market Structure and Economic Performance*, 3<sup>rd</sup> edn, Houghton Mifflin, Boston, 1990, pp. 52-55.

- 2.11 These performance criteria are also reflected in the regulatory objectives set out in the Part 4 Purpose. Section 52A(1)(a)-(d) of the Act specifically mentions the following performance criteria:
- innovation and investment (section 52A(1)(a));
  - quality (section 52A(1)(b));
  - prices (section 52A(1)(c));
  - profits (section 52A(1)(d)); and
  - efficiency (section 52A(1)(b)), which in the Commission’s view comprises the three dimensions of allocative, productive and dynamic efficiency.
- 2.12 Accordingly, these largely common criteria are to be taken into account in determining whether outcomes consistent with those produced in competitive markets are likely, and whether the objectives (a) to (d) of section 52A(1) are likely to be met.

### ***Definition of Consumer***

- 2.13 Given that the central purpose of Part 4 is to promote the long-term benefit of consumers, it is important to have clarity as to which “consumers” are relevant. With respect to electricity lines services, section 54C(4) of the Act provides that “consumer” has the same meaning as in section 2(1) of the Electricity Act 1992—i.e., a consumer:
- (a) *means any person who is supplied, or who applies to be supplied, with electricity; but:*
  - (b) *does not include any electricity generator or any electricity distributor or electricity retailer, except where the electricity generator or, as the case may be, the electricity distributor or electricity retailer is supplied, or applies to be supplied, with electricity for its own consumption and not for the purposes of resupply to any other person.*
- 2.14 Given that intermediaries such as generators, distributors and retailers are expressly excluded from the definition of consumer (unless they are supplied with electricity for their own consumption), the Commission considers that consumer means the individual or entity that consumes the electricity—i.e., the end-user.

## **2.3 Purpose of Default/Customised Price-Quality Regulation**

- 2.15 In addition to the Part 4 Purpose, section 53K of the Act provides that the purpose of default/customised price-quality regulation (“Section 53K Purpose”) is:

*to provide a relatively low-cost way of setting price-quality paths for suppliers of regulated goods or services, while allowing the opportunity for individual regulated suppliers to have alternative price-quality paths that better meet their particular circumstances.*

- 2.16 In the Commission’s view a DPP should be a generic tool, as far as practicable, such that under a DPP, price-quality regulation can be cost-effectively applied across multiple suppliers. In developing the Reset DPP the Commission has sought to use, where appropriate, readily available information. This includes the use of previous analytical work and data collected under the Thresholds. This approach is likely to promote the Section 53K Purpose by limiting costs imposed on both suppliers and the Commission when implementing the Reset DPP. The Commission has carefully reviewed the relevance of previous analytical work in light of the Part 4 Purpose.
- 2.17 In making its decisions on the Reset DPP, the Commission has considered the Section 53K Purpose in addition to the Part 4 Purpose. The Section 53K Purpose is also

reflected through the inclusion of a cost-effectiveness implementation principle, discussed below in paragraphs 2.32-2.33.

## **2.4 Role of a DPP in Promoting the Part 4 Purpose**

- 2.18 In workably competitive markets, competitive forces provide firms with incentives to invest and innovate, to improve efficiency and provide services at a quality required by consumers, share the benefits of efficiency gains with consumers, and limit excessive profits. The Commission considers that effective regulation—including the use of a DPP—can play a similar role to workable competition in this regard, albeit imperfectly using different processes, and not without cost. By doing so, regulation is ultimately intended to promote the long-term benefit of consumers.
- 2.19 The Commission considers that the use of a CPI-X price path under the Reset DPP recognises that regulated suppliers face inflationary and other increasing cost pressures in respect of their incremental capital and operating expenditures during a regulatory period. A CPI-X price path also places incentives on suppliers to improve their efficiencies in real terms over that regulatory period, consistent with outcomes in workably competitive markets and section 52A(1)(a) and (b) of the Act. This is because they get to keep the benefits of efficiencies greater than those implied by their CPI-X price path for a number of years (i.e., at least until the price path is reset at the beginning of the next regulatory period).
- 2.20 These efficiency gains are realised by the supplier in the form of higher profits during the regulatory period, but are shared with consumers over the long-term through prices that are lower than would otherwise be the case, which promotes the long-term benefit of consumers and is consistent with section 52A(1)(c) of the Act. Some of this sharing can occur during the regulatory period, due to the X-factor in the CPI-X price path. Furthermore, because regulated suppliers have an incentive to outperform the efficiency expectations implicit in the CPI-X price path, this increases the level of benefits that are potentially available to be shared with their consumers at the end of the regulatory period, when the price path is reset. The use of CPI-X under the Reset DPP is discussed further in paragraphs 4.24-4.25. Finally, given that a price path acts to limit the level of revenue that a regulated supplier can earn, it will also limit excessive profits, consistent with section 52A(1)(d) of the Act.
- 2.21 By including a CPI-X price path within the Reset DPP, the Commission has provided the opportunity for Non-exempt EDBs to earn greater than normal returns as a reward for improved efficiency (including in respect of efficient investment) and for innovation. The ability of the Commission to provide expected outcomes consistent with normal returns under the Reset DPP for Non-exempt EDBs may require the use of starting price adjustments following the publication of input methodology determinations. However, the Reset DPP may not be able to fully reflect the particular circumstances of a Non-exempt EDB to the same extent as a CPP. One of the key features of default/customised price-quality regulation is that, where a regulated supplier subject to a DPP expects to receive less than normal returns over the current regulatory period, it may make a proposal for a CPP.
- 2.22 The manner in which a DPP is set can assist in promoting regulatory stability and transparency, and provide certainty for regulated suppliers and investors. In turn, these outcomes can provide businesses with the confidence to innovate and make long-life investments. Promoting such an environment is consistent with the regulatory objective to promote incentives to invest and innovate under section 52A(1)(a) of the Act. Certainty under a DPP also relates to how it is applied and assessed. Despite the

Commission having discretion to take enforcement action for breaches, the Reset DPP has been set in a manner that seeks to mitigate the incidence of breaches caused by circumstances that are reasonably beyond the direct control of a Non-exempt EDB, thus providing greater certainty to regulated suppliers. Measures to achieve this, including the mitigation of CPI forecast errors and the normalisation of reliability data, have been incorporated into the Reset DPP.

- 2.23 The quality standards incorporated with the Reset DPP are intended to ensure that, in response to the cost reduction incentives provided by the CPI-X price path, Non-exempt EDBs do not lower service quality below the level demanded by consumers, consistent with section 52A(1)(b) of the Act. Overall, by setting a CPI-X price path combined with quality standards in this manner, the Commission will promote the long-term benefit of consumers, consistent with the central purpose of Part 4.

## 2.5 Regulatory Framework Principles

### *Economic Principles*

- 2.24 The Commission has previously noted that adopting a principled approach can help provide further insights into the Commission's proposed approach to regulation under Part 4. This is intended to help improve transparency and certainty in decision-making. The economic principles reflect the fact that competitive markets lead to improvements across the three dimensions of efficiency. The key economic principles are to:

- promote *allocative efficiency*, subject to the opportunity for regulated businesses to earn a normal rate of return;
- promote realistic and achievable gains in *productive efficiency*; and
- promote *dynamic efficiency* by incentivising efficient investment and innovation over time.<sup>24</sup>

- 2.25 The economic principles are simply intended to help provide guidance on the approach the Commission will take when confronted with issues that may not be specifically referred to in section 52A(1)(a)-(d) of the Act. These dimensions of efficiency are important to the long-term benefit of consumers and are consistent with the outcomes produced in workably competitive markets.

- 2.26 The economic principles are considered helpful because they provide a more unified way of looking at problems, making solutions easier to identify (e.g., balancing (a) and (d)). Generally speaking, regulators put most weight on the promotion of dynamic efficiency. This is potentially the greatest source of improvements in the price and quality of services on offer to consumers in the long-term.

### *Implementation Principles*

- 2.27 The Commission has taken account of and been guided by the following implementation principles when making its decisions on the Reset DPP. The Commission considers that the use of these principles during the Reset DPP process has

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<sup>24</sup> A wider discussion of these principles in relation to the Part 4 Purpose is provided in the Draft Decisions Paper, supra n 14, paragraphs 2.27-2.45.

reduced the potential for ambiguity, and increased predictability and transparency within the process.

### *Consistency*

- 2.28 The Commission has sought to be consistent, wherever possible, with previous regulatory decisions and those in comparable overseas regimes when making its decisions on the Reset DPP, to the extent those decisions are consistent with the Part 4 Purpose. The use of a consistent approach also applies to the analysis that underpins those decisions, e.g., the Commission has treated all Non-exempt EDBs consistently. The Commission considers that consistency in its decision-making has led to more predictable regulatory outcomes and reduced uncertainty for suppliers and investors.
- 2.29 The Commission considers that a consistent approach to decision-making should ideally apply over time. This is particularly relevant given the likely refinements to the Reset DPP and the Initial Reset Determination following the publication of input methodology determinations. Regulatory commitment over time will promote certainty and investor confidence—as discussed at paragraph 2.22—and, as such, is an integral element of the *Consistency Principle*. The Commission has, to the extent practicable, been guided by the *Consistency Principle* during the Reset DPP process.

### *Flexibility*

- 2.30 An objective of the Part 4 regulatory regime is to provide certainty for suppliers, thereby promoting incentives for efficient infrastructure investment. However, as far as is appropriate, regulatory decisions should take into account both prevailing market conditions and those that can be reasonably expected in the future, including technological progress. Consequently, a prescriptive approach that minimises uncertainty under current conditions—in other words, ‘regulatory commitment’—must be balanced against the need for regulation to adapt and remain applicable as industry and market conditions evolve over time. Where the Commission has considered it necessary to depart from previous regulatory approaches, these decisions have been explained.
- 2.31 A degree of flexibility is inherent in default/customised price-quality regulation, as businesses can make a proposal for a CPP that better meets their circumstances (e.g., to allow for increased capital investment). The Commission considers that the flexibility provided by a CPP is important, given that a DPP may not suit every supplier’s particular circumstances.

### *Cost-Effectiveness*

- 2.32 The Commission considers that a DPP should, as far as practicable, be straightforward to define, apply and comply with. In addition to this, the Section 53K Purpose implies that a DPP be set on a relatively low-cost basis. In light of these two considerations, the Commission has sought to make decisions that, while appropriate, are cost-effective to implement.
- 2.33 In seeking to ensure that its decisions have cost-effective outcomes the Commission has considered all relevant issues and alternative options in light of their likely costs. Further to this, the Commission has sought to ensure that matters arising have been dealt with expediently and the compliance burden imposed on businesses has been considered in relation to the expected regulatory benefit.

### *Transparency*

2.34 The Commission has sought to be clear and transparent when making its decisions on the Reset DPP. The Commission has used sound analytical foundations to ensure robust decisions have been made and, where possible, the underpinning analysis has been based on established techniques. Where practicable, the Commission has also sought to draw on regulatory decisions in other jurisdictions to inform its decision-making. The Commission has sought to keep interested parties informed of its decision-making process and has provided opportunities for them to present their views (as discussed in 1.7). These views have been considered by the Commission and used to inform the decisions set out in this paper.

## **2.6 Additional Considerations**

2.35 In addition to the Part 4 Purpose and the Section 53K Purpose, the Commission has taken into account a number of additional considerations when reaching the decisions set out in this paper. These considerations are discussed in the remainder of this chapter, and include:

- *Government Policy Statements*: as required under section 26 of the Act;
- *Energy Efficiency*: obligations relating to energy efficiency provided for under section 54Q of the Act; and
- *Decisions under the Electricity Act 1992*: as required under section 54V of the Act.

### ***Government Policy Statements***

2.36 Section 26 of the Act requires the Commission to have regard, when exercising its powers under the Act, to Government policy statements (“GPS”) transmitted to it, in writing, by the Minister of Commerce. To date, two GPSs of relevance to the Reset DPP have been transmitted to the Commission. These concern electricity governance and infrastructure investment incentives, and are discussed below.

### ***Electricity Governance***

2.37 The Government initially issued a GPS in relation to electricity governance in October 2004. It has been subsequently updated in 2006, 2008, and May 2009 (“2009 GPS”). The 2009 GPS sets out statutory objectives for the Electricity Commission and the Government’s expectations and intentions regarding the interrelationship between the Commission and the Electricity Commission in relation to the regulation of electricity lines businesses. Relevant to the Commission are objectives relating to energy efficiency, and the Commission’s role in providing incentives for demand side management and reducing energy losses. The Commission notes that these objectives are consistent with the obligations under section 54Q. A Protocol to the Memorandum of Understanding<sup>25</sup> between the Commission and Electricity Commission states that the Commission will have regard to these objectives when implementing the Part 4 regulatory regime.

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<sup>25</sup> Discussed further in paragraph 2.52.

### *Infrastructure Investment Incentives*

- 2.38 In August 2006, the Government issued a GPS relating to the incentives of regulated businesses to invest in infrastructure (“2006 GPS”). The 2006 GPS includes that the Government considers this objective will be achieved through regulatory stability, transparency and certainty giving businesses the confidence to make long-life investments.

### *Consideration of Government Policy Statements*

- 2.39 The Commission has assessed and had regard to both the 2009 GPS and the 2006 GPS when reaching its decisions on the Reset DPP. For instance, seeking to promote incentives for efficient investment is consistent with section 52A(1)(a) of the Act and the 2006 GPS. Incentives to invest and the promotion of investor confidence are strongly linked to regulatory certainty. As discussed in paragraph 2.22, the provision of certainty has been emphasised by the Commission.

### *Energy Efficiency*

- 2.40 Section 54Q requires that the Commission, when applying regulation under Part 4, must promote incentives, and avoid imposing disincentives, for EDBs (including those deemed to be consumer-owned) to invest in energy efficiency and demand-side management and to reduce energy losses. For clarity, in this paper “energy efficiency” refers to both demand side management and energy loss reduction.

### *Interpretation of Section 54Q*

- 2.41 The Commission notes that the requirements set out in section 54Q apply to the effect of Part 4 regulation as a whole. Under Part 4, Non-exempt EDBs are subject to a DPP (or alternatively a CPP), and information disclosure regulation.<sup>26</sup> These instruments are all relevant to the promotion of energy efficiency. The Commission considers that the requirements under section 54Q are to be met through the combined application of the regulatory instruments under Part 4 that apply to suppliers of electricity lines services. When considering the implementation of the Reset DPP, section 54Q is but one important factor. The extent to which energy efficiency must be promoted under a DPP needs to be considered in light of both purpose statements relevant to the DPP.
- 2.42 In considering how price-quality regulation can promote incentives and avoid promoting disincentives for suppliers of electricity lines services to invest in energy efficiency, the Commission has reset the DPP such that it promotes outcomes consistent with outcomes produced in workably competitive markets. As discussed in paragraph 2.25 above, efficiency is important to the long-term benefit of consumers and is consistent with outcomes produced in workably competitive markets. The Reset DPP is designed to promote efficient behaviour consistent with the Part 4 Purpose. Having regard to section 54Q, the Commission is satisfied that the Reset DPP will not impose disincentives on suppliers to invest in energy efficiency. The Commission will further

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<sup>26</sup> Consumer-owned EDBs are only subject to information disclosure regulation under Part 4. Given that section 54Q also applies to these EDBs, it may be the case that information disclosure is the most relevant regulatory instrument for promoting energy efficiency.

consider how to more directly promote investment in energy efficiency under a DPP, as discussed in paragraph 1.5.

- 2.43 The Commission has considered whether to implement a specific energy efficiency mechanism in the Reset DPP. The Commission agrees with submissions that commented on the complexities relating to the promotion of energy efficiency under the Reset DPP. Submissions also commented on the risks of implementing a mechanism that is not sufficiently robust or does not provide appropriate incentives.<sup>27</sup> The Commission considers that it is important to take a measured approach when seeking to implement dedicated energy efficiency mechanisms. Addressing the complexities in testing and implementing a robust mechanism, in a manner consistent with the Part 4 Purpose and the Section 53K Purpose, was not considered feasible under the Reset DPP within the time available, but will be considered further in 2010.

#### *Consideration of Proposed Mechanisms*

- 2.44 The Commission considered submissions received during the consultation process seeking the inclusion of dedicated energy efficiency mechanisms.<sup>28</sup> These were considered to be non-trivial to implement, particularly given the Section 53K Purpose. In particular, it may be difficult within the constraints of a low-cost mechanism to:
- identify and review efficient capital and operational expenditure that has been incurred to improve energy efficiency;
  - measure changes in loss volumes and electricity usage directly resulting from the mechanism; and
  - identify the net benefits of a mechanism and to accurately assess foregone revenue (where applicable).
- 2.45 A number of submissions were in broad agreement that it may not be possible to include a dedicated mechanism under the Reset DPP.<sup>29</sup> Submissions noted the time constraints, the need for adequate consultation, and the potential complexities involved with developing and implementing such a mechanism.<sup>30</sup> One such submission stated that the

<sup>27</sup> Orion New Zealand Limited (“Orion”), *Submission on Reset of Default Price-Quality Path for Electricity Distribution Businesses - Process and Issues Paper*, 15 April 2009, p. 8; and Powerco Limited (“Powerco”), *Powerco’s Submission to Reset of Default Price-Quality Path (DPP) for Electricity Distribution Businesses: Process and Issues Paper*, 15 April 2009, p. 4.

<sup>28</sup> Electricity Networks Association (“ENA”), *Submission on the Reset of the DPP for Electricity Distribution Business*, 17 July 2009, paragraph 16; Unison Limited (“Unison”), *Reset of Default Price-Quality Path for Electricity Distribution Businesses Discussion Paper*, 17 July 2009, paragraph 3.2(e); Vector Limited (“Vector”), *Submission to Commerce Commission on Reset of the Default price-Quality Path for Electricity Distribution Businesses: Discussion Paper*, 17 July 2009, paragraph 131; Powerco, *Reset of Default Price-Quality Path for Electricity Distribution Businesses Discussion Paper*, 17 July 2009, p. 18; and Aurora Energy Limited (“Aurora”), *Submission to the Commerce Commission on its Discussion Paper on the Reset of the Default Price-Quality Path for Electricity Distribution Businesses*, 17 July 2009, p. 5.

<sup>29</sup> Aurora, *ibid.*, p. 23; Powerco, *ibid.*, paragraph 18; Eastland Network Limited (“Eastland”), *Submission on the Discussion Paper ‘Reset of Default Price-Quality Path for Electricity Distribution Businesses’*, 17 July 2009, p. 9; and Major Electricity Users’ Group (“MEUG”), *Submission on Reset of Default Price-Quality Path for Electricity Distribution Businesses*, 17 July 2009, paragraph 21.

<sup>30</sup> For example, Powerco, *supra* n 28, p. 17.

Commission has a number of higher priorities to consider in developing the Reset DPP than to incorporate dedicated section 54Q mechanisms.<sup>31</sup>

- 2.46 As discussed in paragraphs 2.15-2.17, the Reset DPP is intended to be a low-cost, generic instrument. This was an important consideration when assessing proposals put forward by submitters, given the complexity of some of the proposed mechanisms and the need for Non-exempt EDBs to demonstrate the effectiveness of the initiatives. In addition, it was considered to be difficult to promote firm-specific initiatives under a DPP, particularly ones that can differentiate energy efficient outcomes from underlying trends (e.g., general volume reductions).<sup>32</sup> As discussed in paragraph 2.44, it may also be difficult to assess efficient expenditure associated with energy efficiency initiatives, and to identify outcomes that directly result from the mechanism.
- 2.47 In response to submissions seeking the inclusion of an energy efficiency “placeholder” in the Initial Reset Determination, the Commission considers that it would be inappropriate to commit to a mechanism, where the costs and benefits are unknown.<sup>33</sup> A mechanism should not be introduced until the benefits and costs have been considered, so as to avoid unintended and potentially perverse outcomes. The Commission considers that it is unnecessary to embed an energy efficiency mechanism within the Initial Reset Determination.<sup>34</sup>

#### *Energy Efficiency under the Reset DPP*

- 2.48 The Commission retains the view that, on balance, it is important to take a cautious approach when seeking to implement dedicated energy efficiency mechanisms. Within the time available prior to the publication of the Initial Reset Determination the Commission considers that implementing a robust energy efficiency mechanism—in a manner also consistent with the purpose statements relevant to DPPs—was not feasible.
- 2.49 The Commission considers that by providing Non-exempt EDBs the flexibility to adjust pricing structures under the Reset DPP (discussed in paragraph 4.8), the Commission is promoting incentives and, in particular, avoiding disincentives to the promotion of energy efficiency. This flexibility to adjust pricing structures may be employed to promote energy efficiency (e.g., by removing reliance on volumetric pricing and by allowing the introduction of peak demand and/or time-of-use pricing). The Commission considers that this contributes to it meeting the energy efficiency requirements—to the extent feasible under the Reset DPP—set out in section 54Q.
- 2.50 Submissions received during the consultation process agreed that allowing Non-exempt EDBs the freedom to determine their own pricing structures to incentivise customer

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<sup>31</sup> MEUG, *supra* n 29, p. 4.

<sup>32</sup> This is a view also shared by Aurora, *supra* n 28, p. 23.

<sup>33</sup> Auckland Energy Consumer Trust (“AECT”), *Reset of Default Price-Quality Path for Electricity Distribution Businesses Discussion Paper*, 17 July 2009, paragraph 5; ENA, *supra* n 28, paragraph 20; PricewaterhouseCoopers (“PwC”), *Submission to the Commerce Commission on the Initial Reset of the Default Price-Quality path for Electricity Distribution Businesses Discussion Paper*, 17 July 2009, p. 15; and Unison, *supra* n 28, pp. 7-8.

<sup>34</sup> The Commission has indicated its intention to further consider a number of issues for potential inclusion during the Regulatory Period, refer Commerce Commission, *supra* n 15, p. 2.

behaviour would be an explicit incentive mechanism.<sup>35</sup> Another commented that the Commission will achieve its section 54Q objective in relation to energy efficiency by incorporating a notional revenue methodology in the DPP.<sup>36</sup> The Commission notes that providing the “ability to encourage energy efficiency by changing distribution pricing structures” was also part of the ENA mechanism proposals.<sup>37</sup>

- 2.51 The Commission considers that the use of notional revenue provides Non-exempt EDBs with flexibility to adjust their pricing structures and, as discussed above, allows Non-exempt EDBs to formulate their prices in a manner that promotes energy efficiency. The ability for Non-exempt EDBs to restructure prices under the Reset DPP—provided for in clause 8.6 of the Initial Reset Determination—explicitly provides this flexibility.

### ***Electricity Act***

- 2.52 Section 54V sets out provisions relating to the interface with the Electricity Act 1992. It specifies matters which the Commission must take account of. These matters are identified as areas of common interest in the *Memorandum of Understanding between the Commerce Commission and Electricity Commission* (“MoU”), which coordinates their respective roles under the Electricity Act and the Commerce Act. The MoU states that “the Commerce Commission will take into account, before exercising any of its powers under Part 4 of the Commerce Act, the matters specified in section 54V of the Commerce Act, including any electricity governance regulation or rule made by the Electricity Commission, or decision made under them, or any relevant guideline, that relates to or affects the quality standards or pricing methodologies applicable to ...[EDBs]”.<sup>38</sup> The Commission has considered its obligations under section 54V and any relevant implications as expressed in the MoU when making its decisions on the Reset DPP.

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<sup>35</sup> For example, PwC, supra n 33, p. 16.

<sup>36</sup> Orion, *Reset of Default Price-Quality Path for Electricity Distribution Businesses Discussion Paper*, 17 July 2009, p. 21.

<sup>37</sup> ENA, supra n 28, p. 4.

<sup>38</sup> Electricity Commission & Commerce Commission, *Memorandum of Understanding between the Electricity Commission and the Commerce Commission*, 16 August 2007 (as amended on 13 November 2008), available at <http://www.comcom.govt.nz/IndustryRegulation/Electricity/ElectricityLinesBusinesses/electricitylinesbusiness.aspx>.

## CHAPTER 3: THE RESET DPP

3.1 This chapter sets out how the Reset DPP has been given effect to by the Initial Reset Determination.

### 3.1 Introduction

3.2 The Act specifies a number of requirements for a DPP, including that the Commission make a section 52P determination to give effect to a DPP.<sup>39</sup> Regarding the content of the determination, section 52P sets out generic requirements, while section 53M and section 53O set out specific requirements. This chapter sets out how these requirements have been incorporated into the Initial Reset Determination and includes details on the overall form and content of the Reset DPP. The following issues relating to the Initial Reset Determination are discussed in this chapter:

- *Form of the Determination*: sets out that the Reset DPP is given effect to by a single determination;
- *Scope of the Reset DPP*: sets out the relevant suppliers and services that the Reset DPP applies to;
- *Structure of the Reset DPP*: sets out how the Reset DPP incorporates price and quality;
- *Relevant Dates*: sets out the dates and time periods that are relevant to the Reset DPP; and
- *Input Methodologies*: discusses the specification of relevant input methodologies.

### 3.2 Form and Scope of the Determination

3.3 As discussed above, the Commission is required to make a section 52P determination that gives effect to a DPP. This section sets out the form and scope of the Initial Reset Determination, which the Commission has used to give effect to the Reset DPP.

#### *Form of Section 52P Determination*

3.4 The Act is not specific on whether a single determination or multiple determinations should be used. As discussed below, the Commission has used a single determination (i.e., the Initial Reset Determination) to give effect to the Reset DPP.

3.5 In general, submissions received during the Reset DPP consultation process supported the use of a single determination.<sup>40</sup> The Commission notes the views of submissions and further considers that the generic nature of a DPP—with elements applying to all Non-exempt EDBs—is consistent with the use of a single determination. The use of a single determination is also likely to lead to lower transaction costs and provide a greater level of transparency.

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<sup>39</sup> supra n 6, section 52P(1).

<sup>40</sup> ENA, supra n 28, paragraph 10; Unison, supra n 28, p. 2; Vector, supra n 28, paragraph 20; PwC, supra n 33, p. 9; Wellington Electricity Limited (“Wellington Electricity”), *Reset of Default Price-Quality Path for Electricity Distribution Businesses Discussion Paper*, 17 July 2009, p. 5; and Powerco, supra n 28, p. 14.

### *Section 52P Determination to be used for the Reset DPP*

3.6 The Commission has used a single determination—the Initial Reset Determination—to give effect to the Reset DPP. A summary of this determination was published in the *New Zealand Gazette* on 30 November 2009.

### **3.3 Scope of the Reset DPP**

3.7 Subpart 9 of Part 4 of the Act provides that regulation applies to the supply of “electricity lines services” by relevant suppliers.<sup>41</sup> Electricity lines services have been defined in the Act as “the conveyance of electricity by line in New Zealand”,<sup>42</sup> which includes services supplied by EDBs and Transpower. The Commission considers it appropriate for this definition to determine the scope of services subject to the Reset DPP. Given that the Act specifies the scope of regulated services, the Initial Reset Determination, unlike the Thresholds Notice, does not require the inclusion of “specified services” and “excluded services” definitions.

3.8 As suppliers of electricity lines services (other than Transpower) EDBs are subject to default/customised price-quality regulation under section 54G(1), unless they meet the consumer-owned exemption criteria set out in section 54D. As such, the Reset DPP applies to EDBs that have not met those criteria. As discussed in paragraph 1.2, the Commission has set out its treatment of consumer-owned EDBs under the Initial DPP. This treatment will be applied to EDBs under the Reset DPP. Submissions from EDBs supported the Commission’s approach to the assessment and notification process for consumer-owned EDBs.<sup>43</sup>

#### *Scope of the Reset DPP*

3.9 The Reset DPP applies to EDBs—defined as Non-exempt EDBs—that have not met the section 54D criteria. This has been specified in clause 3 of the Initial Reset Determination. The scope of regulated services is determined by the definition of “electricity lines services” as set out in the Act, and as specified under clause 4 of the Initial Reset Determination.

### **3.4 Structure of the Reset DPP**

3.10 A DPP is required to specify the maximum prices or maximum revenues of a supplier and the quality standards to be met.<sup>44</sup> The Act does not prescribe how a DPP should be structured to incorporate these. The Reset DPP has been structured to specify and assess the price path and quality standards separately. A breach of either of the price path or quality standards will be considered a breach of the Reset DPP.

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<sup>41</sup> supra n 6, section 54(1).

<sup>42</sup> supra n 6, section 54C. The section includes a number of exclusions and definitions that qualify this.

<sup>43</sup> ENA, *Treatment of Consumer-owned Electricity Distribution Businesses under the Initial Default Price-Quality Path*, 18 September 2009, p. 2; Powerco, *Submission to the Commerce Commission on Treatment of Consumer-owned Electricity Distribution Businesses under the Initial Reset Default Price-Quality Path*, 18 September 2009, p. 6; and Eastland, *Submission on the consultation paper ‘Proposed approach to Consumer-owned Electricity Distribution Businesses under the Initial Default Price-Quality Path’*, 3 April 2009, p. 11.

<sup>44</sup> supra n 6, section 53M(1).

- 3.11 The Commission considered whether an integrated price-quality path<sup>45</sup> was appropriate under the Reset DPP. While expressing a general preference for the integrated path, submissions recognised that the period prior to the Initial Reset Determination publication date did not provide sufficient time to develop and implement such a mechanism.<sup>46</sup> Submissions acknowledged this timing constraint and expressed support for the separate assessment of price and quality, at least initially, under the Reset DPP.<sup>47</sup>
- 3.12 Having considered submissions received during the consultation process, the Commission has retained its view that the Reset DPP should take account of both price and quality, and that these should be specified and assessed separately. Price and quality are of primary interest to consumers and therefore critical to their long term interests.<sup>48</sup> Accounting for both price and quality is likely to promote the Part 4 Purpose and provide incentives for Non-exempt EDBs to improve efficiency and provide services at a quality that reflects consumer demands, as discussed in paragraph 2.23.
- 3.13 The separate assessment of price and quality is consistent with the approach used under the Initial DPP. As Non-exempt EDBs are familiar with the assessment and mechanics of such an approach, the Commission considers its use will support the *Transparency Principle*. As discussed in paragraph 2.29, the use of transparent and consistent regulation is likely to provide certainty for Non-exempt EDBs and promote incentives to invest.

#### *Structure of the Reset DPP*

- 3.14 The Initial Reset Determination addresses price in clause 8 and quality standards in clause 9. The compliance requirements in clause 11 require that these be assessed separately.

### **3.5 Dates Applying to the Reset DPP**

- 3.15 As discussed in paragraph 3.2, the Act specifies elements that are to be included in a section 52P determination applying to a DPP. This section sets out the requirements relating to dates and time periods applying to the Reset DPP.

#### ***Regulatory Period***

- 3.16 Section 53M(1)(c) requires that a determination specify the length of the regulatory period to which a DPP applies. Sections 53M(4) and (5) further specify that this period must be five years, unless the Commission considers that a shorter period, of not less than four years, would better meet the Part 4 Purpose. Having considered submissions

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<sup>45</sup> Referred to in the Draft Decisions Paper as an “S-Factor” approach, supra n 14, paragraph 3.57.

<sup>46</sup> ENA supra n 28, paragraph 20; Orion, supra n 36, p. 23; Powerco, supra n 28, p. 18; and PwC, supra n 33, p. 15.

<sup>47</sup> PwC, supra n 33, p. 15; Orion, supra n 36, p. 11; Eastland, supra n 29, p. 3; ENA, supra n 28, paragraph 18; and Powerco, supra n 28, p. 11.

<sup>48</sup> Vector, *Submission on Reset of Default Price-quality Path for Electricity Distribution Businesses, Process and Issues Paper*, 15 April 2009, p. 7.

and in light of the issues discussed below, the Commission has specified that the Reset DPP will apply for a period of five years from the commencement date of 1 April 2010.

- 3.17 As a longer timeframe is likely to provide greater certainty for Non-exempt EDBs, the Commission considers that a five-year regulatory period is appropriate. Submissions received during the consultation process generally supported the Commission's view that the regulatory period be specified as five years.<sup>49</sup> This timeframe is also consistent with the regulatory period specified under the Thresholds and with regulatory periods adopted in overseas jurisdictions (e.g., the Office of Gas and Electricity Market's ("Ofgem") distribution price controls).

#### *Regulatory Period for the Reset DPP*

- 3.18 Clause 2 of the Initial Reset Determination specifies the commencement date of the Reset DPP as 1 April 2010. Clause 4 specifies that the regulatory period for the Reset DPP is five years from the commencement date (i.e., the "Regulatory Period" is 1 April 2010 to 31 March 2015).

#### *Compliance Date*

- 3.19 Section 53O(f) requires that the determination specify the annual date by which compliance must be demonstrated. The Initial Reset Determination specifies the assessment date as 31 March for each year of the Regulatory Period. The Commission considered whether the compliance date under the Initial DPP (i.e., within 35 working days following 31 March) is appropriate for the Reset DPP. The Initial Reset Determination specifies that Non-exempt EDBs have 50 working days following each assessment date to demonstrate compliance, or otherwise, with the Reset DPP.
- 3.20 Submissions received during the consultation process considered that the proposed 35 working days be extended, as the compliance workload and audit requirements may initially be greater under the Reset DPP than under the Thresholds.<sup>50</sup> The Commission acknowledges that the Reset DPP, in order to increase certainty for Non-exempt EDBs, requires additional compliance steps that were not present under the Thresholds. Having considered submissions, the Commission considers that an extended period is appropriate under the Reset DPP, and that 50 working days is an appropriate period for Non-exempt EDBs to meet their annual compliance obligations.

#### *Reset DPP Compliance Date*

- 3.21 The Initial Reset Determination specifies in clause 11.1 that compliance related documentation is to be submitted within 50 working days following each assessment date (i.e., within 50 working days of 31 March).

#### *CPP Proposal Date*

- 3.22 As set out in paragraph 1.3, default/customised price-quality regulation allows suppliers subject to a DPP to apply for a CPP. In accordance with section 53(O)(e), the Initial

<sup>49</sup> Eastland, supra n 29, p. 8; ENA, supra n 28, paragraph 10; Powerco, supra n 28, p.15; and Unison, supra n 28, p. 2.

<sup>50</sup> Aurora, supra n 29, p. 22; Orion, supra n 36, p. 21; PwC, supra n 33, p. 9; Wellington Electricity, supra n 40, p. 5; and ENA, supra n 28, p. 17.

Reset Determination is required to specify the period within which, or the annual date by which, Non-exempt EDBs are to submit CPP proposals. As input methodology determinations are yet to be published, and given that the appropriate proposal date will to a large extent depend on the outcome of the input methodology process,<sup>51</sup> the Initial Reset Determination does not specify a CPP proposal date. Submissions agreed with this approach.<sup>52</sup> The Commission will amend the Initial Reset Determination following the publication of input methodology determinations to specify a date for CPP proposals during the Reset DPP.

#### *CPP Proposal Date for the Reset DPP*

- 3.23 Clause 7 of the Initial Reset Determination states that the Commission will specify an annual CPP proposal date, by amending the determination, as soon as practicable after the publication of input methodology determinations.

### **3.6 Input Methodologies**

- 3.24 When making a section 52P determination the Commission is required by section 52P(3)(c) to specify all relevant input methodologies that apply. However, as no input methodology determinations will be published prior to the commencement of the Reset DPP, no input methodologies have been specified as applying in the Initial Reset Determination. Submissions agreed with this approach.<sup>53</sup> Input methodology determinations are to be published, as provided for by section 52U of the Act, following the Reset DPP commencement date of 1 April 2010.

#### *Input Methodologies Applying to the Reset DPP*

- 3.25 The Initial Reset Determination does not specify the input methodologies that apply during the Reset DPP. Clause 6 states that the Commission will amend the Initial Reset Determination to specify the relevant input methodologies, as soon as practicable, after the publication of input methodology determinations.

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<sup>51</sup> In particular, the timing of the annual date is likely to reflect the CPP proposal assessment process, to be specified as part of an input methodology determination.

<sup>52</sup> ENA, *Submission on the Reset of the DPP for Electricity Distribution Businesses Draft Decisions Paper*, 12 October 2009, paragraph 18; Orion, *Submission on Initial Reset of the Default Price-Quality Path for Electricity Distribution Businesses - Draft Decisions Paper*, 12 October 2009, p. 21; PwC, *Submission to the Commerce Commission on the Initial Reset of the Default Price-Quality path for Electricity Distribution Businesses Draft Decisions Paper*, 12 October 2009, paragraph 52; and Powerco, *Initial Reset of the Default Price-Quality Path for Electricity Distribution Businesses Draft Decisions Paper*, 12 October 2009, p. 13.

<sup>53</sup> ENA, *ibid*, paragraph 25; Powerco, *ibid*, p. 11; and Wellington Electricity, *Submission to the Commerce Commission on the Initial Reset of the Default Price-Quality Path for Electricity Distribution Businesses Draft Decisions Paper*, 12 October 2009, p. 8.

## CHAPTER 4: PRICE UNDER THE RESET DPP

4.1 This chapter sets out how price is specified under the Reset DPP, including the form of the “Price Path” and the specification of starting prices. When specifying the Price Path under the Reset DPP, the Commission has sought to promote outcomes consistent with those produced in competitive markets such that relevant objectives set out in section 52A(1)(a)-(d) are achieved. This chapter identifies how the Commission’s decisions are consistent with these objectives.

### 4.1 Introduction

4.2 The following issues relating to price under the Reset DPP are discussed in this chapter:

- *Price Path Specification*: the form of the Price Path including how price and other elements of the Price Path are defined and specified;
- *Allowable Notional Revenue*: the allowable notional revenue assessment formula;
- *Starting Price Adjustments*: the Commission’s proposal for starting price adjustments during the Reset DPP; and
- *Starting Prices*: the Commission’s decision on the starting prices to initially apply under the Reset DPP.

4.3 Price under the Reset DPP is specified in terms of notional revenue, a form of weighted average price-cap. Compliance, in terms of price, is assessed by comparing a Non-exempt EDB’s allowable notional revenue (discussed below in paragraphs 4.41-4.45) with its notional revenue. As discussed in paragraphs 4.47-4.53, starting price adjustments under the Reset DPP are to be deferred, with assessments of Non-exempt EDB profitability to take place following the publication of input methodology determinations. Starting prices for the Reset DPP are specified as those prices that applied on 31 March 2010.

### 4.2 Price under the Reset DPP

4.4 In relation to price,<sup>54</sup> the Reset DPP must specify the maximum price or maximum revenues of a Non-exempt EDB.<sup>55</sup> The Initial Reset Determination must also specify the starting prices and rate of change that apply to Non-exempt EDBs.<sup>56</sup> In light of these requirements, a maximum price for Non-exempt EDBs has been specified in the form of a Price Path, which incorporates applicable starting prices and the rate of change.<sup>57</sup>

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<sup>54</sup> Section 52C of Part 4 defines prices as follows:

(a) means any 1 or more of individual prices, aggregate prices, or revenues (whether in the form of specific numbers, or in the form of formulas by which specific numbers are derived); and

(b) includes any related terms of payment.

<sup>55</sup> supra n 6, section 53M(1)(a).

<sup>56</sup> supra n 6, section 53O.

<sup>57</sup> The Commission’s decision on the rate of change is set out in Chapter 5.

4.5 The remainder of this section sets out the following elements of the Price Path:<sup>58</sup>

- the use of a weighted-average price-cap;
- definitions of price and quantity;
- indexation of the Price Path;
- derivation of a consumer price index term (“CPI”); and
- pass-through costs.

4.6 These elements are used to define allowable notional revenue under the Price Path.

#### *Use of a Weighted Average Price-Cap*

4.7 The Act requires that a DPP specify the maximum prices that may be charged, or the maximum revenues that may be recovered, by a regulated supplier.<sup>59</sup> As discussed in paragraph 4.4, the Reset DPP does this by using a Price Path. The Price Path has been defined using a weighted average price-cap based on notional revenue.<sup>60</sup> Notional revenue is calculated based on prices charged by a supplier and associated quantities (definitions of price and quantity are set out in the following subsections). The form and definition of notional revenue is set out in Appendix B.

4.8 A form of weighted average price-cap is used under the Initial DPP. This form of price-cap limits aggregate price increases, but does not constrain prices for individual services, classes of services, or for different customer groups. The Commission considers it appropriate to retain this approach as it provides flexibility for Non-exempt EDBs to reflect changing consumer demands (or other factors) as part of their pricing structures and to price more cost reflectively. The use of such an approach is considered by the Commission to be consistent with the *Flexibility Principle*. As discussed in paragraphs 2.49-2.51, such flexibility will allow Non-exempt EDBs to adjust their pricing structures in a way that can contribute to the promotion of energy efficiency (e.g., by recovering costs using a higher proportion of fixed charges, reducing the impact of energy volumes).

4.9 Submissions received during the consultation process supported the Commission’s proposal to use a weighted average price-cap as it would provide Non-exempt EDBs with flexibility to modify their pricing structures.<sup>61</sup> The alternative (i.e., specifying prices at a disaggregated level) would require detailed tariff level information from Non-exempt EDBs and would require a degree of monitoring and analysis that would seem to go beyond the intended scope of a DPP. The Commission considers that this approach would lead to increased compliance costs and that avoiding such costs is consistent with the *Cost-Effectiveness Principle*. Submissions supported the

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<sup>58</sup> The detailed formulae and relevant components are set out in detail in Appendix B.

<sup>59</sup> *supra* n 6, section 53M(1)(a).

<sup>60</sup> Section 52C provides that price may be expressed in “the form of formulas by which specific numbers are derived”.

<sup>61</sup> Orion, *supra* n 36, p. 12; PwC, *supra* n 33, paragraph 12; ENA, *supra* n 28, paragraph 25; and Powerco, *supra* n 28, p. 11.

Commission's view that it is not appropriate to specify prices at a disaggregated tariff level under a DPP.<sup>62</sup>

- 4.10 The Commission notes that the use of a weighted average price-cap is consistent with the approach under the Initial DPP,<sup>63</sup> the gas authorisations,<sup>64</sup> and that used by other regulators (e.g., Ofgem and the Australian Energy Regulator ("AER")).<sup>65</sup> The Commission considers that this approach is appropriate as it limits the ability of suppliers to extract excessive profits, consistent with section 52A(1)(d). Its continued use also reflects the stability and certainty sought in clause 7(a) of the 2006 GPS.

*Use of Weighted Average Price-Cap under the Reset DPP*

- 4.11 The weighted average price-cap, defined in terms of notional revenue, is set out in clause 8 of the Initial Reset Determination.

***Definition of Price***

- 4.12 As set out in paragraph 4.7, the Price Path under the Reset DPP is expressed in terms of a weighted average price-cap, based on prices and associated quantities. The Commission has consulted on an appropriate definition of price and having considered relevant submissions and the issues below has defined "Price" under the Reset DPP as:

- (a) *a posted price (as defined in section 52C of the Act) in nominal terms (such as a tariff, fee or charge) or a component thereof, in relation to an Electricity Lines Service, and may include a Posted Discount; but does not include*
- (b) *any amounts described in paragraph (b) of the definition of Pass-Through Costs*

- 4.13 The above definition of price is similar to that used under the Initial DPP and has been amended to reflect the definition of electricity lines services under Part 4. In making this decision, the Commission considered whether the definition used under the Initial DPP<sup>66</sup> remains appropriate, in light of the Part 4 Purpose.
- 4.14 The Commission considers that this definition remains appropriate under the Reset DPP given the continued use of a weighted average price-cap based CPI-X mechanism. The Commission considers that this approach reflects the stability and certainty sought in clause 7(a) of the 2006 GPS and supports the *Consistency Principle* and the *Transparency Principle*. Such an approach, as discussed in paragraph 2.22, is likely to promote certainty and, as a result, incentives to invest.
- 4.15 Submissions received during the consultation process supported the Commission's decision to use the Initial DPP definition, and commented on the advantages of

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<sup>62</sup> For example, PwC, supra n 33, p. 16.

<sup>63</sup> Commerce Commission, supra n 10, clause 5.

<sup>64</sup> Commerce Commission, *Authorisation for the Control of Supply of Natural Gas Distribution Services by Powerco Ltd and Vector Ltd – Decisions Paper*, 30 October 2008.

<sup>65</sup> Ofgem, *Electricity Distribution Price Control Revenue Reporting Regulatory Instructions and Guidance - Version 4*, March 2008, p. 10; and AER, *Final Decision, Distribution Determination 2009-10 to 2013-14*, p. 62.

<sup>66</sup> Commerce Commission, supra n 10, clause 3.

retaining the definition.<sup>67</sup> Submissions stated that it is already known and understood by Non-exempt EDBs and would be relatively straightforward to implement.<sup>68</sup>

#### *Definition of Price under the Reset DPP*

- 4.16 The definition of price under the Reset DPP is set out in clause 4 of the Initial Reset Determination.<sup>69</sup>

#### *Definition of Quantity*

- 4.17 The Price Path under the Reset DPP has been expressed in terms of a weighted average price-cap, based on prices and associated quantities (as discussed in paragraph 4.7). Quantity has been defined based on progressively updating annual quantities (“Lagged Quantities”). These Lagged Quantities use available data from the pricing year which ended two years prior to the end of the relevant assessment period (“t-2 approach”). The quantities relate to prices for electricity lines services supplied by Non-exempt EDBs. Lagged Quantities are to be used in the formulation of both notional revenue and allowable notional revenue (discussed in paragraphs 4.41-4.45).
- 4.18 The Commission considered whether a fixed quantity approach (as used under the Thresholds) or Lagged Quantities should be used under the Reset DPP. The use of Lagged Quantities, instead of fixed quantities, reduces the potential for distortions to the weighted average price-cap including the transmission pass-through anomaly under the Thresholds.<sup>70</sup> The relative simplicity of the fixed quantity approach has the potential to create barriers to tariff restructuring, as quantities become unreflective of current consumer demand. Similarly, a fixed quantity approach may also create disincentives to potential energy efficiency investments by adding complexity to price restructuring. It was noted in submissions that the updated quantities approach is more sustainable as it can be rolled forward into future regulatory periods and allows the relatively easy accommodation of tariff structure changes within a regulatory period.<sup>71</sup>
- 4.19 The Commission considers that Lagged Quantities facilitate a closer correlation between the volumes used in the notional revenue formula and actual volumes during the assessment period. In light of this and having considered submissions,<sup>72</sup> the Commission considers that the annual updating approach is an improvement to the

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<sup>67</sup> Eastland, supra n 29, p. 10; Orion, supra n 36, p. 25; Powerco, supra n 28, paragraph 13; PwC, supra n 33, paragraph 18; and Wellington Electricity, *Submission on Reset of Default Price-Quality Path for Electricity Distribution Businesses, Process and Issues Paper*, 15 April 2009, p. 3.

<sup>68</sup> For example, ENA, *Submission on Reset of Default Price-Quality Path for Electricity Distribution Businesses, Process and Issues Paper*, 15 April 2009, pp. 5-6.

<sup>69</sup> The Commission is also required to consider the definition of price under the input methodology process. If an adjustment is required to this definition as a result of input methodology determinations, the Commission will amend the Initial Reset Determination to reflect this.

<sup>70</sup> Commerce Commission, *Reset of Default Price-quality Path for Electricity Distribution Businesses – Discussion Paper*, 19 June 2009, Chapter 3, for further discussion on the anomaly.

<sup>71</sup> For example, PwC, supra n 33, p. 31.

<sup>72</sup> Orion, supra n 52, paragraph 21; PwC, supra n 52, paragraph 12; Vector, *Submission to Commerce Commission on Reset of the Default price-Quality Path for Electricity Distribution Businesses: Draft Decisions Paper*, 9 October 2009, paragraph 13; ENA, supra n 52, paragraph 26; and Powerco, supra n 52, paragraph 18.

methodology used under the Initial DPP. A Lagged Quantities approach is used in the Commission's gas authorisations<sup>73</sup> and a similar approach has been implemented by the AER.<sup>74</sup>

- 4.20 The Commission has considered whether quantities should be lagged by one year (t-1 approach) or two years (t-2 approach). Using a t-2 approach has the advantage that at the time prices are set quantities will be known. A drawback of this approach is that a two year lag decreases the correlation between quantities used in assessments and actual quantities. It is arguable that a one year lag is more representative of underlying consumption trends and tariff structures than a two year lag. However, when setting prices using a t-1 approach the relevant quantities will not be known and would need to be estimated. The Commission considers that potential variances between these estimates and actual quantities may have compliance implications. A t-2 approach will provide greater certainty and transparency for Non-exempt EDBs and will reduce the potential for breaches due to misestimation.
- 4.21 Submissions supported the use of a t-2 approach commenting that, although a t-2 approach would reduce comparability between assessment and actual quantities (although variances are likely to be immaterial), the additional 12 month lag would mean that quantities would be actual quantities that are verifiable and provide greater certainty. In addition, the audit requirements proposed for a t-1 approach would not be required and the associated compliance costs would be avoided.<sup>75</sup>
- 4.22 The Reset DPP Price Path includes Lagged Quantities based on the t-2 approach. Their inclusion in the weighted average price-cap is set out in Appendix B.

#### *Incorporation of Quantities into the Price Path*

- 4.23 Lagged Quantities based on the t-2 approach are incorporated in the Initial Reset Determination in clause 8.

#### *Indexation of the Price Path*

- 4.24 The Act provides that a DPP should account for the effect of inflation on suppliers, and cites an example suggesting that a CPI-X mechanism is appropriate under a DPP.<sup>76</sup> Consistent with this, the Price Path under the Reset DPP uses a CPI-X<sup>77</sup> mechanism to enable it to account for the effect of inflationary and other cost pressures faced by Non-exempt EDBs.<sup>78</sup> The incorporation of the CPI-X mechanism is set out in Formula 2 in Appendix B.

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<sup>73</sup> Commerce Commission, supra n 64, pp. 188-190.

<sup>74</sup> AER, supra n 65, p. 104.

<sup>75</sup> Eastland, *Submission on the Draft Decisions paper 'Initial Reset of the Default Price-Quality Path for Electricity Businesses'*, 12 October 2009, p. 4; ENA, supra n 52, p. 6; Powerco, supra n 52, paragraph 20; PwC, supra n 52, p. 8; Vector, supra n 72, pp. 6-7; and Wellington Electricity, supra n 53, p. 4.

<sup>76</sup> supra n 6, section 53P(5).

<sup>77</sup> Where CPI is the Consumer Price Index and X refers to the "X-factor", discussed in detail in Chapter 5.

<sup>78</sup> Note that under section 53P(7) the Commission may take into account the effects of inflation on the inputs of suppliers' relevant services.

4.25 Submissions received during the consultation process supported the use of a CPI-X mechanism citing that it is well known and is relatively robust from a statistical perspective.<sup>79</sup> The Commission notes that CPI-X instruments are commonly employed by regulators in overseas jurisdictions when regulating utilities.<sup>80</sup> This view was supported by submissions which stated that the use of CPI-X is consistent with the approach taken by regulators internationally.<sup>81</sup> A CPI-X mechanism is also used under the Initial DPP to index the Price Path threshold and is used under the gas authorisations.<sup>82</sup> The Commission considers that a CPI-X is consistent with the Part 4 Purpose as it has the potential to promote efficiency gains and the long-term benefit of consumers and is considered consistent with the Part 4 Purpose (as discussed in paragraphs 2.19-2.21).

*Inclusion of Indexation in the Initial Reset Determination*

4.26 The Price Path specified in clause 8 of the Initial Reset Determination incorporates a CPI-X mechanism.

***Derivation of CPI***

4.27 To set prices under a CPI-X mechanism it is necessary to derive, in advance, a value for the CPI to apply during the assessment period. To do so, the Commission has incorporated a derived CPI based on observed historic values (“Lagged CPI”) into the notional revenue formula.<sup>83</sup> The relevant derivation formula is set out in Formula 3 in Appendix B.

4.28 In making its decision, the Commission considered whether CPI should be derived using a known trend of CPI movements or based on an agreed forecast. In assessing both options, the Commission considered which option had the greatest potential to minimise CPI forecast errors. The majority of submissions supported the Commission’s intention to reduce the potential for CPI forecast errors under the Reset DPP, expressing concern about the need to forecast CPI under the Initial DPP.<sup>84</sup> Specifically, submissions stated that the potential for breaches caused by CPI forecast errors leads to uncertainty. As discussed in paragraph 2.22, the Commission considers that mitigating the risk of forecast errors, under the Reset DPP, will increase certainty for Non-exempt EDBs and so promote incentives for investment.

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<sup>79</sup> For example, ENA, supra n 68, p. 2; PwC, *Submission to the Commerce Commission on Default/customised Price-quality Regulation, Reset of Default Price-quality Path for Electricity Distribution Businesses, Process and Issues Paper*, 15 April 2009, paragraph 11; and Eastland, *Submission on the Reset of Default price-quality Path for EDBs*, 15 April 2009, p. 4.

<sup>80</sup> For example, Ofgem use CPI-X (or RPI-X). See RPI-X review, <http://www.ofgem.gov.uk/Networks/rpix20/Pages/RPIX20.aspx>.

<sup>81</sup> For example, Powerco, supra n 27, paragraph 6.

<sup>82</sup> Refer to Commerce Commission, supra n 64, pp. 188-190, regarding the incorporation of CPI under the gas authorisation.

<sup>83</sup> Consumer Price Index as published by Statistics New Zealand, for more information see [http://search.stats.govt.nz/nav/ct2/economicindicators\\_cpiinflation/ct1/economicindicators/0](http://search.stats.govt.nz/nav/ct2/economicindicators_cpiinflation/ct1/economicindicators/0).

<sup>84</sup> Orion, supra n 27, paragraph 15; and PwC, supra n 79, p. 11; and Wellington Electricity, supra n 67, p. 2.

4.29 Several submissions expressed a preference for the use of an agreed CPI forecast for setting prices.<sup>85</sup> These proposals included the use of an “error adjustment” for the difference between the forecast CPI and actual CPI in the following assessment period. The Commission agrees such an approach is possible but considers the need for an *ex-post* adjustment to be an unnecessary step. A lagged approach is straightforward and will, over time, accurately reflect underlying inflation, providing increased certainty and transparency, without the need for an additional adjustment. Such an approach is also consistent with the approach used under the gas authorisations.<sup>86</sup> The Commission considers that the use of a lagged approach is more consistent with the rationale for using the t-2 approach to quantities. This is due to the approach providing greater certainty rather than potential short-term accuracy. The Commission notes that an exact derivation of CPI is not necessary for a CPI-X path to provide incentives for improved efficiency.

#### *Derivation of CPI under the Reset DPP*

4.30 Lagged CPI is to be derived using a formula set out in clause 8 of the Initial Reset Determination.

#### ***Pass-Through Costs***

4.31 Under price regulation, regulators generally provide for a pass-through cost mechanism as a way of appropriately sharing risk—from unforeseen and uncontrollable costs—between suppliers and consumers. The Commission considers that the use of pass-through costs under the Reset DPP is appropriate as it will assist in providing certainty, thereby promoting incentives to invest. The Commission considers that for a type of cost to be eligible for inclusion as a pass-through cost it should, in general, be:

- largely outside the control of a supplier;
- unforeseen (i.e., an amount unable to be accurately forecast);
- defined and approved *ex-ante* by the regulator; and
- relate to a discrete part of a DPP.

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<sup>85</sup> Aurora, *Submission to the Commerce Commission on its Draft Decisions Paper on the Initial Reset of the Default Price-Quality Path for Electricity Distribution Businesses*, 12 October 2009, p. 39; Eastland, *supra* n 75, pp. 21-22; Orion, *supra* n 52, pp. 3 & 35; PwC, *supra* n 52, p. 5(vi), pp.32-33; Unison, *Reset of the Default Price-Quality Path for Electricity Distribution Business: Draft Decisions Paper*, 12 October 2009, p. 28; Vector, *supra* n 72, pp. 128-129; and Wellington Electricity, *supra* n 67, p. 22.

<sup>86</sup> Commerce Commission, *supra* n 64, pp. 283-284.

- 4.32 The Commission has defined pass-through costs under the Reset DPP to be consistent with those allowed under the Initial DPP.<sup>87</sup> These costs are as follows:
- local authority rates;
  - Commerce Act levies;<sup>88</sup>
  - Electricity Commission levies; and
  - transmission charges.
- 4.33 Pass-through costs are to exclude those amounts that a Non-exempt EDB can demonstrate were passed on transparently to its customers and/or electricity retailers.
- 4.34 The Commission is also required to consider the definition of pass-through costs under the input methodology process.<sup>89</sup> If an adjustment is required to this definition as a result of input methodology determinations, the Commission will amend the Initial Reset Determination to reflect this.

*Pass-through of Rates and Levies*

- 4.35 The Commission considers it appropriate that local authority rates and Electricity Commission levies are retained as pass-through costs as they are beyond the direct control of EDBs. On that basis, the Commission has included levies set under the Act<sup>90</sup> as pass-through costs under the Reset DPP. The Commission considers that Commerce Act levies incurred by Non-exempt EDBs during the Initial DPP should be eligible for pass-through under the Reset DPP.
- 4.36 Submissions received during the consultation process supported the continued use of pass-through costs and suggested that local authority rates, Electricity Commission levies and the Commerce Act levies be included during the Reset DPP. Submissions were of the view that while Commerce Act levies were not included as pass-through costs under the Thresholds, they meet all of the criteria and are essentially similar to Electricity Commission levies, and therefore should be included.<sup>91</sup> Submissions supported the pass-through of the 2009/10 Commerce Act levies during the Reset DPP.<sup>92</sup>

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<sup>87</sup> Commerce Commission, supra n 10, clause 3.

<sup>88</sup> During the Reset DPP this will extend to Commerce Act levies paid by EDBs during the Initial DPP.

<sup>89</sup> supra n 6, section 52T(1)(c)(i).

<sup>90</sup> supra n 6, section 53ZE.

<sup>91</sup> For example, PwC, supra n 33, p. 17.

<sup>92</sup> ENA, supra n 52, p. 7; PwC, supra n 52, p. 33; Unison, supra n 85, p. 10; and Wellington Electricity, supra n 53, p. 11.

*Pass-through of Transmission Charges*

- 4.37 The Commission considers that transmission charges are largely beyond the control of EDBs under the current transmission pricing methodology<sup>93</sup> and, as such, are included as pass-through costs under the Reset DPP. Accounting for transmission charges in a robust and predictable manner will increase certainty and the transparency of the Price Path. The Commission notes that not all Non-exempt EDBs have direct contracts with Transpower (e.g., Nelson Electricity).<sup>94</sup> To account for this, the definition of transmission charges used in the Initial Reset Determination allows for the “provision” of transmission services by Non-exempt EDBs. Submissions received during the consultation process supported the continued pass-through of transmission charges.<sup>95</sup> The Commission has amended the definition of transmission charges used under the Thresholds. Loss and constraint rentals have been omitted as the Commission considers that these should be passed on transparently to consumers/retailers (see paragraph 4.33). The Commission has retained charges relating to “new investment contracts”. However, the Commission intends to review their future appropriateness given that these are subject to negotiation between Transpower and Non-exempt EDBs and are likely to be both foreseen and controllable (to an extent). The Commission will reconsider the inclusion of new investment contracts in light of relevant input methodology determinations.
- 4.38 The boundary between transmission and distribution systems can change over time, and it is possible that some movements in transmission costs will be offset by opposite movements in distribution costs. In addition to boundary changes, transmission costs may be partially avoided through the development of distributed generation. The Commission considers that such avoided transmission costs should continue to be treated as pass-through costs.
- 4.39 Further to the pass-through of avoided transmission *costs*, the pass-through of avoided transmission *charges* (i.e., those charges that would have been paid to Transpower) may provide a more direct incentive for EDBs to own and operate assets acquired from Transpower at a lower cost than those avoided charges for equivalent services. Reflecting proposals from submissions on the need for such incentives, particularly in the case of discretionary investments,<sup>96</sup> the Commission has carefully considered whether the inclusion of such charges under the definition of avoided transmission charges is appropriate. At this time the Commission is of the view that further

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<sup>93</sup> The Commission also notes that the transmission pricing methodology is likely to be reviewed during the Regulatory period. See the Electricity Commission’s website for further details <http://www.electricitycommission.govt.nz/opdev/transmis/tpr>.

<sup>94</sup> PwC, *Submissions to the Commerce Commission on the Initial Reset of the Default Price-quality Paths for Electricity Distribution Businesses – Consultation Update Paper*, 20 November 2009, paragraph 13.

<sup>95</sup> Aurora, *supra* n 85, p. 28; ENA, *supra* n 52, pp. 7-8; Eastland, *supra* n 75, p. 4; Orion, *supra* n 52, p. 24; PwC, *supra* n 52, p. 17-18; Unison, *supra* n 85, p. 10; and Wellington Electricity, *supra* n 53, p. 10.

<sup>96</sup> Orion, *Submissions to the Commerce Commission on the Initial Reset of the Default Price-quality Paths for Electricity Distribution Businesses – Consultation Update Paper*, 20 November 2009, paragraph 13; ENA *Submissions on the Initial Reset of the DPP for Electricity Distribution Businesses – Draft Determination Consultation Update Paper*, 20 November 2009, paragraph 8; and PwC, *supra* n 94, Appendix A.

consideration of the associated implications is appropriate. In particular, the Commission wishes to further consider how such a mechanism should be defined, including the type of charges eligible, interaction with starting price adjustments, potential efficiency sharing mechanisms and whether the pass-through should be time-bound. The Commission will include this issue in the areas of further work to be initiated early next year and will consider the issue in light of relevant input methodology determinations.

#### *Pass-through Costs under the Reset DPP*

4.40 Pass-through costs and related definitions are included in clause 4 of the Initial Reset Determination.

### **4.3 Allowable Notional Revenue**

4.41 As set out in paragraph 4.3, compliance with the Price Path is to be assessed by comparing a Non-exempt EDB's notional revenue and its allowable notional revenue. Specifically, in order to comply with the Price Path, notional revenue at any time during the "Assessment Period" is not to exceed the allowable notional revenue for the Assessment Period.<sup>97</sup>

4.42 Submissions supported the use of allowable notional revenue in the assessment of compliance with the Price Path.<sup>98</sup> However, submissions suggested that the formula be amended—from the form proposed in the Draft Decisions Paper—to allow allowable notional revenue to be adjusted based on the notional revenue recovered in previous periods. Submissions argued that as the allowable notional revenue formula is based on the prices in the previous year, it effectively resets the allowable notional revenue year on year, which submissions suggest may result in loss of 'headroom' (i.e., the difference between notional revenue and allowable notional revenue). Submissions commented that this is inconsistent with the approach under the Thresholds.

4.43 The Commission has carefully considered submissions on this issue and acknowledges the rationale for the proposed "revenue adjustment term". However, it considers that the relatively late introduction of the proposal (i.e., following the publication of draft decisions) has not enabled it to fully assess its implications and, in particular to fully test the amended formula. The Commission is of the view that the following issues relating to the proposed introduction of the revenue adjustment term should be considered in detail before its introduction:

- the potential incentive effects of the adjustment term, in light of the Part 4 Purpose;
- the potential for unforeseen complexities including technical breaches (similar to the pass-through anomaly<sup>99</sup> under the Thresholds);

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<sup>97</sup> Assessment Period means a 12 month period ending on an Assessment Date, where Assessment Date means a date as at which compliance with the DPP must be demonstrated, being 31 March of the years 2011 to 2015.

<sup>98</sup> Eastland, *supra* n 75, p. 8; PwC, *supra* n 52, paragraphs 8 and 12; ENA, *supra* n 52, paragraph 25; and Powerco, *supra* n 52, p. 11.

<sup>99</sup> Commerce Commission, *supra* n 70, Chapter 3.

- the potential impact of the estimation inherent in the adjustment term;
  - whether such a term is suitable to account for breaches of the Price Path;
  - the degree to which the adjustment should replicate the arrangements under the Thresholds; and
  - the potential need for a mechanism to prevent price-shocks to consumers resulting from the accumulated effect of the adjustment term over a number of assessment periods.
- 4.44 Given that the adjustment would not be applicable during the first Assessment Period and to allow it to better assess the above issues, the Commission considers it appropriate to defer the potential introduction of the adjustment term. It will further consider the issue during the first Assessment Period, with a view to introducing it (or an equivalent term) prior to price setting by Non-exempt EDBs in December 2010. The Commission proposes to further consider the issue in consultation with interested parties.
- 4.45 Allowable notional revenue is to be calculated based on the product of prices (as discussed in paragraph 4.12) in the previous “Pricing Period”<sup>100</sup> and the associated quantities using the t-2 approach (as discussed in paragraph 4.17). Pass-through costs (as discussed in paragraphs 4.32-4.33) are to be deducted from the resulting product before it is indexed by a CPI-X mechanism. For clarity, the allowable notional revenue for the first Assessment Period (see Formula 4 in Appendix B) has also been specified in the Initial Reset Determination.

#### *Allowable Notional Revenue under the Reset DPP*

- 4.46 The allowable notional revenue formula has been set out in clause 8 of the Initial Reset Determination.

### **4.4 Starting Price Adjustments during the Reset DPP**

- 4.47 Under the Act, starting prices are to be specified as either “the prices that applied at the end of the preceding regulatory period” or as “prices, determined by the Commission, that are based on the current and projected profitability of each supplier”.<sup>101</sup> The Commission has therefore considered whether starting price adjustments based on profitability assessments are appropriate for the Reset DPP.
- 4.48 Generally, starting price adjustments would take place at the beginning of a DPP regulatory period.<sup>102</sup> However, due to the relevance of input methodology determinations to adjustments<sup>103</sup> and the timing of their publication, the Commission has deferred starting price adjustments under the Reset DPP.<sup>104</sup>

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<sup>100</sup> Meaning a 12 month period ending on 31 March. See paragraph B4 in Appendix B.

<sup>101</sup> *supra* n 6, section 53P(3).

<sup>102</sup> Other than potential adjustments following a CPP.

<sup>103</sup> Starting price adjustments used by utility regulators are usually based on metrics relating to the firm’s performance (e.g., revenue) and the wider economy (e.g., tax rates). A number of inputs will be calculated based on input methodology determinations (e.g., weighted average cost of capital). The application of these

### ***Use of Starting Price Adjustments during the Reset DPP***

- 4.49 The Commission’s view is that it is appropriate, in general, to investigate whether starting price adjustments are necessary under a DPP. This is particularly relevant given the generic nature of the DPP and the common annual rate of change (“X-factor”).<sup>105</sup> The lack of business specific starting price adjustments under the Thresholds and the Initial DPP further reinforces their relevance under the Reset DPP.<sup>106</sup> The Commission considers that the periodic use of starting price adjustments is likely to be required for the majority of Non-exempt EDBs and applying them, when appropriate, will promote the Part 4 Purpose. For example, downward adjustments may be required—consistent with section 52A(1)(c) and (d)—in cases where Non-exempt EDBs are considered to be earning, or likely to earn, excessive profits and/or to promote the sharing of efficiency gains with consumers. Similarly, upward adjustments may be justified where current prices are likely to be too low to allow a business to earn a normal rate of return and facilitate efficient investment—consistent with section 52A(1)(a).
- 4.50 Submissions received during the consultation process generally agreed that starting price adjustments should be made.<sup>107</sup> They suggested that upward adjustments may be necessary to ensure sufficient cash flow for investment where historic prices have been set too low. A number of submissions cited that such adjustments were not made under the Thresholds, and given that the X-factor is generic to all Non-exempt EDBs profit adjustments will partly reflect a transition from one method to the next.<sup>108</sup>

### ***Timing of Starting Price Adjustments during the Reset DPP***

- 4.51 On the basis that adjustments are appropriate under a DPP, the Commission considered two possible approaches for adjusting starting prices during the Reset DPP. The first approach would have involved adjusting starting prices by 1 December 2009, i.e., prior to the publication of relevant input methodology determinations. However, this approach may require two price adjustments to ensure consistency between input methodologies and the DPP.<sup>109</sup> The second and preferred approach was to initially

input methodologies will affect the Commission’s assessments of current and projected profitability, which are to be used to inform starting price adjustments.

<sup>104</sup> As discussed in paragraph 3.24, input methodology determinations applicable to EDBs have not yet been published.

<sup>105</sup> The Commission must in general set a single X-factor applying to all Non-exempt EDBs, under section 53P(5).

<sup>106</sup> The Commission notes that although the Thresholds included profitability adjustments, these were based on the relative performance of EDBs—using the C<sub>2</sub>-factor—rather than absolute performance as might apply under a DPP. Refer: Commerce Commission, *Threshold Reset Discussion Paper*, 19 December 2007, paragraph 211.

<sup>107</sup> Aurora, *Regulatory Provisions of the Commerce Act 1986, Response to Discussion Paper*, 16 February 2009, p. 30; Eastland, *Submission on Regulatory Provisions of the Commerce Act 1986*, 16 February 2009, p. 15; and CRA International (on behalf of Unison), *Provisions of the Commerce Act*, February 2009, p. 44.

<sup>108</sup> For example, PwC, supra n 33, p. 19.

<sup>109</sup> Commerce Commission, *Reset of Default Price-quality Path for Electricity Distribution Businesses – Process and Issues Paper*, 30 March 2009, p. 62.

specify starting prices as those that applied at the end of the Initial DPP, with adjustments deferred until after the publication of the input methodology determinations.

- 4.52 Submissions received during the consultation process supported the Commission's proposal to defer starting price adjustments.<sup>110</sup> Submitters supported a deferred adjustment given that it would result in only one possible adjustment as it would follow, and be informed by, the publication of input methodology determinations.<sup>111</sup> They further indicated a preference for a deferred adjustment by stating they did not consider it possible to test any proposed starting price adjustments with any confidence prior to the determination of input methodologies.<sup>112</sup> One submission supported a starting price adjustment prior to the input methodology determinations.<sup>113</sup> However, any benefits of adjustments prior to the input methodology determinations are unlikely to outweigh the uncertainty for consumers and retailers caused by two price adjustments.
- 4.53 The Commission considers that adjusting starting prices following the publication of input methodology determinations will avoid the need for two adjustments, potentially in consecutive Pricing Periods.<sup>114</sup> A deferred adjustment will also allow greater consistency between the DPP framework and relevant input methodologies. Such an approach will contribute to certainty for Non-exempt EDBs, and as discussed in paragraph 2.22, promote incentives for Non-exempt EDBs to innovate and invest, consistent with section 52A(1)(a).

#### *Starting Price Adjustments during the Reset DPP*

- 4.54 The Initial Reset Determination sets out in clause 8.1 the Commission's intention to make starting price adjustments during the Regulatory Period.<sup>115</sup>

### **4.5 Starting Prices for the Reset DPP**

- 4.55 As set out above, the Commission has deferred starting price adjustments until after the publication of input methodology determinations. The Commission must therefore initially specify starting prices as those "prices that applied at the end of the preceding regulatory period".<sup>116</sup> The preceding regulatory period, in this case, is the period

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<sup>110</sup> Aurora, supra n 29, p. 10; Eastland, supra n 29, p. 13; ENA, supra n 28, p. 45; Orion, supra n 36, paragraph 6.3; PwC, supra n 33, 17 July 2009, p. 12; Unison, supra n 28, p. 12; and Vector, supra n 28, paragraph 3a.

<sup>111</sup> For instance, ENA, supra n 28, paragraph 43.

<sup>112</sup> *ibid*, paragraph 45.

<sup>113</sup> MEUG, supra n 29, paragraph 13.

<sup>114</sup> The Commission may amend the Initial Reset Determination under section 52Q or 54K. Section 54K provides that if an input methodology had applied at the time the Initial DPP was reset and it would have resulted in a materially different path being set, then the Commission may undertake a further reset of the DPP and may apply claw-back. In such a case, the Commission has nine months to reset the DPP after the publication of the relevant input methodology. The Commission can also make an amendment to a section 52P determination under section 52Q, having consulted with interested parties on any material amendments to be made.

<sup>115</sup> The Commission considers that claw-back may be applicable following starting price adjustments. However, mindful of the need for certainty when considering investments, the Commission is of the view that claw-back should only be applied in exceptional circumstances.

<sup>116</sup> supra n 6, section 53P(3).

1 April 2009 to 31 March 2010 (i.e., the period for which the Initial DPP applies). The Commission considered two options for expressing the prices that applied at 31 March 2010, these were:

- those being charged as at 31 March 2010 (“Actual Prices”); or
- the maximum prices allowed under the relevant price threshold under the Initial DPP (“Allowed Prices”).

4.56 Submissions received during the consultation process supported the use of Actual Prices.<sup>117</sup> PwC commented that “the use of actual prices as opposed to threshold prices is preferable from an implementation point of view. Threshold prices are only notional, and given they were based on 2003 pricing structures are, for many EDBs, inconsistent with current pricing practices. Thus actual prices will provide a more transparent assessment process and reduce compliance costs compared with notional threshold prices”. The Commission agrees that the use of Actual Prices represents a more transparent and pragmatic approach than the use of Allowed Prices, given the need to derive the latter.

4.57 The Commission further considers that the use of Actual Prices is appropriate as there are potential conceptual and implementation advantages of moving away from a legacy formula derived from Allowed Prices. Conceptually, there may be merit in making the first specification of Non-exempt EDB starting prices under Part 4 independent of the mechanism used under Part 4A.<sup>118</sup>

#### ***Starting Prices under the Reset DPP***

4.58 Starting prices have been specified as the Actual Prices, i.e., “those that applied as at 31 March 2010” in Schedule 1 of the Initial Reset Determination. Clause 8.1 refers to the Commission’s intention to reset starting prices during the Regulatory Period.

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<sup>117</sup> Eastland, supra n 29, p. 15; Orion, supra n 36, p. 26; PwC, supra n 33, p. 21; Vector, supra n 28, paragraph 75; and Wellington Electricity, supra n 40, p. 12.

<sup>118</sup> Starting prices were implicitly specified when the Thresholds Notice was deemed to be a section 52P determination for the Initial DPP. The Reset DPP represents the first opportunity to explicitly specify an updated basis for starting prices.

## CHAPTER 5: RATE OF CHANGE

5.1 This chapter sets out the Commission’s decision on the rate of change to apply to Non-exempt EDBs during the Reset DPP. In setting the X-factor for the Reset DPP, the Commission has sought to promote outcomes consistent with those produced in competitive markets such that the relevant objectives set out in section 52A(1)(a)-(d) are achieved. The chapter identifies how the Commission’s decisions are consistent with these objectives.

### 5.1 Introduction

5.2 Under a DPP, the Commission must set an X-factor for supplier prices during the regulatory period.<sup>119</sup> The X-factor is to be based on the long-run average productivity improvement rate achieved by suppliers of the relevant services in New Zealand, and/or in other comparable countries. In light of this, the Commission has considered results from productivity analysis of the electricity distribution sectors in New Zealand and overseas when making its decision on the X-factor. This includes productivity analysis undertaken by Economic Insights<sup>120</sup> and Pacific Economics Group<sup>121</sup> (“PEG”). In addition to productivity analyses, the Commission has also had regard to other relevant factors when making its decision on the X-factor.

5.3 The following issues relating to the X-factor are discussed in this chapter:

- *Setting the X-factor for the Reset DPP*: the context in which the Commission has made its decision on the X-factor;
- *Productivity Analysis*: the productivity analysis approaches considered by the Commission;
- *Results of Productivity Analysis*: the results of the productivity analyses used to inform the Commission’s decision on the X-factor;
- *Additional Considerations*: other factors that the Commission has considered in making its decision on the X-factor; and
- *Decision on the X-factor*: the X-factor to apply during the Reset DPP is 0%.<sup>122</sup>

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<sup>119</sup> The Commission has adopted the term X-factor to represent the “X” component of the CPI-X indexation component of the Price Path. While the overall rate of permitted change in weighted average prices under the DPP will, in practice, be CPI-X%, the Commission notes that section 53P(5) provides an example that refers to the “rate of change” as being solely the “X” in “a CPI-X” path.

<sup>120</sup> Economic Insights (2009c), *Electricity Distribution Productivity Analysis: 1996-2008*, Report by Denis Lawrence, Erwin Diewert, John Fallon and John Kain to the Commerce Commission, 1 September 2009.

<sup>121</sup> Pacific Economics Group, *X Factor Recommendations for New Zealand Electricity Distribution Price Controls*, Report for ENA, July 2009.

<sup>122</sup> As the X-factor reflects the difference between industry-wide and economy-wide productivity, a zero X-factor does not imply a lack of expected productivity improvements. Rather, an X-factor of zero means, assuming an input price differential of zero, that the Non-exempt EDBs are expected to improve their productivity performance by at least the same rate as the economy as a whole.

5.4 The Commission has not mechanically applied the results from productivity analyses, but has considered the analyses in light of the Part 4 Purpose. The decision to specify the Reset DPP X-factor as 0% has been informed by productivity analyses (see paragraphs 5.32-5.36) in light of additional relevant factors (see paragraphs 5.37-5.46).

## 5.2 Setting the X-factor for the Reset DPP

5.5 The Act provides that the X-factor must be based on the long-run average productivity improvement rate *achieved* by EDBs (or by suppliers in comparable countries). Although the X-factor is to be based on the achieved, therefore, past productivity improvement rates, the Commission notes that the incentives created by the X-factor in a CPI-X price path are intended to be forward-looking. The Commission is mindful that an historic-based productivity assessment uses data that reflects past economic conditions that may not reflect future economic conditions. The current economic climate, including that which may be experienced during the Reset DPP, may be worse than that experienced in the years for which productivity data for New Zealand EDBs is readily available (i.e., 1996 to 2008).

5.6 Recognising this, the Commission consulted on whether it was appropriate to take additional considerations—such as the current and expected economic climate—into account when making its decision on the X-factor. While submitters generally supported the use of productivity analysis, they advised against mechanically applying the results of such analysis when determining the X-factor.<sup>123</sup> One submitter noted that the Commission is given broad discretion under section 53P(6) to take into account “whatever measures of productivity” it considers appropriate and that it is for the Commission to judge how much pressure to reasonably place on EDBs to achieve efficiency gains.<sup>124</sup>

5.7 The Commission agreed with submitters’ views that the X-factor should not be set through the mechanistic application of productivity analysis. While recognising that the X-factor must be based on the long-run average productivity improvement rate achieved, the Commission has also considered a number of additional factors in light of the Part 4 Purpose.

## 5.3 Form of Productivity Analysis

5.8 As discussed above, the Commission is required to set a single X-factor,<sup>125</sup> which must be based on the “long-run average productivity improvement rate” achieved by suppliers of the relevant services in New Zealand and/or in comparable countries. The Act provides that the Commission may use whatever measures of productivity it

<sup>123</sup> For example, PwC, supra n 33, p. 27; and Orion, supra n 36, paragraphs 41-42.

<sup>124</sup> Orion, supra n 36, paragraphs 41-42.

<sup>125</sup> The Commission must, in general, set a single X-factor for all Non-exempt EDBs (section 53P(5)). It may however set an alternative X-factor for individual Non-exempt EDBs following a price adjustment or as a quality incentive (section 53P(8)). As discussed in paragraph 4.58, the Commission will adjust starting prices following the publication of input methodology determinations. Given that section 53P(8)(a) only relates to adjusted starting prices and in the absence of price-based quality incentives (as referred to in section 53P(8)(b)), the Commission considers that alternative X-factors are not appropriate for the Initial Reset Determination.

considers appropriate.<sup>126</sup> The Commission has used Total Factor Productivity (“TFP”) analysis, which as discussed below, is a well-established tool for assessing the productivity growth of an economy or of a particular industry.

### **Total Factor Productivity Analysis**

5.9 Regulators in a number of jurisdictions (including Australia, the United States, the United Kingdom and Canada) use TFP analysis to inform their decisions on appropriate X values used under CPI-X price control regimes. Both the Commission and Non-exempt EDBs have had experience with the use of TFP analysis. Under the Thresholds the Commission used Formula 1 below to set a common “B-factor” for all EDBs.<sup>127</sup> The B-factor was the component of the overall X, under the Thresholds, that reflected improvements in industry-wide productivity, relative to the economy. The B-factor formula contained two terms:

- the difference between the industry and economy-wide TFP growth rate (i.e., the E subscript refers to the economy as a whole); and
- the difference between the change in input prices (i.e., the W term) for the industry and the economy.

**Formula 1                      Thresholds B-Factor Formula<sup>128</sup>**

|  |
|--|
| $B \equiv [\Delta TFP - \Delta TFP_E] - [\Delta W - \Delta W_E]$ |
|--|

5.10 As part of the Reset DPP consultation process, the Commission proposed a number of refinements to the TFP analysis used under the Thresholds. The proposed refinements were informed by two research reports prepared for the Commission by Economic Insights, which were released with the Discussion Paper.<sup>129</sup> The Commission also engaged Economic Insights to assess EDB productivity during the period 1996-2008,<sup>130</sup> to inform the Commission’s draft decision on the X-factor.<sup>131</sup> This report was released with the Draft Decisions Paper. The Commission consulted on whether this amended

<sup>126</sup> supra n 6, section 53P(6).

<sup>127</sup> Commerce Commission, *Regulation of Electricity Lines Businesses, Targeted Control Regime, Threshold Decisions (Regulatory Period Beginning 2004)*, 1 April 2004, p. 41.

<sup>128</sup> The traditional TFP based formula used to set the X in CPI-X productivity-based regulation contains a third term,  $\Delta M$ , which is a monopolistic mark-up term used to adjust for profits above or below those that would provide a normal return. Refer Lawrence D. (2003), *Regulation of Electricity Lines Business Performance – 1996-2003*, Report prepared by Meyrick and Associates for the Commerce Commission, 19 December 2003. This term has not been utilised in setting the X-factor as profitability will be addressed using starting price adjustments, see paragraph 5.13.

<sup>129</sup> Economic Insights (2009a), *Asset valuation and productivity-based regulation taking account of sunk costs and financial capital maintenance*, 11 June 2009; and Economic Insights (2009b), *The theory of network regulation in the presence of sunk costs*, 8 June 2009.

<sup>130</sup> These dates represent the time-period for which sufficient, reliable data exists. As long a period as possible was considered to reflect the long run provision in the Act.

<sup>131</sup> Economic Insights, supra n 120.

- TFP approach was appropriate to assess the long-run productivity improvement rate achieved by EDBs.
- 5.11 Submissions received during the consultation process supported the use of TFP analysis, with some preferring in particular the B-factor approach, to inform the setting of the X-factor.<sup>132</sup> Submissions stated that they accepted the use of TFP as it is consistent with incentive based regulation.<sup>133</sup> A further submitter considered a B-factor type approach to be consistent with the intent of the DPP to provide a low cost regulatory option.<sup>134</sup> In order to assess the impact of the proposed TFP refinements, the Commission requested that Economic Insights undertake sensitivity analysis by also using the B-factor approach. The results of Economic Insights analysis, including this sensitivity analysis, are discussed in paragraphs 5.16-5.25. ENA commissioned PEG to prepare a report on New Zealand EDB productivity using a variant of the B-factor approach,<sup>135</sup> the results of which are discussed in paragraphs 5.26-5.31.
- 5.12 While supporting the use of TFP, a number of submissions expressed concern with the proposed refinements presented by Economic Insights.<sup>136</sup> A number of submitters were of the view that Economic Insights' basis for the proposed refinements lacked transparency. ENA commissioned PEG to provide a critique of Economic Insights' proposed TFP approach.<sup>137</sup> The Commission notes that both PwC (submitting for Powerco)<sup>138</sup> and PEG critiqued detailed aspects of Economic Insights' (2009b), and it acknowledges the input provided by these parties.
- 5.13 The Commission considers that the release of the Economic Insights' (2009c) report has assisted interested parties to understand how the revised TFP approach can be implemented in practice. Although the amended TFP X-factor formula requires a number of assumptions, such as appropriate input and output specifications and weights, the use of such assumptions is not avoided by using the B-factor formula. As the amended TFP analysis has been implemented without the profit term (given that profitability levels are to be addressed through starting price adjustments), it comprises similar differential terms to the B-factor formula (i.e., Formula 1). Furthermore, the amended approach is no more data intensive than that used in deriving the B-factor. The incorporation of the input price differential term (discussed in paragraphs 5.21-5.24) within the TFP formula addresses inflationary pressure faced by suppliers, as allowed by section 53P(7).<sup>139</sup>

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<sup>132</sup> Vector, supra n 28, paragraph 8(b); and Aurora, supra n 28, p. 15.

<sup>133</sup> PwC, supra n 33, p. 28.

<sup>134</sup> AECT, supra n 33, p. 12.

<sup>135</sup> PEG, supra n 121.

<sup>136</sup> Orion, supra n 36, paragraph 7.3; PwC, supra n 33, paragraph 5(xv); and Unison, supra n 28, paragraph 3.2(d).

<sup>137</sup> Pacific Economics Group, *Reset of Default Price Path for Electricity Distribution Businesses: Submission to the Commerce Commission*, Report for ENA, 7 August 2009.

<sup>138</sup> PwC's report to Powerco, *Comments on the Reports by Economic Insights about the use of TFP in Price Cap*, 3 August 2009.

<sup>139</sup> The use of a CPI-X mechanism will also reflect inflationary pressures faced by Non-exempt EDBs.

- 5.14 In light of submissions and the issues discussed above, the Commission considers it appropriate to measure EDB productivity using TFP analysis. The analysis used reflects the long-run average productivity improvement rate achieved by EDBs. The results of this analysis are set out in the following section.

## 5.4 Results of TFP Analyses

- 5.15 As discussed above, the Commission has based its decision on the X-factor on the long-run average productivity of New Zealand's electricity distribution sector. The Commission has considered results from the TFP analysis undertaken by Economic Insights (set out in paragraphs 5.16-5.25) and PEG (set out in paragraphs 5.26-5.31).

### *Economic Insights' Analysis*

- 5.16 When undertaking its analysis, Economic Insights took into account its proposed refinements to the TFP methodology.<sup>140</sup> Specifically these included seeking to reflect sunk costs and ensure consistency with FCM<sup>141</sup> as well as using a transformer kVA-km system capacity output measure. The analysis also used capital amortisation costs based on an IHC asset value series using the 2004 ODV valuations as the base point.<sup>142</sup>
- 5.17 In respect of the latter refinement, Economic Insights undertook its analysis using both a post-tax amortisation charge series and a pre-tax amortisation charge series (based on the corporate tax rate) to form the annual user cost of capital. The pre-tax version, based on the effective tax rate, is the most relevant for determining prices since taxes are to be paid out of gross revenue received. However, the effective tax rate for the industry is not available. Therefore, the pre-tax series (based on the corporate tax rate) and the post-tax series (which assumes an effective tax rate of zero) provide an upper and lower bound, respectively, to an appropriate series.
- 5.18 Using the amended method Economic Insights found that over the 13 year period 1996-2008 the industry TFP grew at a rate of between 1.04% and 1.14% per annum (using the pre-tax and post-tax amortisation charge series, respectively).<sup>143</sup> Economic Insights undertook sensitivity analysis to demonstrate the impact of the refinements to the TFP methodology, and calculated industry TFP using the B-factor formula. Under this scenario, industry TFP was 1.04% per annum.<sup>144</sup>
- 5.19 Economic Insights notes that the Statistics New Zealand's official multifactor productivity series for the market sector of the New Zealand economy shows a trend

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<sup>140</sup> Discussed in Commerce Commission, supra n 14, paragraph 6.65.

<sup>141</sup> Financial capital maintenance.

<sup>142</sup> The data required to roll forward the 2004 ODVs using IHC was sourced from the 2008 EDB information disclosure data. For the present analysis, the data required to roll back the asset values before the 2004 ODVs on an IHC basis are not available. Therefore, for the period 1996-2003, an estimated IHC series has been formed using information derived from the earlier ODV series (Economic Insights, supra n 120, p. 17). Disaggregated asset value data for each capital component first became available in the 2004 ODV, and was used by Economic Insights in determining the weights given to the three capital components. This disaggregated information was not available when the B-factor was set.

<sup>143</sup> Economic Insights, supra n 120, pp. 27-28.

<sup>144</sup> *ibid.*

growth rate of 1.08% per annum for the 13 year period 1996-2008. As shown below, this means that the productivity differential for the TFP formulation, including all the refinements, is between -0.05% and 0.06% (using the pre-tax and post-tax amortisation charge series).<sup>145</sup>

**Table 2 Economic Insights TFP Results**

|                            | Industry TFP Growth | Economy TFP Growth | TFP Growth Differential |
|----------------------------|---------------------|--------------------|-------------------------|
| <b>All EDBs (pre-tax)</b>  | 1.04%               | 1.08%              | -0.05%                  |
| <b>All EDBs (post-tax)</b> | 1.14%               | 1.08%              | 0.06%                   |
| <b>B-factor</b>            | 1.04%               | 1.08%              | -0.05%                  |

*Economic Insights Recommendation on the Productivity Growth Differential*

5.20 Economic Insights considers that, in light of its analysis and the available information, a conservative course of action would be to set the productivity growth differential term to zero.<sup>146</sup>

*Input Price Differential*

5.21 Under the amended TFP approach, the capital component of the input price trend growth for the industry is derived from the amortisation charge series used in calculating TFP growth. Using this approach, Economic Insights found that industry input prices have increased by between 1.74% and 1.91% per annum over the 13 year analysis period (for the pre-tax and post-tax amortisation charge series, respectively). Given that the economy-wide input price trend growth over the same period is 2.06% per annum, this suggests an input price differential of between -0.16% and -0.32%.<sup>147</sup>

*Recommendation on the Input Price Differential and Overall X-factor*

5.22 Economic Insights noted that the recent global economic slowdown means that both the industry and industry-wide input price growth rates are likely to be lower going forward. The “bubble” in commodity prices is likely to have contributed to the higher growth rate in capital input prices in recent years (in particular 2004-2008). However, the recent economic slowdown is likely to have substantially lessened and/or reversed commodity price growth rates. Economic Insights is therefore of the view that the longer 1996-2008 period is the appropriate period over which to calculate the input price growth differential to apply during the Reset DPP.<sup>148</sup>

5.23 In deriving the B-factor for the Thresholds, the Commission set the input price differential between the distribution industry and the economy to zero, given the conflicting information from various official capital goods price indices, particularly

<sup>145</sup> *ibid*, p. 29.

<sup>146</sup> *ibid*, pp. 39-40.

<sup>147</sup> *ibid*, p. 40.

<sup>148</sup> *ibid*, p. 41.

those for power lines and transmission lines.<sup>149</sup> Economic Insights notes that conflicting information, including volatility, is similarly apparent in these indices for recent years.<sup>150</sup>

- 5.24 Given that the input price differential term is subtracted from the TFP growth differential term, the negative input price differential—using the amortisation charge approach—would increase the X-factor. Economic Insights notes, however, that a conservative course of action in favour of Non-exempt EDBs would be to set the input price differential term to zero, given its relatively small magnitude over the analysis period.<sup>151</sup>

#### *Economic Insights’ Overall Recommendation*

- 5.25 Economic Insights’ recommended results, as derived and within the range formed by the pre-tax and post-tax amortisation charge series, are shown in Table 3 below. As Economic Insights recommends setting both the TFP growth differential term and the input price differential term to zero, its analysis, in aggregate, implies that the X-factor should be set to zero.<sup>152</sup>

**Table 3 Summary of Economic Insights’ Recommendations**

|                                 | Derived Pre-tax | Derived Post-tax | Recommended |
|---------------------------------|-----------------|------------------|-------------|
| <b>TFP Growth Differential</b>  | -0.05%          | 0.06%            | 0%          |
| <b>Input Price Differential</b> | -0.32%          | -0.16%           | 0%          |
| <b>X-Factor</b>                 | 0.27%           | 0.21%            | 0%          |

#### *Pacific Economics Group’s Analysis*

- 5.26 As noted above, ENA commissioned PEG to conduct TFP analysis on EDB productivity performance.<sup>153</sup> In its report, PEG explained that it had two complementary goals. The first was to “set objective bounds on a reasonable range for the X factor, where the bounds were based directly on the results of rigorous empirical research.” The second was to assess “the impact of recent industry and broader economic trends which should inform the Commission’s thinking and appropriate exercise of regulatory discretion in choosing a particular X factor from within the X factor range”.<sup>154</sup> Submissions requested that the Commission consider the PEG analysis and findings.<sup>155</sup>

<sup>149</sup> Commerce Commission, supra n 127, p. 41.

<sup>150</sup> *ibid*, p. 34.

<sup>151</sup> *ibid*.

<sup>152</sup> *ibid*, p. 42.

<sup>153</sup> PEG, supra n 121.

<sup>154</sup> PEG, supra n 121, p. 2.

<sup>155</sup> PwC, supra n 33, paragraph 5; and Unison, supra n 28, pp. 24-25.

- 5.27 Eight specific options for the X-factor are presented by PEG in its paper.<sup>156</sup> The Commission notes that PEG subjected its quantitative analysis to a qualitative “plausibility” assessment, in order to inform its recommendations on a reasonable X-factor range. PEG concluded that of the eight options presented in its paper, three options were acceptable for use as the X-factor, as it considered the other options to provide implausible results. Table 4 below presents PEG’s three “plausible” options.

**Table 4 PEG’s X-Factor Options<sup>157</sup>**

| Option | TFP Industry | TFP Economy | TFP Differential | Input Price Differential | X-Factor |
|--------|--------------|-------------|------------------|--------------------------|----------|
| i      | 1.21%        | 1.09%       | 0.12%            | 0.07%                    | 0.19%    |
| ii     | 1.21%        | 1.09%       | 0.12%            | 0%                       | 0.12%    |
| iii    | -0.08%       | 0.55%       | -0.63%           | 0%                       | -0.63%   |

- 5.28 PEG’s two alternative industry TFP growth results arise from the use of two different analysis periods. The higher TFP growth rate of 1.21% per annum relates to a 1999-2008 period, whereas the lower TFP growth rate of -0.08% per annum relates to a shorter period of 2001-2008.
- 5.29 Like Economic Insights, most of the options presented by PEG use Statistics New Zealand’s official multi-factor productivity series for the market sector of the economy, which shows a trend growth rate of circa 1.1% over 1999-2008. PEG noted that this value is essentially the same as that used in setting the B-factor for the Thresholds. PEG, however, also suggested an alternative approach for assessing economy-wide productivity. This uses the multi-factor productivity series from the peak of one business cycle to the peak of another. PEG stated that the latest peak-to-peak TFP trend for the economy is likely to be for the period 2000-2008, over which New Zealand’s multi-factor productivity grew on average by only 0.55%.<sup>158</sup>
- 5.30 All of PEG’s “plausible” options involve an input price differential of close to zero, or zero. In fact, PEG stated that “we do believe that a reasonable value for the input price differential is zero. This is equivalent to the value that was approved in the previous Thresholds”.<sup>159</sup>

#### *PEG’s Overall Recommendations*

- 5.31 Overall, PEG’s plausible options above provide a range for the X-factor consisting of an upper bound of 0.19% and a lower bound of -0.63%. PEG is of the view that since 2005 industry inputs have been growing more rapidly than outputs because output growth has generally slowed while the pace of capital investment has accelerated. Consequently, PEG concluded that, if these trends are expected to continue, it is

<sup>156</sup> *ibid*, p. 33.

<sup>157</sup> *ibid*, p. 37.

<sup>158</sup> *ibid*, pp. 4-5.

<sup>159</sup> *ibid*, p. 32.

appropriate for the X-factor to be set towards the lower end of its recommended range.<sup>160</sup>

### ***The Commission's View on Productivity Results***

- 5.32 The analyses by Economic Insights and PEG provide two main results, which together imply an overall X-factor. The Commission's views on these results (i.e., the input price differential and the productivity improvement rate) are set out in this section.

#### *Input Price Differential*

- 5.33 Incorporating the input price differential into the Commission's decision is consistent with seeking to take account of the impact of inflation on Non-exempt EDBs.<sup>161</sup> In deriving the B-factor for the Thresholds, the Commission set the input price differential between the distribution industry and the economy to zero.<sup>162</sup> Despite using different approaches to estimating the input price differential, Economic Insights and PEG both consider that it would not be unreasonable to set the input price differential to zero. The Commission agrees with this conclusion and has reflected this view in its decision on the overall X-factor.

#### *Productivity Improvement Rate*

- 5.34 The second result from the productivity analyses undertaken by Economic Insights and PEG is the long-run average productivity improvement rate achieved by New Zealand EDBs. Acknowledging submissions which expressed a preference for the B-factor approach, the Commission notes that Economic Insights' results (see Table 3) are not particularly sensitive to the use of the amended TFP formula when compared to the B-factor formula.<sup>163</sup> The Commission notes that, despite using quite different approaches, Economic Insights' and PEG's findings on this rate are not substantially dissimilar.<sup>164</sup> PEG's overall recommendation, which is to choose an X-factor from the lower end of the range, is to a significant extent based on trends evident since 2005. The Commission considers, however, that given the reference in section 53P(6) to the *long-run* average productivity improvement rate, it is appropriate to place greater weight on results that cover a longer period. The industry TFP result for PEG's longest analysis period of 1999-2008 is circa 1.2% per annum, whereas Economic Insights estimates the TFP growth from 1996-2008 to be between 1% and 1.1% per annum.
- 5.35 Both Economic Insights and PEG consider New Zealand's economy-wide TFP growth to have been circa 1.1% per annum. Combined with the industry-wide TFP growth estimates for New Zealand EDBs, this suggests an industry productivity growth differential of around 0%. Submissions received on the Commission's draft decisions

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<sup>160</sup> *ibid*, p. 36.

<sup>161</sup> *supra* n 6, section 53P(7).

<sup>162</sup> *supra* n 127, paragraph 240.

<sup>163</sup> A contributing factor to this outcome is that the simple proxy of 12.5% of ODV provides a similar user cost of capital series to that derived using the pre-tax amortisation charge (Economic Insights, *supra* n 120, pp. 27-28).

<sup>164</sup> The Commission notes that while the results of the two studies are similar in this instance, they may produce different results in other circumstances.

were, in general, supportive of the overall approach taken and the conclusion that 0% was appropriate. Submissions acknowledged the similarity of the results from both Economic Insights and PEG, and considered the range of those results to be reasonable.<sup>165</sup>

- 5.36 The Commission considers that, based on the available analysis and evidence, it is reasonable to conclude that the long-run productivity improvement rate achieved by EDBs relative to the economy (i.e., the TFP growth differential) has been around 0% per annum on average. Similarly, there is little evidence to suggest that the input price differential has been materially different from 0% per annum. Considering both these results together, the productivity analysis implies an X-factor of 0% per annum.

## 5.5 Additional Considerations

- 5.37 As discussed above, the Commission considered it appropriate to reflect on the results of productivity analysis in light of other factors. The key factors are discussed in this section.

### *Context of the Reset DPP*

- 5.38 The Commission notes that its decision on the X-factor affects *future* prices and incentives. By contrast, the productivity analysis used in calculating the results discussed above reflect a *past* analysis period. Among other things, that analysis period has included:

- sector reforms;<sup>166</sup>
- changes in the way EDB data has been disclosed;
- merger and acquisition activity;
- significant increases in expenditure in recent years by some EDBs (which may reflect a ‘catch-up’ from past years);
- a commodity price bubble; and
- most recently, a major contraction of economic activity.

- 5.39 Historic-based productivity measures use data that reflect past economic conditions. Such data may not reflect future economic conditions, including those experienced during the Regulatory Period. In particular, the current economic climate is worse than that experienced in the years for which productivity data is readily available (i.e., 1996 to 2008). A number of submissions suggested that the current economic climate makes it difficult to predict the electricity sector’s performance relative to the economy as a whole, and that the Commission should adopt a cautious approach when considering industry-wide productivity expectations.<sup>167</sup> A further submitter suggested that the

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<sup>165</sup> Vector, supra n 72, p. 9; PwC supra n 52, paragraph 20; and Powerco, supra n 52, paragraph 30.

<sup>166</sup> Potentially leading to higher past productivity relative to future productivity.

<sup>167</sup> Orion supra n 36, p. 23; PwC, supra n 33, p. 27; Unison, supra 28, p. 23; and Wellington Electricity, supra n 40, p. 8.

- current economic climate needs to be taken into account in measuring total factor productivity and translating this to the X-factor.<sup>168</sup>
- 5.40 The Commission considers that changes in the economic climate will only affect the X-factor to the extent that such changes have different effects on TFP improvements in the EDB sector and the economy as a whole, respectively. In the absence of evidence that such differentiated effects are present, additional specific adjustments have not been used to account for the recent deterioration in the economic climate. However, the Commission considers that factors such as volatile economic conditions act as a reminder that in setting an X-factor, based on results from an analytical technique such as TFP, other considerations may also need to be taken into account.
- 5.41 In addition, the common X-factor is the least business-specific element of a DPP. As such, the X-factor may be unable to address concerns that are better reflected through the more business-specific aspects of a DPP, such as starting price adjustments or quality standards, or may be more appropriately dealt with as part of a CPP.
- 5.42 The Commission considers that under the Reset DPP, efficiency incentives for Non-exempt EDBs will also be provided by starting price adjustments and quality standards. The Commission acknowledges the advocacy of Non-exempt EDBs for a cautious approach to setting the X-factor given its generic nature,<sup>169</sup> and notes that starting prices and quality standards potentially provide for more business-specific considerations. Further, the provision that Non-exempt EDBs can propose a CPP that better meets their particular circumstances acts as a ‘safety net’ in the event that the common X-factor, in combination with the other elements of the DPP, does not meet the particular circumstances of a Non-exempt EDB.
- 5.43 The Commission considers that the potential impact of historic factors, including those set out in paragraph 5.38, on past productivity reduces the extent to which it should rely solely on results from productivity analysis. Mindful of this, the Commission considered it appropriate to adopt a somewhat cautious approach to setting the X-factor. This is reflected in its conclusion that the productivity growth and the input price differential analyses, when considered together, imply an X-factor of 0% per annum.

### ***International Productivity Data***

- 5.44 The Act provides for the potential use of international productivity data when setting the X-factor.<sup>170</sup> The Commission considered whether it may be appropriate to use such data to help assess whether the findings of productivity analysis were reasonable. The Commission sought potential sources of data that would provide a ‘sanity-check’ of the

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<sup>168</sup> Powerco, supra n 28, p. 17.

<sup>169</sup> For example, Vector urged the Commission to adopt a cautious approach when setting X-factors. It stated that the consequences of setting an X-factor too low would be a delayed sharing of efficiency gains with consumers until the next reset, and setting the X-factor too high would create disincentives for investment. Vector, supra n 28, paragraph 8.

<sup>170</sup> supra n 6, section 53P(6).

New Zealand based productivity analysis. A number of submissions endorsed the Commission's view that international data could be used as a sense check.<sup>171</sup>

- 5.45 The Commission requested that the Economic Insights analysis include a high-level comparison of international TFP growth rates with those derived for New Zealand EDBs. The report presents comparable results for electricity distributors in Victoria, Australia, and for investor-owned distributors in the United States.<sup>172</sup> Economic Insights' assessment of the TFP growth rate for Victorian distributors over the period 1996-2007 is 1.2% per annum. This result is close to the equivalent results for New Zealand.<sup>173</sup> Economic Insights also reported that the Victorian TFP index using PEG's specification shows a trend growth of 1.5% per annum. In addition, PEG has presented a TFP index for investor-owned distributors in the United States, which shows a trend growth of 1.0% per annum for the period 1996-2006.<sup>174</sup>
- 5.46 Given the availability of sufficient New Zealand data to undertake TFP analysis, the Commission considered it unnecessary to place any direct weight on the international productivity data. Nevertheless, the Commission considers that it is reassuring that the overseas results examined are of the same order as the results for New Zealand.

## 5.6 Decision on the Rate of Change

- 5.47 Having considered TFP analysis in light of the considerations above and taking into account views expressed in submissions, the Commission's decision is to set the Reset DPP X-factor to 0% per annum. The Commission has based its decision on the long-run average productivity improvement rates as derived by the TFP analysis of both Economics Insights and PEG. The Commission notes that the X-factor of 0% lies within the X-factor ranges recommended by both Economic Insights and PEG. The choice of the X-factor has been made in light of the Part 4 Purpose and has been informed by additional relevant considerations.
- 5.48 The Commission signalled this decision in the Draft Decisions Paper and sought the views of interested parties. Submissions received on the Commission's draft decisions were, in general, supportive of the Commission's decision that 0% was appropriate. Submissions noted that the Commission had considered a wide variety of matters in determining the X-factor and agreed that the results of the TFP analysis should not be used in isolation to set an X-factor. Further to this, submissions commented that the decision to set the X-factor at 0% was pragmatic given the range of domestic and international evidence.<sup>175</sup>

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<sup>171</sup> Vector, supra n 28, paragraph 108; Orion, supra n 36, paragraph 40; and MEUG, supra n 29, paragraph 17.

<sup>172</sup> Economic Insights, supra n 120, pp. 32-33.

<sup>173</sup> *ibid*, p. 33.

<sup>174</sup> *ibid*.

<sup>175</sup> AECT, *Submission to Commerce Commission on the 2010 Reset of the Default Price-Quality Path*, 12 October 2009, paragraph 4; Aurora, supra n 85, paragraph 1.1(4); Eastland, supra n 75, p. 3; ENA, supra n 52, paragraph 48; Orion, supra n 52, p. 18; Powerco, supra n 52, paragraph 30; PwC, supra n 52, paragraph 20; and Vector, supra n 72, paragraph 31.

- 5.49 As the X-factor reflects the difference between industry-wide and economy-wide productivity, an X-factor of 0% does not imply a lack of expected productivity improvements. Rather, given an input price differential of zero, an X-factor of 0% means that the Non-exempt EDBs are expected to improve their productivity performance by at least the same rate as the economy as a whole. The Commission considers that, once appropriate starting price adjustments are made, it is not unreasonable for Non-exempt EDBs to keep their prices constant in real terms over the Regulatory Period.
- 5.50 Setting the DPP in this manner recognises that Non-exempt EDBs will face inflationary and other cost pressures in respect of their incremental capital and operating expenditures during the coming regulatory period. It also implies that Non-exempt EDBs are not expected to improve productivity at a greater rate than the rest of the economy, during a period of potentially lower growth. Nonetheless, the Price Path will still place incentives on Non-exempt EDBs to improve their efficiencies in real terms over that period, consistent with section 52A(1)(a) and (b). This is because Non-exempt EDBs will get to keep the benefits of efficiencies greater than those implied by their Price Path until it is reset. Moreover, given that the Price Path limits the level of revenue that a Non-exempt EDB can earn, it will also limit excessive profits, consistent with section 52A(1)(d).

*Rate of Change under the Reset DPP*

- 5.51 The X-factor is specified in Schedule 2 of the Initial Reset Determination.

## CHAPTER 6: QUALITY STANDARDS

6.1 This chapter sets out the Commission’s decision on the quality standards that will apply to Non-exempt EDBs under the Reset DPP. In setting quality standards for the Reset DPP, the Commission has sought to promote outcomes consistent with those produced in competitive markets such that relevant objectives set out in section 52A(1)(a)-(d) are achieved. This chapter identifies how the Commission’s decisions are consistent with these objectives.

### 6.1 Introduction

6.2 The Act provides that a DPP must specify the quality standards to be met by suppliers and that these may be prescribed in any way the Commission considers appropriate.<sup>176</sup> The setting and assessment of quality standards that will apply to Non-exempt EDBs is set out below.

6.3 The following issues relating to quality standards are discussed in this chapter:

- *Overall Approach to Quality Standards*: the framework used by the Commission to set quality standards;
- *Quality Standards under the Reset DPP*: the indicators used to assess quality performance and the dataset to be used;
- *Accounting for Extreme Events*: the identification of major event days and the substitution of appropriate values into the datasets;
- *Accounting for Sampling Variability*: accounting for statistical variation in the dataset and the use of dead-bands; and
- *Assessment of Compliance*: assessment process used to determine whether Non-exempt EDBs have complied with the quality standards.

### 6.2 Overall Approach to Quality Standards

6.4 The Act requires the Commission to specify quality standards for the supply of regulated services under a DPP.<sup>177</sup> This is consistent with overseas regulatory approaches in which regulators seek to ensure that reductions in expenditure by electricity distributors are not achieved to the detriment of quality standards.<sup>178</sup>

6.5 Quality performance under the Thresholds was based on average historic performance and was designed to ensure that no material deterioration in reliability occurred. A review of industry performance against the quality threshold for the period 2003-2008 showed a small-scale aggregate improvement in reliability.<sup>179</sup> This implies that

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<sup>176</sup> supra n 6, sections 53M(1)(b) and (3).

<sup>177</sup> supra n 6, section 53M(1)(b).

<sup>178</sup> For example, Essential Services Commission, *Final Decision, Electricity Distribution Price Review 2006-10, Final Decision Volume 1, Statement of Purpose and Reasons*, 19 October 2005, p. 23.

<sup>179</sup> Parsons Brinckerhoff Associates (“PBA”), *Resetting the 2009 Quality Thresholds: Investigation Report, Prepared for Commerce Commission*, 19 December 2007, p. 30.

- compliance with a standard seeking to maintain historic performance can achieve an outcome of no material deterioration in performance and potentially a gradual improvement (as observed during 2003-2008). Consistent with the approach to quality used under the Thresholds, the Commission consulted on whether it remained appropriate to set quality standards that sought to ensure an outcome of no material deterioration.
- 6.6 Under the Thresholds, many reliability breaches occurred as a result of events and circumstances that were subsequently found to be beyond the direct control of EDBs. The Commission has sought to mitigate the occurrence of such breaches when specifying quality standards under the Reset DPP, in order to provide greater regulatory certainty, as discussed in paragraph 2.22. In light of this, the Commission considered it appropriate to incorporate mechanisms into the Reset DPP quality standards to mitigate the occurrence of breaches that are deemed to be reasonably beyond the control of Non-exempt EDBs.
- 6.7 The majority of submissions received during the consultation process supported the Commission's proposal to implement quality standards that promote an outcome of no material deterioration.<sup>180</sup> Submissions commented that the principle of no material deterioration is an appropriate standard on which to base quality standards, and is consistent with the Price Path specification.<sup>181</sup> Submissions also supported the Commission's intention to mitigate the occurrence of 'false breaches'.<sup>182</sup>
- 6.8 In addition, submissions suggested that the implementation of quality standards be based on a robust statistical framework.<sup>183</sup> ENA commissioned Statistics Research Associates Limited ("SRA") to assess the Commission's proposals and make recommendations based on its analysis of EDB reliability data. This work was presented in two submissions: one on the Discussion Paper<sup>184</sup> (referred to in this paper as "SRA 2009a") and one on the Draft Decisions Paper<sup>185</sup> (referred to in this paper as "SRA 2009b"). The Commission has considered both of these reports and their recommendations when specifying the Reset DPP quality standards.
- 6.9 The Commission has sought to develop quality standards that will promote an outcome of no material deterioration in Non-exempt EDB service quality. In the absence of better information, the Commission considers that seeking to ensure no material deterioration over time is likely to provide a reasonable reflection of aggregate

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<sup>180</sup> PwC, supra n 33, paragraph 5(xviii); Vector, supra n 28, paragraph 3(d); Powerco, supra n 28, paragraph 23; Orion, supra n 36, p. 38; and ENA, supra n 28, p. 15.

<sup>181</sup> PwC, supra n 33, paragraph 5(xviii).

<sup>182</sup> Eastland, supra n 79, p. 8; ENA, supra n 79, p. 11; Orion, supra n 27, p. 6; Powerco, supra n 27, p. 4; PwC, supra n 79, p. 8; Vector, supra n 48, p. 7; and Wellington Electricity, supra n 67, p. 3.

<sup>183</sup> For example, Vector, supra n 72, paragraph 37.

<sup>184</sup> Statistics Research Associates Limited (SRA), *Comments on Chapter 8 of the Commerce Commission Discussion Paper, Reset of Default Price-Quality Path for Electricity Distribution Businesses (19 June 2009)*, 17 July 2009 and revised 30 July 2009.

<sup>185</sup> Statistics Research Associates Limited (SRA), *Comments on Chapter 7 and Appendix C of the Commerce Commission Draft Decisions Paper*, 12 October 2009.

consumer preference, consistent with section 52A(1)(b). Despite the aggregate nature of the Reset DPP quality standards, the Commission considers that Non-exempt EDBs should not lose sight of the need to address, where practicable, the demands of individuals, groups or classes of consumers.

- 6.10 The Commission has sought to develop simple, cost-effective and transparent quality standards that can be consistently applied to all Non-exempt EDBs. By mitigating, to the extent practicable, breaches that are deemed to be reasonably beyond the control of a Non-exempt EDB, the quality standards will contribute to the promotion of regulatory certainty. Reflecting the views of submissions and to further promote certainty, the Commission has sought to incorporate a robust statistical basis for quality standards.
- 6.11 The Reset DPP quality standards include measures to take account of data variability that contributed to the large number of breaches under the Thresholds. These include:
- *Normalisation*: to account for extreme events (paragraphs 6.21-6.34);
  - *Dead-bands*: to account for effects of sampling variability in reliability data (paragraphs 6.35-6.41); and
  - *Multi-year Assessment*: to reflect performance over time and to further mitigate the impact of data variability (paragraphs 6.42-6.48).

### 6.3 Quality Standards under the Reset DPP

- 6.12 This section discusses the form of quality data and the reference period to be used in setting the Reset DPP quality standards.

#### *Definition of Quality*

- 6.13 There are various facets of electricity supply quality. These include responsiveness to consumers and reliability of supply measures (such as continuity of supply, voltage stability, waveform and frequency). The Commission consulted on whether quality standards under the Reset DPP should be based on reliability of supply and specifically continuity of supply, as quantified by SAIDI and SAIFI reliability indices.<sup>186</sup>
- 6.14 Submissions received during the consultation process supported the Commission's view that reliability provides an appropriate measure of quality for the purposes of regulation under the Reset DPP.<sup>187</sup> Submissions stated that reliability is the component of quality of service that is generally most important to consumers.<sup>188</sup> Many of the submissions also voiced their support for the use of SAIDI and SAIFI indices, while no submissions opposed the use of these indices.<sup>189</sup> One submitter commented that it supported the

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<sup>186</sup> System Average Interruption Duration Index (SAIDI) measures interruption duration and is calculated as the average outage duration for each customer in units of time, usually minutes per year. System Average Interruption Frequency Index (SAIFI) measures interruption frequency and is calculated as the average number of interruptions that a customer would experience over a year.

<sup>187</sup> Eastland, supra n 29, p. 24; Orion, supra n 36, paragraph 43; Powerco, supra n 28, paragraph 55; PwC, supra n 33, p. 8; Vector, supra n 28, p. 7; and Wellington Electricity, supra n 40, p. 3.

<sup>188</sup> For example, Vector, supra n 48, p. 7.

<sup>189</sup> Orion, supra n 36, paragraph 43; Eastland, supra n 29, p. 24; and Vector, supra n 28, paragraph 137.

focus on reliability as an indicator of quality, stating that SAIDI and SAIFI indices are internationally accepted measures of reliability.<sup>190</sup>

- 6.15 The Commission has specified that supply reliability, specifically continuity of supply, be the basis for the Reset DPP quality standards. Reliability is to be measured using two internationally accepted indices, SAIDI and SAIFI.<sup>191</sup> SAIDI and SAIFI measures were used to regulate quality under the Thresholds. As such, Non-exempt EDBs already have systems in place to derive these indices and a series of historic data is available for each network. This approach is consistent with the *Cost-effectiveness Principle*. It has also been proposed that SAIDI and SAIFI indices continue to be included under information disclosure.<sup>192</sup> Furthermore, SAIDI and SAIFI indices are readily quantifiable and so provide a reasonably definitive and objective assessment of reliability performance, supporting the *Transparency Principle*.

*Definition of Quality to be used during the Reset DPP*

- 6.16 Schedule 3 of the Initial Reset Determination specifies that quality standards are to be derived using reliability performance data based on SAIDI and SAIFI.

**Reference Data**

- 6.17 In order to set quality standards seeking to ensure an outcome of no material deterioration, the Commission considers it necessary to base those standards on historic performance. The Commission considers that the use of average historic SAIDI and SAIFI data over a five year period would reflect an EDB's underlying reliability. The Commission proposed that this period should be 1 April 2004 to 31 March 2009.
- 6.18 Submissions supported the use of a five year dataset, with some expressing a preference for the 1 April 2004 to 31 March 2009 period.<sup>193</sup> Two submissions noted that the use of a fixed five year period would be consistent with the Thresholds and would use data that has been externally reviewed.<sup>194</sup>
- 6.19 The reliability data to be used under the Reset DPP is to be based on a dataset of daily SAIDI and SAIFI outage data for the period 1 April 2004 to 31 March 2009 ("Reference Dataset"). This data is to be assembled by each Non-exempt EDB. The Commission considers that five years of data will reflect a Non-exempt EDB's underlying reliability performance and supports the approach to quality standards discussed above. This data will also provide sufficient historic data to allow effective normalisation.

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<sup>190</sup> Powerco, supra n 28, paragraph 55.

<sup>191</sup> SAIDI and SAIFI indices are widely used by overseas regulators to quantify reliability, e.g., Australia, refer Essential Services Commission, supra n 178, p. 33.

<sup>192</sup> Commerce Commission, *Information Disclosure Discussion Paper*, 29 July 2009, p. 127.

<sup>193</sup> Orion, supra n 36, p. 2; Unison, supra n 28, p. 2; Eastland, supra n 29, p. 8; PwC, supra n 33, p. 9; and Vector, supra n 28, p. 27.

<sup>194</sup> Orion, supra n 36, p. 2; and PwC, supra n 33, p. 9.

### *Quality Standards Reference Data*

6.20 Quality standards under the Reset DPP are to be based on daily SAIDI and SAIFI data from the period 1 April 2004 to 31 March 2009. This is reflected in the definition of Reference Dataset in clause 4 and in Schedule 3 of the Initial Reset Determination.

## **6.4 Accounting for Extreme Events**

6.21 Analysis of reliability data is susceptible to variation resulting from extreme events and sampling variability. Without measures to account for this inherent variability, quality standards might be set at inappropriate levels and/or breaches may occur despite there being no material deterioration in underlying reliability performance. As discussed in paragraph 6.10, the Commission considers that the quality standards should seek to mitigate the potential for breaches caused by circumstances beyond the control of a Non-exempt EDB. Doing so will increase regulatory certainty, which as discussed in paragraph 2.22, is likely to promote incentives to invest. The potential for uncertainty is increased by two properties that are inherent in reliability data: the presence of extreme events and the influence of sampling variability. A process to account for variation due to extreme events is discussed in the remainder of this section, while sampling variability is discussed in the following section.

6.22 Extreme events such as severe weather can lead to SAIDI and SAIFI values being unrepresentative of the underlying service quality being provided by an EDB. The Commission suggested that it would be appropriate for quality standards to account for the impact of such events, as otherwise the assessment of reliability may not be representative of a Non-exempt EDB's underlying performance.<sup>195</sup> The Commission has previously researched how to account for the impact of extreme events when assessing reliability breaches under the Thresholds.<sup>196</sup>

6.23 Under the Thresholds, the IEEE standard 1366-2003<sup>197</sup> ("IEEE Standard") was used to identify days in which extreme events occur on a network and categorise them as Major Event Days ("MED"). The daily SAIDI and SAIFI values on a MED were replaced by the respective boundary value. This process of identifying MEDs and then adjusting the reliability data to account for the impact of MEDs is a form of "normalisation". The Commission has considered whether a normalisation process based on the IEEE Standard would be appropriate to account for extreme events under the Reset DPP.

6.24 Submissions supported the Commission's proposal that reliability data be normalised to account for extreme events.<sup>198</sup> However, submissions also suggested amendments to

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<sup>195</sup> Commerce Commission, supra n 70, 19 June 2009, p.113.

<sup>196</sup> A research report, *PBA System Reliability: Recommendations for extreme event criteria* was released 20 September, 2005. Submissions were received from Counties Power, Orion, PwC, Powerco, Transpower, Unison, Vector, and WEL Networks. A procedure to account for extreme events is set out in the Supplementary Guidelines. Refer: Commerce Commission, *Supplementary Guidelines for Investigating Breaches of the Reliability Criterion of the Quality Threshold*, 2 November 2007.

<sup>197</sup> Institute of Electrical and Electronics Engineers ("IEEE") Power Engineering Society, *Guide for Electric Power Distribution Reliability Indices, IEEE Std. 1366-2003*, 14 May 2004.

<sup>198</sup> For example, Eastland, supra n 29, p. 25; and Vector, supra n 28, paragraph 139.

the proposed normalisation process. These focussed on the three issues listed below, which are discussed in the following subsections:

- *Identifying Extreme Events*: the Commission’s proposed implementation of the IEEE Standard to identify MEDs;
- *Substitution for MEDs*: how MEDs are accounted for when normalising data; and
- *Normalisation of SAIFI Data*: the use of MEDs to normalise SAIFI values.

#### *Submissions on Identifying Extreme Events*

- 6.25 The IEEE Standard identifies MEDs by first defining a SAIDI boundary value based on the standard deviation of a dataset (based on a log-normal assumption for reliability data) and excludes days that have no events. The standard then compares the SAIDI value on each day with the calculated SAIDI boundary value. If the SAIDI value for the day exceeds the SAIDI boundary value, then the day is defined as an MED.<sup>199</sup> Extreme events are considered to be the outage events that result in an MED.
- 6.26 Submissions suggested that the Commission refine its proposed approach for identifying extreme events and recommended that the Commission seriously consider the findings of SRA 2009a.<sup>200</sup> SRA recommended that zero SAIDI days should be taken into account when calculating the SAIDI boundary value.<sup>201</sup> The Commission considers that in order to assess the significance of an event and determine the MED threshold it is more appropriate to only contemplate days in which events occur. The Commission is reassured that, as discussed in the Draft Decisions Paper,<sup>202</sup> the IEEE specifically considered the impact of zero SAIDI days against a range of different utility sizes and determined that zero SAIDI days had little impact on the calculation and should not be included when calculating boundary values.<sup>203</sup> The Commission’s approach to calculating the boundary value is consistent with the IEEE Standard.
- 6.27 SRA 2009b recommended that the Commission adopt a different statistical approach to that used in the IEEE Standard, and recommended that “an assumption that they [non-zero SAIDI or SAIFI values] follow a mixture of log-normal distributions” be used.<sup>204</sup> However, the Commission notes that SRA did not propose a mechanism or implementation approach for adopting its assumption. The Commission considers

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<sup>199</sup> Note that any interruption that spans multiple calendar days should be accrued to the day on which the interruption began. The Commission notes submissions (e.g., Wellington Electricity, supra n 53, p.7) regarding the circumstances in which a major event can span multiple days and lead to multiple interruptions, for instance there may be subsequent planned and unplanned outages following a MED. The Commission considers that the frequency of major events will tend to be consistent across both the Reference Period and Assessment Period. It also considers that the relative scale and impact of MEDs will tend to be of a similar nature in both periods. As the effects of major events will also be present in the Reference Dataset (including any planned and unplanned outages subsequent to a MED), their effect will be largely accounted for by Reliability Limits.

<sup>200</sup> For example, PwC, supra n 33, p. 38.

<sup>201</sup> SRA, supra n 184, p. 8.

<sup>202</sup> Commerce Commission, supra n 14, p. 110.

<sup>203</sup> IEEE Power Engineering Society, supra n 197, p. 9.

<sup>204</sup> SRA, supra n 185, p. 6.

that—as further analysis and data become available—the appropriateness of the IEEE Standard log-normal distribution approach could be reviewed for New Zealand EDBs. At this time, the Commission is satisfied that when identifying MEDs under the Reset DPP it should rely on the method outlined in the IEEE Standard. The Commission considers that departing from this method, e.g., by including zero SAIDI days and/or an alternative distribution assumption, may undermine the appropriateness of the overall calculation, including the use of 2.5 standard deviations as the boundary value. The Commission notes that the IEEE Standard was developed specifically to assess outage data and is considered to be effective for a range of electricity distributors.<sup>205</sup>

#### *Submissions on Substitution for MEDs*

- 6.28 A number of submissions commented on the method used to account for MEDs when normalising SAIDI and SAIFI data.<sup>206</sup> These submitted that daily MED values should not be replaced by the boundary value, and in some cases suggested the use of the average value. The Commission’s intention when normalising reliability data is to reduce the excessive impact that an extreme event may have on the underlying data. However, it is not the Commission’s intention to exclude MEDs from consideration. The purpose of the IEEE Standard is “to allow major events to be studied separately from daily operation, and in the process, to better reveal trends on daily operation that would be hidden by the large statistical effect of major events”.<sup>207</sup> The IEEE did not intend that extreme events would be excluded and not be considered by utilities and regulators.
- 6.29 The Commission notes the proposal from SRA to substitute zero values for MED data and to then carefully scrutinise, monitor and assess MEDs.<sup>208</sup> The Commission agrees that this approach would fully reflect the IEEE Standard. However, it considers that such detailed analysis of MEDs would be inconsistent with the *Cost-effectiveness Principle*. The Commission considers that scrutiny of extreme events is likely to be a relatively complex and costly exercise, thus a mechanism for undertaking detailed analysis of such events is unlikely to be appropriate under a DPP. The Commission recognises that these events should be taken into account in some manner and considers that this can be best achieved through boundary substitution. The Commission has retained its draft decision and has included boundary substitution as part of the quality standards.
- 6.30 The Commission notes that the extent to which boundary substitution will have a negative impact on a Non-exempt EDB in any one year (e.g., if a relatively large number of MEDs are identified during an Assessment Period) will be tempered by the multi-year assessment scheme described in paragraphs 6.46-6.47. The Commission may also consider the effect of MED substitution when assessing breaches of the quality standards.

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<sup>205</sup> Warren, C. A. and Saint, R., IEEE Senior Members, “*IEEE Reliability Indices Standards*”, Jan/Feb 2005, p. 17.

<sup>206</sup> PwC, supra n 33, p. 37; Vector, supra n 28, paragraph 141; and SRA, supra n 184, pp. 9 and 11.

<sup>207</sup> IEEE Power Engineering Society, supra n 197, section 4.5.

<sup>208</sup> SRA, supra n 185, p. 11.

*Submissions on Normalisation of SAIFI Data*

- 6.31 Submissions expressed concern that the identification of MEDs is based on SAIDI values and does not use SAIFI values.<sup>209</sup> The Commission notes that the IEEE Standard specifies the use of SAIDI (and not SAIFI) when identifying MEDs, as SAIDI better reflects the total cost of reliability events including utility repair costs and customer losses.<sup>210</sup> In keeping with the IEEE Standard, the Commission retains its view that SAIDI data should be used to identify MEDs.<sup>211</sup>

*Normalisation Methodology*

- 6.32 The Commission considers it appropriate that quality standards account for extreme events when setting and assessing quality standards. In the absence of such an approach, an assessment of reliability using SAIDI and SAIFI may not be representative of a Non-exempt EDB's underlying performance when supplying its customers.
- 6.33 As discussed in paragraphs 6.26-6.27, the Commission considers that in order to mitigate the impact of extreme events, it is appropriate to use the IEEE Standard to identify MEDs.<sup>212</sup> The IEEE Standard was developed for regulators and utilities and has been adopted by international regulators to identify MEDs.<sup>213</sup> The IEEE Standard specifically excludes zero SAIDI days from its analysis, and the overall approach has been approved by the American National Standards Institute as an American National Standard.<sup>214</sup> The standard has been subject to a review process in which it was tested with outage data from small utilities that ranged in size from 1,400 to 70,000 customers and had zero SAIDI days that ranged from 10 to 290 days per annum. The review process concluded that the number of zero SAIDI days has little effect on the calculation, and that by using it, a reasonable threshold value for MEDs can be determined.<sup>215</sup> The Commission considers that the use of the IEEE Standard, being a widely-used international standard, will promote the *Consistency Principle* and *Transparency Principle*.

*Normalisation Methodology under the Reset DPP*

- 6.34 Clause 9 and Schedule 3 of the Initial Reset Determination set out the steps that a Non-exempt EDB should undertake to normalise its reliability data. These steps are also included in Appendix C to this paper.

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<sup>209</sup> PwC, supra n 33, pp. 37-38; Vector, supra n 28, paragraphs 149-151; and Wellington Electricity, supra n 40, p. 26.

<sup>210</sup> IEEE Power Engineering Society, supra n 197, Annex B1.

<sup>211</sup> See discussion in Commerce Commission, supra n 15, p. 17.

<sup>212</sup> Consistent with the definition in the IEEE Standard, any interruption that spans multiple calendar days is accrued to the day in which the interruption began.

<sup>213</sup> For example, see AER, *Electricity distribution network service providers service target performance incentive scheme*, June 2008; and J. H. Eto and K. H. LaCommare, *Tracking the Reliability of the U.S. Electric Power System: An Assessment of Publicly Available Information Reported to State Public Utility Commissions*, Ernest Orlando Lawrence Berkeley National Laboratory, October 2008.

<sup>214</sup> IEEE Power Engineering Society, supra n 197, p. i.

<sup>215</sup> Warren, Cheryl A *et al*, supra n 205, p. 21.

## 6.5 Accounting for Sampling Variability

- 6.35 When measured over short periods, such as a year, reliability indices will demonstrate statistical variation around a mean (this characteristic is referred to in this paper as “sampling variability”<sup>216</sup>). Sampling variability is partly driven by external factors (e.g., damage caused by third parties) that are beyond the direct control of Non-exempt EDBs. The Commission considers that the quality standards should take account of sampling variability in reliability data. Accounting for its impact on reliability data is likely to provide a better reflection of underlying performance.
- 6.36 The Commission considered whether the mechanism should take account of sampling variability in the Reference Dataset, so quality standards better reflect the underlying reliability of the network. Specifically, it considered whether the values against which Non-exempt EDB performance is assessed (“Reliability Limits”) should include dead-bands or similar mechanisms to reduce the impact of sampling variability.
- 6.37 Submissions agreed that the quality standards should seek to take account of sampling variability, agreeing that this should be achieved by applying a dead-band around historic SAIDI and SAIFI averages.<sup>217</sup> The majority of submissions considered that the size of the dead-bands should be based on a standard deviation calculation as it is a statistically robust approach to setting a dead-band.<sup>218</sup>
- 6.38 The Commission considers that the size of the dead-band should be set in light of the overall quality standards, including the assessment process. The Commission considers that the combined effect of a dead-band with a multi-year assessment scheme will significantly mitigate the potential for “false positives”. While a dead-band could be made sufficiently wide to manage the potential for “false positives” alone, the Commission considers that a combined approach is more appropriate and can have an equivalent effect. In particular, the Commission considers that a combined approach would retain a greater degree of incentive and oversight as it retains a more stringent annual standard.
- 6.39 Reliability Limits are to be set at the upper limit of a dead-band, defined based on the standard deviation of the normalised Reference Dataset.<sup>219</sup> Taking into account the effect of the multi-year assessment scheme (see paragraphs 6.46-6.47) the Commission considers that a dead-band, one standard deviation wide, is appropriate. The Commission notes that similar dead-band approaches have been used by regulators overseas, including in the United States. For example, the Massachusetts regulator has applied a dead-band of one standard deviation on a company’s historical

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<sup>216</sup> The Commission has adopted the term “sampling variability” based on the recommendation of SRA. Refer: SRA, supra n 185, page 13.

<sup>217</sup> For example, PwC, supra n 33, p. 38; Unison, supra n 28, p. 33; Vector, supra n 28, paragraphs 143-144; and SRA, supra n 184, p. 13.

<sup>218</sup> PwC, supra n 33, p. 38; Vector, supra n 28, paragraph 144; and SRA, supra n 184, p. 14.

<sup>219</sup> The standard deviation of the normalised Reference Dataset should be calculated directly from daily rather than annualised daily data.

performance.<sup>220</sup> Dead-bands, though based on simple percentages, have also been used to set reliability targets in Italy<sup>221</sup> and Hungary.<sup>222</sup>

- 6.40 The potential for reliability performance to deteriorate—over time—towards the upper limit is mitigated by the threat of penalties being imposed following a breach. It is also doubtful that Non-exempt EDBs could predict their reliability performance with sufficient accuracy to allow them to move safely (i.e., without the risk of breach) towards the upper limit. The Commission considers that, by seeking to remain sufficiently below the Reliability Limits, Non-exempt EDBs will be incentivised to maintain previous performance levels.

#### *Accounting for Sampling Variability under the Reset DPP*

- 6.41 Schedule 3 of the Initial Reset Determination sets out the steps that a Non-exempt EDB should take to calculate and apply a dead-band when deriving its Reliability Limits. These steps are also included in Appendix C to this paper.

### **6.6 Assessment of Quality Standards**

- 6.42 As discussed in paragraph 6.9, the Commission considers that the quality standards should be set and assessed in a manner that seeks to ensure no material deterioration in Non-exempt EDB service quality over time. Maintaining service quality over time is likely to be a reasonable reflection of consumer preferences, and on that basis, be consistent with section 52A(1)(b). As such, the Commission considered whether assessment of quality standards should take place across a number of years, given that inadequate performance in a single year may not indicate an underlying trend of deteriorating performance.
- 6.43 As discussed in paragraphs 6.7-6.8, submissions approved of the Commission's general approach to defining quality standards. In relation to compliance assessment, submissions stated that the Commission should adopt a mechanism that would seek to further reduce the impact of variability and to consider performance over a number of assessment periods.<sup>223</sup> Submissions considered that multi-year assessments in combination with dead-bands would assist in mitigating the probability of false positives without requiring a wider dead-band.<sup>224</sup> Retaining a 'narrow' dead-band will better maintain performance incentives and allow a greater degree of oversight.
- 6.44 The Commission considers that a multi-year assessment scheme based on the "two out of three" approach (set out in Appendix C) is preferable to a "two in a row" approach as it sets a more appropriate performance standard over the Regulatory Period. As an

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<sup>220</sup> Massachusetts Department of Telecommunications and Energy 2001, *Investigation to Establish Guidelines for Service Quality Standards for Electric Distribution*, D.T.E. 99-84, June 29, 2001.

<sup>221</sup> V. Ajodhia, L. L. Schiavo and R. Malaman, *Quality Regulation of Electricity Distribution in Italy: An Evaluation Study*, Energy Policy 34, September 2006, pp. 1478-1486.

<sup>222</sup> E. Fumagalli, L. L. Schiavo, F. Delestre, *Service Quality Regulation in Electricity Distribution and Retail*, Springer, October 2007.

<sup>223</sup> For example, Eastland, supra n 29, p. 25; PwC, supra n 33, p. 39; and SRA, supra n 184, p. 15.

<sup>224</sup> For instance, Vector, supra n 28, paragraph 147.

example, a Non-exempt EDB that fails to meet its Reliability Limit every alternate year during a five-year Regulatory Period would satisfy the quality standards under a “two in a row” scheme, while it would fail to satisfy the quality standards twice under a “two out of three” assessment. The Commission considers that allowing Non-exempt EDBs to breach in 60% of the Assessment Periods in the Regulatory Period would not promote, nor be consistent with, a no material deterioration outcome. The Commission notes SRA’s comment on the appropriateness of a constant “false positive” rate when using a multi-year assessment.<sup>225</sup> The Commission considers that this will be largely achieved if the mechanism is retained into the next regulatory period (i.e., such a mechanism, if retained, should apply across consecutive regulatory periods). Similarly, the Commission notes the suggestion from SRA to use the annual assessment alone in the first period, however it feels that a consistent overall assessment process should be adopted through the Regulatory Period.<sup>226</sup>

- 6.45 The Commission considers that the combined effect of the dead-band approach and the “two out of three” assessment will significantly mitigate the potential for breaches resulting from data variability. The “two out of three” assessment would adequately deal with variability in performance data while retaining an appropriate degree of oversight. This approach is consistent with seeking to focus on underlying performance over time and will identify sustained, rather than transitory, deterioration.

#### *Assessment of Quality Standards*

- 6.46 Non-exempt EDBs are to calculate, using normalised annual reliability data, aggregate SAIDI and SAIFI values for the Assessment Period (“Assessed Values”) and then compare each Assessed Value with its respective Reliability Limit. If a Non-exempt EDB fails to meet its Reliability Limits in the current Assessment Period and in any one of the two previous extant Assessment Periods, then it would be in breach of its quality standards.<sup>227</sup> Under this approach a Non-exempt EDB would need to meet its Reliability Limits for no less than two consecutive years. The Commission considers that the overall approach is somewhat conservative in favour of Non-exempt EDBs as they cannot breach during the first Assessment Period.
- 6.47 In summary, a Non-exempt EDB will comply with its quality standards during a particular Assessment Period, if:
- both the Assessed Values for the Assessment Period are less than or equal to the respective Reliability Limits (i.e., it meets the Reliability Limits); or
  - the Assessed Values in the previous two extant Assessment Periods did not exceed the respective Reliability Limits.

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<sup>225</sup> SRA, supra n 185, p. 14.

<sup>226</sup> *ibid*, p. 16.

<sup>227</sup> If an Assessed Value exceeded its respective Reliability Limit in both of the previous two assessment years, then the breach would have occurred a year earlier.

*Quality Standards Assessment Process under the Reset DPP*

- 6.48 Clause 9 and Schedule 3 of the Initial Reset Determination sets out the quality standards assessment process applicable to Non-exempt EDB during the Reset DPP. This process is also set out in Appendix C to this paper.

## CHAPTER 7: MONITORING OF COMPLIANCE

7.1 This chapter sets out the information that each Non-exempt EDB is required to provide to the Commission to show compliance, or otherwise, with the Reset DPP. This chapter is for guidance purposes only. Where there is any inconsistency between the description in this chapter and the Initial Reset Determination, the determination takes precedence.

### 7.1 Introduction

7.2 The Commission has a role in monitoring the compliance of suppliers with a DPP as provided for under section 53N of the Act. Each Non-exempt EDB is required by the Initial Reset Determination to provide the Commission with a statement, with necessary supporting information, that indicates whether it has complied with the Reset DPP (“Annual Compliance Statement”).<sup>228</sup> Annual Compliance Statements are to be disclosed for each Assessment Period in the Regulatory Period. As set out in paragraph 3.19, each Non-exempt EDB must provide these to the Commission within 50 working days following the end of each Assessment Period. This chapter discusses the following matters relating to the Annual Compliance Statement:

- *Form and Content of the Annual Compliance Statement*: an outline of the structure and required information for an Annual Compliance Statement;
- *Statement of Compliance and Supporting Information*: demonstrating compliance with the Price Path and quality standards, including the information to support the statement of compliance;
- *Compliance Scenarios*: circumstances which may occur that have an impact on the information provided in an Annual Compliance Statement; and
- *Verification and Certification*: the audit and director certification requirements for an Annual Compliance Statement.

### 7.2 Form and Content of the Annual Compliance Statement

7.3 The Annual Compliance Statement must include:

- a written statement that states whether or not the Non-exempt EDB complied with the Reset DPP (i.e., its Price Path and quality standards);
- information supporting the Non-exempt EDB’s written statement that enables the Commission to further consider, if necessary, whether the Non-exempt EDB has complied with the Reset DPP, as discussed in paragraphs 7.7-7.17;
- the date at which the Annual Compliance Statement was prepared; and

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<sup>228</sup> Under section 53N of the Act, the Commission is required to issue a written notice to Non-exempt EDBs if it wishes them to provide an Annual Compliance Statement. The Commission intends to meet this requirement by attaching a cover letter to the copy of the Initial Reset Determination that it is required to provide to each Non-exempt EDB under section 52P(7)(a) of the Act.

- a certificate signed by at least one Director of the Non-exempt EDB that confirms the information provided in the Annual Compliance Statement is true and accurate (“Directors’ Certificate”), discussed in paragraph 7.46.<sup>229</sup>
- 7.4 An Annual Compliance Statement must be accompanied by a report that is prepared and signed by an Auditor (“Auditor’s Report”), as discussed in paragraphs 7.48-7.52.
- 7.5 In addition, there are a number of scenarios that can affect the information relevant to Annual Compliance Statements and the manner in which a Non-exempt EDB demonstrates compliance (e.g., the Non-exempt EDB may have been involved in a merger requiring its Price Path to be recalculated). The implications of these scenarios is discussed in paragraphs 7.19-7.43.

*Form and Content of the Annual Compliance Statement under the Reset DPP*

- 7.6 Information requirements for the Annual Compliance Statement are set out in clause 11 of the Initial Reset Determination.

### **7.3 Statement of Compliance and Supporting Information**

- 7.7 As set out in paragraph 7.3, each Annual Compliance Statement must include a written statement that states whether or not the Non-exempt EDB has complied with its Price Path and quality standards (“Statement of Compliance”). The Statement of Compliance is to be supported by relevant information.

#### ***Price Path***

- 7.8 As set out in paragraph 4.41, to comply with the Price Path in clause 8 of the Initial Reset Determination, a Non-exempt EDB’s notional revenue at any time during the Assessment Period must not exceed its allowable notional revenue for the Assessment Period.
- 7.9 The Annual Compliance Statement is to include numerical data (with units of measurement), calculations, and any other relevant information necessary to support the Statement of Compliance. Specifically, this includes the following:
- allowable notional revenue (discussed in paragraphs 4.41-4.46);
  - notional revenue (discussed in paragraphs 4.4-4.11);
  - prices (discussed in paragraphs 4.12-4.16);
  - quantities (discussed in paragraphs 4.17-4.23); and
  - the amounts and types of pass-through costs (discussed in paragraphs 4.31-4.40).
- 7.10 Compliance with the Price Path is to be demonstrated using actual values of prices, quantities and pass-through costs. The Commission, however, recognises that Non-exempt EDBs will need to estimate a portion of pass-through costs when setting prices prior to an Assessment Period. For completeness, the Commission requires that such estimates be included in the Annual Compliance Statement. Explanation for any

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<sup>229</sup> Section 53N(d) provides that the Directors’ Certificate confirm the “truth and accuracy of the information provided”.

variances should also be included, particularly where an estimate of pass-through costs contributes to a breach of the Price Path.

- 7.11 Pass-through costs include any Commerce Act levies paid for the period 1 April 2009 to 31 March 2010, apportioned equally over the Regulatory Period (see Appendix B). The Annual Compliance Statement should specify the apportioned amount of Commerce Act levies and relevant calculations.

*Compliance Information Relating to the Price Path under the Reset DPP*

- 7.12 Information requirements for the Annual Compliance Statement relating to the Price Path are set out in clause 11.1(b)(i) and (ii) of the Initial Reset Determination.

***Quality Standards***

- 7.13 As set out in paragraphs 6.46-6.47, assessment against the quality standards is a conditional two-step process that involves analysis of a Non-exempt EDB's performance in the current and two immediately preceding Assessment Periods.
- 7.14 The Non-exempt EDB must first compare its Assessed Values and Reliability Limits ("Annual Reliability Assessment") for the current Assessment Period. The Annual Reliability Assessment is not satisfied when either of the Non-exempt EDB's Assessed Values (i.e., either SAIDI or SAIFI) exceeds the respective Reliability Limit. If the Non-exempt EDB fails to satisfy the Annual Reliability Assessment, the Non-exempt EDB must take account of its Annual Reliability Assessment performance for each of the two immediately preceding extant Assessment Periods, as part of the multi-year assessment scheme. The multi-year assessment scheme is not satisfied if the Non-exempt EDB fails to satisfy the Annual Reliability Assessment in the current Assessment Period and in either one of the two previous extant Assessment Periods. Thus in order to comply with its quality standards, the Non-exempt EDB must have complied with either: (a) the Annual Reliability Assessment for the current Assessment Period; or (b) the Annual Reliability Assessments for the two immediately preceding extant Assessment Periods.
- 7.15 For the avoidance of doubt, a Non-exempt EDB cannot breach its quality standards in the first year of the Regulatory Period. However, a Non-exempt EDB will breach its quality standards if it fails to satisfy the Annual Reliability Assessment in each of the first two years of the Regulatory Period (i.e., for the Assessment Periods 1 April 2010 to 31 March 2011 and 1 April 2011 to 31 March 2012).
- 7.16 The Annual Compliance Statement must include SAIDI and SAIFI statistics for the Non-exempt EDB's network and a description of the policies and procedures that it has used for recording those statistics. Any other relevant information necessary to support its Statement of Compliance should also be included (e.g., information on an extreme event). For clarity, compliance information for quality pertaining to the first Assessment Period is required to be disclosed in the corresponding Annual Compliance Statement. Specifically, this includes the following:
- Reliability Limits (discussed in paragraph 6.36);
  - Assessed Values (discussed in paragraph 6.46); and
  - relevant calculations used to derive the Assessed Values and Reliability Limits (as set out in Appendix C).
- 7.17 To be satisfied that a Non-exempt EDB has complied with the multi-year assessment scheme, the Commission requires that the results of the two previous Annual Reliability Assessments be included in the Annual Compliance Statement. For clarity, for year two

of the Regulatory Period, where only one previous Annual Reliability Assessment has occurred, the Non-exempt EDB's Annual Compliance Statement must include the Annual Reliability Assessment results for the first Assessment Period, as well as for the second Assessment Period.

*Compliance Information Relating to the Quality Standards under the Reset DPP*

7.18 Information requirements for the Annual Compliance Statement relating to quality standards are set out in clause 11.1(b)(iv) and (v) of the Initial Reset Determination.

#### **7.4 Compliance Scenarios**

7.19 There are a number of scenarios that may affect the ability of a Non-exempt EDB to demonstrate compliance. Such scenarios will also affect the information required to support its Statement of Compliance. The scenarios accounted for in the Initial Reset Determination include:

- mergers, acquisitions and similar transactions;
- restructuring of Prices; and
- transfer of assets from Transpower to a Non-exempt EDB.

7.20 Required adjustments to the form and content of the Annual Compliance Statement resulting from these scenarios are set out below.

***Transactions – Price Path***

7.21 If a Non-exempt EDB is involved in a purchase, merger, takeover, disposal, or other similar transaction (“Transaction”), it is required to take the Transaction into account in its Annual Compliance Statement.

7.22 For the Assessment Period in which a Non-exempt EDB completes a Transaction with another Non-exempt EDB, the Non-exempt EDB must state in its Annual Compliance Statement, to the extent practicable, whether or not it and the other Non-exempt EDB involved in the Transaction complied with their respective Price Paths. For example, if *Non-exempt EDB A* acquires *Non-exempt EDB B*, then *A*'s Annual Compliance Statement should state whether or not *A* and *B* complied with their respective Price Paths. The Annual Compliance Statement should provide the type of information set out in paragraphs 7.8-7.11, to the extent practicable, to support the respective statements of compliance of the Non-exempt EDBs involved in the Transaction.

7.23 For clarity, for the Assessment Period in which a Non-exempt EDB completes a Transaction with an exempt EDB, the Non-exempt EDB is required to state whether or not it complied with the Price Path. The Annual Compliance Statement should provide the type of information set out in paragraphs 7.8-7.11 to support the respective statements of compliance of the Non-exempt EDB.

7.24 The ownership arrangements resulting from a Transaction will determine the new Price Path applying to the Non-exempt EDB. For the Assessment Period that follows the completion of a Transaction between a Non-exempt EDB and another EDB (exempt or non-exempt), a new Price Path is calculated for the Non-exempt EDB in accordance with clause 8.4 of the Initial Reset Determination. For example, if *Non-exempt EDB A* acquires *EDB B*, the allowable notional revenue for *A* is calculated using the lagged quantities and corresponding prices of both *A* and *B*. The enlarged Non-exempt EDB is required to state in the Annual Compliance Statement whether or not the new Price Path has been complied with. The information requirements for the Annual Compliance Statement relating to the Price Path, however, may need to be adjusted for the

Transaction (e.g., any recalculations of the Non-exempt EDB's allowable notional revenue should be included, including any other details relevant to this recalculation).

*Price Information for Transactions during the Reset DPP*

7.25 Clause 10.1(a) of the Initial Reset Determination sets out the information requirements for the Annual Compliance Statement relating to the Price Path for the Assessment Period in which a Transaction is completed, while clause 10.2(a) clarifies the Price Path compliance requirements for the Assessment Period that follows.

***Transactions – Quality Standards***

7.26 For the Assessment Period in which a Non-exempt EDB completes a Transaction with another Non-exempt EDB, the Non-exempt EDB must state in its Annual Compliance Statement, to the extent practicable, whether or not it and the other Non-exempt EDB involved in the Transaction complied with their respective quality standards. For example, if *Non-exempt EDB A* acquires *Non-exempt EDB B*, then *A's* Annual Compliance Statement should state whether or not *A* and *B* complied with their respective quality standards. The Annual Compliance Statement should provide the type of information set out in paragraphs 7.13-7.17, to the extent practicable, supporting the respective statements of compliance for each of the Non-exempt EDBs involved in the Transaction.

7.27 Similar to the Price Path, the ownership arrangements that result from a Transaction will determine the new quality standards applying to the Non-exempt EDB. For the Assessment Period that follows the completion of a Transaction between a Non-exempt EDB and another EDB (exempt or non-exempt), new quality standards will apply. For example, if *Non-exempt EDB A* acquires *EDB B*, then *A* should seek to:

- recalculate its Reliability Limits using the Reference Datasets for both *A* and *B*, in accordance with Schedule 3 of the Initial Reset Determination;
- calculate its Assessed Values based on the performance of the “enlarged” *A*, in accordance with Schedule 3 of the Initial Reset Determination; and
- recalculate its Annual Reliability Assessments for the Assessment Period in which the Transaction was completed and the preceding Assessment Period, where applicable, using the corresponding Assessment Datasets<sup>230</sup> for both *A* and *B*, in accordance with Schedule 3 of the Initial Reset Determination.

7.28 The Non-exempt EDB is required to state in its Annual Compliance Statement whether or not these new quality standards have been complied with.

*Quality Standards Information for Transactions during the Reset DPP*

7.29 Clause 10.1(b) of the Initial Reset Determination sets out the information requirements for the Annual Compliance Statement relating to quality standards for the Assessment Period in which a Transaction is completed. Clause 10.2(b) to (d) clarifies the compliance requirements for the subsequent Assessment Period.

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<sup>230</sup> Meaning the set of daily SAIDI and SAIFI values for an Assessment period.

***Transactions – Alternative Compliance***

7.30 The Commission acknowledges that following a Transaction it may not be possible, due to a lack of information, for a Non-exempt EDB to satisfy some or all of the information requirements for the Annual Compliance Statement. In such circumstances, an alternative form of compliance may be adopted. However, the Non-exempt EDB must satisfy the Commission that:

- the lack of information was not created by the actions or agreement of the Non-exempt EDB which are contrary to the provisions of the Initial Reset Determination;
- due to this lack of information, it is not practicable to determine, using clauses 8 and 9 of the Initial Reset Determination, whether the Non-exempt EDB complied with the Reset DPP in the Assessment Period in which the Transaction was completed; and
- the use of the alternative approach has an equivalent effect to clauses 8 and 9 and that the substance of these clauses has been complied with.

***Alternative Compliance under the Reset DPP***

7.31 Clause 10.3 of the Initial Reset Determination allows for an alternative compliance approach, if required, following a Transaction, under certain circumstances. Clause 11.1(b)(vii) sets out the corresponding information requirements.

***Restructuring of Prices***

7.32 For the Assessment Period in which a Non-exempt EDB restructures its prices (e.g., if an adjustment to a tariff alters the ratio of volume to capacity based charges), the Non-exempt EDB is required to demonstrate, with supporting evidence, the effect that the restructuring had on its allowable notional revenue for that Assessment Period. In certain circumstances where it is not practicable to recalculate allowable notional revenue due to the absence of information or an inability to develop adequate estimates, the Non-exempt EDB may demonstrate the effect of the restructure using actual revenue. For example, the introduction of time-of-use tariffs during an Assessment Period, which may impact consumer behaviour and usage, may result in difficulties in estimating lagged quantities using the t-2 approach. In such circumstances, the Non-exempt EDB must, to the satisfaction of the Commission: (a) state the reasons why it is unable to recalculate allowable notional revenue; and (b) demonstrate, with supporting evidence, the effect that the restructuring had on its revenue for that Assessment Period.

7.33 If the Price restructure did not increase the Non-exempt EDB's allowable notional revenue (or revenue, if applicable) above that which would have applied if the restructure had not occurred, then the Non-exempt EDB is required to demonstrate compliance with the Price Path as if the new prices had applied from the beginning of the Assessment Period. While the new and old quantities associated with the new and old price structures may not necessarily align, the Commission considers that, in circumstances where it is not practical to derive corresponding actual historic quantities, the Non-exempt EDB may use reasonable estimates to demonstrate compliance. However, if the price restructure did increase the Non-exempt EDB's allowable notional revenue (or revenue, if applicable) above that which would have applied if the restructure had not occurred, then the Non-exempt EDB will not have complied with the Price Path.

- 7.34 To demonstrate the effect of the price restructuring on *revenue*, the Non-exempt EDB must provide the revenue estimates (forecast under both the old and new tariff structures) used when prices were set for the Assessment Period, and the actual revenue for that Assessment Period. It should also include information relevant to any variance between the forecast and actual amounts. The Annual Compliance Statement must state, to the extent practicable, whether or not the Non-exempt EDB has complied with the Price Path under both the previous and new price structures. The Annual Compliance Statement must also provide the type of information, as set out in paragraphs 7.8-7.11, supporting the Non-exempt EDB's Statement of Compliance.
- 7.35 For the Assessment Period that follows the price restructure, a Non-exempt EDB must demonstrate compliance with the Price Path using the new price structure and by implementing a reasonable estimate of lagged quantities that would have occurred under the new price. Therefore, to the extent practicable, the Non-exempt EDB must provide a reconciliation between quantities for the old pricing structure and quantities for the new pricing structure. The Non-exempt EDB must state in its Annual Compliance Statement whether or not the new Price Path has been complied with.
- 7.36 For clarity, price restructuring is not considered to include circumstances where consumers are migrated from a price tariff to another pre-existing price tariff structure (e.g., residential to commercial) or where a pre-existing tariff level is increased/decreased.

*Price Path Compliance Information when Restructuring Prices under the Reset DPP*

- 7.37 Clause 8.6 of the Initial Reset Determination sets out the Price Path compliance requirements in circumstances where a Non-exempt EDB restructures its prices. Clause 11.1(b)(iii)(a) and (b) sets out the corresponding information requirements.

***Price Restructuring – Alternative Compliance***

- 7.38 The Commission acknowledges that, following a price restructure, it may not be possible, due to a lack of information, for a Non-exempt EDB to satisfy some or all of the information requirements for the Annual Compliance Statement. In such circumstances, an alternative form of compliance may be adopted. However, the Non-exempt EDB must satisfy the Commission that:
- the lack of information was not created by the actions or agreement of the Non-exempt EDB which are contrary to the provisions of the Initial Reset Determination;
  - due to the lack of information it is not practicable to demonstrate the effect of the price restructure in accordance with clause 8.6 and therefore determine whether the Non-exempt EDB complied with the Price Path (discussed in paragraphs 7.32-7.36), in the Assessment Period in which the Transaction was completed; and
  - the use of the alternative approach has an equivalent effect to clause 8.6 and that the substance of the clause has been complied with.

*Alternative Compliance under the Reset DPP*

- 7.39 Clause 8.7 of the Initial Reset Determination allows for an alternative conditional approach to compliance following a restructuring of prices, under certain circumstances. Clause 11.1(b)(iii)(c) sets out the corresponding information requirements.

### ***Transfer of Assets***

- 7.40 The Initial Reset Determination accounts for circumstances in which assets used for providing electricity lines services are transferred, by way of sale, gifting, lease or similar transaction, from Transpower to a Non-exempt EDB. These transfers may have an impact on the Non-exempt EDB's SAIDI and SAIFI reliability statistics and, as such, any transfers should be reflected in its Annual Compliance Statement.
- 7.41 For the Assessment Period in which the transfer is completed, the Non-exempt EDB must provide information that demonstrates whether or not the transfer increased the Non-exempt EDB's Assessed Values. Information should include the relevant calculations used to derive the Assessed Values and underpinning SAIDI and SAIFI statistics for the Non-exempt EDB's network, including statistics relating to the transferred assets. If the transfer of assets increases the Non-exempt EDB's Assessed Values, particularly if the Assessed Values exceed its Reliability Limits, then the Non-exempt EDB will need to reflect this in its Statement of Compliance and supporting information on the quality standards.
- 7.42 For the Assessment Period that follows the completion of the transfer, the Non-exempt EDB must:
- recalculate its Reliability Limits using a Reference Dataset, which includes the transferred assets (i.e., includes Transpower planned and unplanned interruptions), as if the transfer was completed at 1 April 2004 (i.e., the beginning of the Reference Period), in accordance with Schedule 3 of the Initial Reset Determination; and
  - calculate its Assessed Values based on an Assessment Dataset, which includes the transferred assets, in accordance with Schedule 3 of the Initial Reset Determination.
- 7.43 For the Assessment Period that follows the completion of the transfer, the Non-exempt EDB is required to state in its Annual Compliance Statement whether or not the new quality standards have been complied with. The information requirements for the Annual Compliance Statement relating to the quality standards, may need to be adjusted for the asset transfer (e.g., any recalculations of a Non-exempt EDB's Reliability Limits should be included, including any other details relevant to these recalculations).

### ***Quality Standards Compliance Information following a Transfer of Assets under the Reset DPP***

- 7.44 Clause 10.4 of the Initial Reset Determination clarifies the compliance requirements relating to quality standards for the Assessment Period that follows a transfer of assets from Transpower to a Non-exempt EDB. Information requirements for the Annual Compliance Statement relating to the Assessment Period in which the transfer was completed are set out in clause 11.1(b)(vi) of the Initial Reset Determination.

## 7.5 Certification and Audit

7.45 As set out in paragraphs 7.3-7.4, Annual Compliance Statements must include a Directors' Certificate and be accompanied by an Auditor's Report.

### *Directors' Certificate*

7.46 A Directors' Certificate must accompany each Annual Compliance Statement. This is to be signed by at least one Director and is to certify that, to the best of their knowledge and reasonable enquiry, the information disclosed in the Annual Compliance Statement is true and accurate.<sup>231</sup>

### *Director Certification Requirements for the Annual Compliance Statement under the Reset DPP*

7.47 Clause 11.1(c) of the Initial Reset Determination sets out the Director certification requirements for the Annual Compliance Statement. The form of the Directors' Certificate is set out in Schedule 5 of the Initial Reset Determination.

### *Auditor's Report*

7.48 An Auditor's Report that accompanies an Annual Compliance Statement provides an Auditor's independent opinion on that statement. The Auditor's Report must certify whether or not the Annual Compliance Statement has been prepared, in all material respects, in accordance with the Initial Reset Determination. The form of the Auditor's Report, set out in Schedule 4 of the Initial Reset Determination, is suitable for a single financial statement under a special purpose compliance framework, in accordance with International Standard on Auditing (New Zealand) 805 ("ISA (NZ) 805").

7.49 Following the technical consultation process on the Update Paper, the Commission received a submission suggesting that the audit of the Annual Compliance Statement falls within the scope of the New Zealand Institute of Chartered Accountants, Standard on Assurance Engagements 3100 Compliance Engagements.<sup>232</sup> The Commission, however, considers that the Auditor's responsibilities under ISA (NZ) 805 are more appropriate in providing the Commission with sufficient assurance on the scope and framework of the audit, and that the Annual Compliance Statement both complies with the Initial Reset Determination and is free from material misstatement. The Commission considers that the form of Auditor's Report, consistent with ISA (NZ) 805, is appropriate for the Reset DPP.

7.50 An Auditor's Report may only be qualified if the Auditor considers that the Annual Compliance Statement concerned fails to have been prepared, in all material respects, in accordance with the Initial Reset Determination. Any Auditor's Report that is qualified must include an explanation, with full reasoning, as to the respects in which the Annual Compliance Statement fails to meet its obligations.

7.51 For clarity, the Auditor's Report need not state whether the Commission is satisfied in relation to any amounts of transmission charges, local authority rates, Electricity Commission levies, and Commerce Act levies that have been passed through

<sup>231</sup> supra n 6, section 53N(d).

<sup>232</sup> PwC, supra n 94, paragraph 24.

transparently to the Non-exempt EDB's consumers and/or electricity retailers. Similarly, the Auditor's Report does not need to state whether the Commission is satisfied in relation to the matters referred to in clauses 8.6 (demonstrating the effects of a price restructure), 8.7 (use of an alternative form of compliance, due to a lack of information to demonstrate the effects of a price restructure) and 10.3 (use of an alternative form of compliance, due to a lack of information to demonstrate compliance following a Transaction).

- 7.52 Where a Non-exempt EDB is involved in a Transaction with another Non-exempt EDB, its Annual Compliance Statement should, to the extent practicable, be accompanied by Auditor's Reports from the respective Auditor(s) of each of the Non-exempt EDBs involved in the Transaction.

*Audit Requirements for the Reset DPP Annual Compliance Statement*

- 7.53 Clause 11.2 of the Initial Reset Determination requires that an Annual Compliance Statement be accompanied by an Auditor's Report on that statement. Clause 11.3 of the Initial Reset Determination sets out the circumstances in which an Auditor's Report may be qualified. The form of the Auditor's Report is set out in Schedule 4 of the Initial Reset Determination.

**APPENDIX A: GLOSSARY**

| <b>LIST OF TERMS, ABBREVIATIONS AND ACRONYMS</b> |  |
|--|--|
| 2004 ODVs  | Updated ODV valuation, as at 31 March 2004   |
| 2006 GPS   | Government Policy Statement on Incentives of Regulated Businesses to Invest in Infrastructure, August 2006   |
| 2009 GPS   | Government Policy Statement on Electricity Governance, May 2009  |
| Act, The   | Commerce Act 1986  |
| Actual Prices                                    | The prices charged by EDBs as at 31 March 2010   |
| AER  | Australian Energy Regulator  |
| Allowed Prices                                   | The prices allowed under the Initial DPP   |
| Annual Compliance Statement                      | A written statement made by a Non-exempt EDB under clause 11 of the Initial Reset Determination  |
| Annual Reliability Assessment                    | The annual comparison of a Non-exempt EDB's Assessed Values against its Reliability Limits   |
| Assessment Date                                  | A date as at which compliance with the Reset DPP must be demonstrated, being 31 March of each of the years 2011 to 2015  |
| Assessment Dataset                               | The set of daily SAIDI and SAIFI values for an Assessment Period   |
| Assessment Period                                | A period of 12 months ending on an Assessment Date   |
| Assessed Values                                  | Aggregate SAIDI and SAIFI values for an Assessment Period  |
| Auditor's Report                                 | A report on an Annual Compliance Statement that is prepared and signed by an Auditor   |
| B-factor   | A factor applied to all EDBs under the Thresholds. The factor was derived from TFP analysis of industry productivity growth adjusted for productivity growth in the economy as a whole |
| C <sub>2</sub> -factor                           | A factor applied under the Thresholds to reflect the relative profitability performance of an EDB  |
| Commerce Act levies                              | Levies set under the section 53ZE of the Act   |
| Commission, The                                  | The Commerce Commission  |
| Consumer-owned EDBs                              | EDBs exempt from price-quality regulation on the basis of the consumer ownership criterion as set out in section 54D of the Act  |
| CPI  | Consumer Price Index   |
| CPP  | Customised Price-quality Path  |

| <b>LIST OF TERMS, ABBREVIATIONS AND ACRONYMS</b> |  |
|--|--|
| Directors' Certificate                           | A certificate signed by at least one Director of a Non-exempt EDB that confirms that information in the Annual Compliance Statement is true and accurate   |
| Discussion Paper                                 | Commission consultation paper, <i>Reset of Default Price-quality Path for Electricity Distribution Businesses – Discussion Paper</i> , 19 June 2009  |
| DPP  | Default Price-quality Path   |
| Draft Decisions Paper                            | Commission consultation paper, <i>Initial Reset of Default Price-quality Path for Electricity Distribution Businesses – Draft Decisions Paper</i> , 8 September 2009                                       |
| Draft Determination Paper                        | Commission consultation paper, <i>Initial Reset of the Default Price-quality Path for Electricity Distribution Businesses – Initial Reset Determination (Draft) – Consultation Paper</i> , 16 October 2009 |
| EDB  | Electricity Distribution Business: a supplier of electricity lines services, other than Transpower, subject to default/customised price-quality regulation   |
| ENA  | Electricity Networks Association   |
| FCM  | Financial Capital Maintenance  |
| GPS  | Government Policy Statements. Statements of economic policy transmitted in writing to the Commission by the Minister of Commerce under section 26 of the Act   |
| IEEE   | Institute of Electrical and Electronics Engineers  |
| IEEE Standard                                    | Standard 1366-2003, developed by the Institute of Electrical and Electronics Engineers to account for extreme events in reliability data   |
| IHC  | Indexed Historic Cost  |
| Initial DPP                                      | The DPP applying from 1 April 2009 to 31 March 2010  |
| Initial Reset Determination                      | The section 52P determination giving effect to the Reset DPP, a copy of which is attached as Appendix D  |
| Input methodology                                | Has the meaning set out in section 52C of the Act  |
| ISA (NZ) 805                                     | International Standard of Auditing (New Zealand) 805   |
| kVA  | Kilovolt-amperes (a measure of electrical capacity and apparent power)   |
| MED  | Major Event Day  |
| MEUG   | Major Electricity Users Group  |
| MoU  | Memorandum of Understanding between the Commission and the Electricity Commission, 16 August 2007 (as amended on 13 November 2008)   |
| MVA  | Megavolt-amperes (a thousand kilovolt-amperes)   |
| Non-exempt EDB                                   | An EDB other than a consumer-owned EDB   |

| <b>LIST OF TERMS, ABBREVIATIONS AND ACRONYMS</b> |   |
|--|---|
| ODV  | Optimised Deprival Value  |
| Ofgem  | Office of the Gas and Electricity Markets: UK regulatory body   |
| Part 4   | Part 4 of the Act under which the Commission has responsibility for default/customised price-quality regulation   |
| Part 4 Purpose                                   | The purpose of the Part 4 regime as set out in section 52A of the Act   |
| Part 4A  | Part 4A of the Act contained provisions applicable to electricity lines businesses and was repealed under by the Commerce Amendment Act 2008 on 16 September 2008   |
| PEG  | Pacific Economics Group   |
| Process Paper                                    | Commission consultation paper: <i>Reset of Default Price-quality Path for Electricity Distribution Businesses – Process and Issues Paper</i> , 30 March 2009  |
| Provisions Paper                                 | Commission consultation paper: <i>Regulatory Provisions of the Commerce Act 1986 - Discussion Paper</i> , 19 December 2008  |
| Rate of change                                   | A rate of change is to be based on the long-run average productivity improvement rate achieved by either or both of suppliers in New Zealand, and suppliers in other comparable countries, of the relevant goods or services, using whatever measures of productivity the Commission considers appropriate, specified in Schedule 1 of the Initial Reset Determination: see also X-factor |
| Regulatory Period                                | The period 1 April 2010 to 31 March 2015  |
| Reference Dataset                                | The daily SAIDI and SAIFI outage data for the reference period 1 April 2004–31 March 2009   |
| Reliability Limits                               | The SAIDI and SAIFI values against which annual Non-exempt EDB reliability performance is assessed  |
| Reset DPP  | The DPP applying to Non-exempt EDBs during the Regulatory Period  |
| SAIDI  | System Average Interruption Duration Index: a measure of the average time for which supply is interrupted   |
| SAIFI  | System Average Interruption Frequency Index: a measure of how often consumers are affected by interruptions   |
| Section 53K Purpose                              | Purpose of default/customised price-quality regulation as set out in Section 53K of the Commerce Act 1986   |
| S-factor   | Method for calculating an adjustment to the X under incentive-based CPI-X price control, such that suppliers are provided explicit incentives to improve (and in some cases reduce) quality performance   |
| SRA  | Statistics Research Associates Limited  |

| <b>LIST OF TERMS, ABBREVIATIONS AND ACRONYMS</b> |  |
|--|--|
| SRA 2009a  | Statistics Research Associates Limited, <i>Comments on Chapter 8 of the Commerce Commission Discussion Paper, Reset of Default Price-Quality Path for Electricity Distribution Businesses (19 June 2009)</i> , 17 July 2009 and revised 30 July 2009 |
| SRA 2009b  | Statistics Research Associates Limited, <i>Comments on Chapter 7 and Appendix C of the Commerce Commission Draft Decisions Paper</i> , 12 October 2009   |
| Starting Prices                                  | Prices to be specified as part of a section 52P determination that must either be prices at the end of the preceding regulatory period or those determined by the Commission, specified in Schedule 1 of the Initial Reset Determination             |
| Statement of Compliance                          | A written statement that states whether or not the Non-exempt EDB has complied with the Reset DPP  |
| t-2 approach                                     | The use of quantity data from the Pricing Period which ended two years prior to the end of the relevant Assessment Period  |
| TFP  | Total Factor Productivity  |
| Thresholds                                       | The Part 4A thresholds regime, given effect by the Thresholds Notice   |
| Thresholds Notice                                | Commerce Act (Electricity Distribution Thresholds) Notice 2004   |
| Transaction                                      | A purchase, merger, takeover, disposal, or other similar transaction   |
| Transpower                                       | Transpower New Zealand Limited. The state-owned enterprise that operates New Zealand's high-voltage transmission network   |
| Two in a row                                     | A proposed multi-year assessment scheme for the quality standards, where the Annual Reliability Assessment must be complied with every second year   |
| Two out of three                                 | The multi-year assessment scheme to be used under the quality standards, where the Annual Reliability Assessment must be complied with in two out of every three years   |
| Update Paper                                     | Commission consultation paper, <i>Initial Reset of the Default Price-quality Path for Electricity Distribution Businesses – Consultation Update Paper</i> , 16 November 2009   |
| X-factor   | Under a CPI-X mechanism a regulated business may increase annual prices by no more than CPI, less an annual percentage i.e., the X-factor  |

## APPENDIX B: PRICE PATH ASSESSMENT FORMULAE

B1 This appendix outlines the Price Path assessment formulae for the Reset DPP and how each of their components are derived and applied.<sup>233</sup> This appendix also sets out the allowable notional revenue formula for the First Assessment Period. Where there is any inconsistency between the description in this appendix and the Initial Reset Determination, the determination takes precedence.

### *Price Path Compliance Assessment*

B2 As discussed in Chapter 4, compliance with the Price Path is assessed by comparing a Non-exempt EDB's notional revenue ( $NR_t$ ) with its allowable notional revenue ( $R_t$ ). Specifically, to comply with the Price Path the Non-exempt EDB's notional revenue at any time during the Assessment Period must not exceed its allowable notional revenue for the Assessment Period. The Price Path assessment formulae and the definitions of their components are set out in Formula 2.

B3 The Price Path under the Reset DPP is a form of weighted average price-cap that limits aggregate Price increases, but does not constrain prices for individual services, classes of services, or different customer groups. The Price Path assessment formulae test whether or not a Non-exempt EDB's Prices for the Assessment Period ( $P_t$ ) have exceeded the previous period's Prices ( $P_{t-1}$ ), adjusted for both inflation and the X-factor. The formulae also account for the relative difference in Pass-Through Costs, i.e., between Pass-Through Costs for the current Assessment Period ( $K_t$ ) and the previous period ( $K_{t-1}$ ), adjusted for both inflation and the X-factor.

B4 Note that the components of the Price Path assessment formulae refer to Assessment Period  $t$  and Pricing Period  $t-x$  (which both relate to 12 month periods ending 31 March). The use of different terminology is because the term Assessment Period refers only to the years of the Regulatory Period, whereas the term Pricing Period may refer to periods prior the Regulatory Period.

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<sup>233</sup> Capitalised terms in this appendix bear the meanings, where set out, in clause 4 of the Initial Reset Determination.

**Formula 2 Price Path Assessment Formulae**

The notional revenue ( $NR_t$ ) of a Non-exempt EDB at any time during the Assessment Period must not exceed the allowable notional revenue ( $R_t$ ) for the Assessment Period, such that:

$$\frac{NR_t}{R_t} \leq 1$$

$NR_t$  is the *notional revenue* for the Assessment Period  $t$ , being equal to:

$$\sum_i P_{i,t} Q_{i,t-2} - K_t$$

$R_t$  is the *allowable notional revenue* for the Assessment Period  $t$ , other than the First Assessment Period, being equal to:

$$\left( \sum_i P_{i,t-1} Q_{i,t-2} - K_{t-1} \right) \times ((1 + \Delta CPI_t) \times (1 - X))$$

where

$t$  denotes the year of the Assessment Date in the Assessment Period, for which compliance is being assessed;

$i$  denotes each Price relating to an Electricity Lines Service;

$P_{i,t}$  is the  $i^{\text{th}}$  Price during any part of the Assessment Period  $t$ ;

$P_{i,t-1}$  is the  $i^{\text{th}}$  Price during any part of the Pricing Period  $t-1$ ;

$Q_{i,t-2}$  is the Quantity corresponding to the  $i^{\text{th}}$  Price during the Pricing Period  $t-2$ ;

$K_t$  is the sum of all Pass-Through Costs during the Assessment Period  $t$ ;

$K_{t-1}$  is the sum of all Pass-Through Costs during the Pricing Period  $t-1$ ;

$X$  is the rate of change for the Non-exempt EDB (as specified in Schedule 2 of the Initial Reset Determination); and

$\Delta CPI_t$  is the derived change in the CPI to be applied during the Assessment Period  $t$  (see Formula 3).

**Individual Elements of the Assessment Formulae**

B5 The component terms of the notional revenue and allowable notional revenue formulae, discussed below, include:

- Price and the rate of change;
- Quantity;
- Pass-Through Costs; and
- indexation.

***Price and the Rate of Change***

- B6 As discussed in Chapter 4, the definition of Price is similar to that used under the Initial DPP and has been amended to reflect the definition of Electricity Lines Services under Part 4.
- B7 As discussed in Chapter 4, starting Prices under the Reset DPP should initially be specified as the Price that applied at the end of the preceding regulatory period (i.e., as at 31 March 2010). In the First Assessment Period,<sup>234</sup>  $P_{i,t-1}$  (i.e., the actual  $i^{\text{th}}$  Price at the end of the preceding regulatory period) is to be used to define the  $i^{\text{th}}$  starting Price. For clarity, the Price during the First Assessment Period (i.e.,  $P_{i,t}$ ) may vary from this starting Price, subject to the overall Price Path constraint.
- B8 As discussed in Chapter 5, a common rate of change of 0% per annum is to apply to all Non-exempt EDBs during the Reset DPP.

***Quantity***

- B9 As discussed in Chapter 4, the Price Path assessment formulae use progressively updating quantities. Specifically, the quantities for the pricing year which ended two years prior to the end of the relevant Assessment Period (i.e.,  $Q_{i,t-2}$ ) are to be used.

***Pass-Through Costs***

- B10 As discussed in Chapter 4, under the Initial Reset Determination Pass-Through Costs consist of: Transmission Charges; Rates; Commerce Act Levies; and Electricity Commission Levies.
- B11 Pass-Through Costs include Commerce Act Levies that a Non-exempt EDB paid during the period 1 April 2009 to 31 March 2010. However, the levies for this period are to be apportioned evenly over the five years of the Regulatory Period and included in the appropriate  $K$  term.
- B12 Consistent with the compliance requirements under the Initial DPP, under the Reset DPP Non-exempt EDBs are to disclose the amounts of Pass-Through Costs for the Assessment Period. The Commission also requires that a Non-exempt EDB state, in its Annual Compliance Statement, the total 2009/10 Commerce Act Levy paid and the appropriate apportioned charge in the pass-through deduction for that Assessment Period.

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<sup>234</sup> Assessment period ending on 31 March 2011.

**Indexation**

- B13 As discussed in Chapter 4, the indexation term for the allowable notional revenue formula is based on a lagged CPI. The applicable change in inflation is to be derived using “All groups Index SE9A” values, published by Statistics New Zealand, applied to Formula 3 below:

**Formula 3 CPI Derivation**

$\Delta CPI_t$  is the derived change in the CPI to be applied during the Assessment Period  $t$ , being equal to:

$$\frac{CPI_{Dec,t-3} + CPI_{Mar,t-2} + CPI_{Jun,t-2} + CPI_{Sep,t-2}}{CPI_{Dec,t-4} + CPI_{Mar,t-3} + CPI_{Jun,t-3} + CPI_{Sep,t-3}} - 1$$

where:

$CPI_{q,t}$  is the CPI for the quarter  $q$  of year  $t$

**Allowable Notional Revenue for the First Assessment Period**

- B14 The allowable notional revenue for the First Assessment Period, and its components, is set out in Formula 4 below:

**Formula 4 Allowable notional revenue for the First Assessment Period**

$R_{2011}$  is the allowable notional revenue for the First Assessment Period, being equal to:

$$\left( \sum_i P_{i,2010} Q_{i,2009} - K_{2010} \right) \times ((1 + \Delta CPI_{2011}) \times (1 - X))$$

where

$P_{i,2010}$  is the  $i^{\text{th}}$  starting Price as specified in Schedule 1 of the Initial Reset Determination;

$Q_{i,2009}$  is the Quantity corresponding to the  $i^{\text{th}}$  Price for the period 1 April 2008 to 31 March 2009;

$K_{2010}$  is the sum of all Pass-Through Costs, other than Commerce Act Levies, during the Pricing Period 1 April 2009 to 31 March 2010;

$X$  is the rate of change for the Non-exempt EDB (as specified in Schedule 2 of the Initial Reset Determination); and

$\Delta CPI_{2011}$  is the derived change in the CPI to be applied during the First Assessment Period, being equal to:

$$\frac{CPI_{Dec,2008} + CPI_{Mar,2009} + CPI_{Jun,2009} + CPI_{Sep,2009}}{CPI_{Dec,2007} + CPI_{Mar,2008} + CPI_{Jun,2008} + CPI_{Sep,2008}} - 1$$

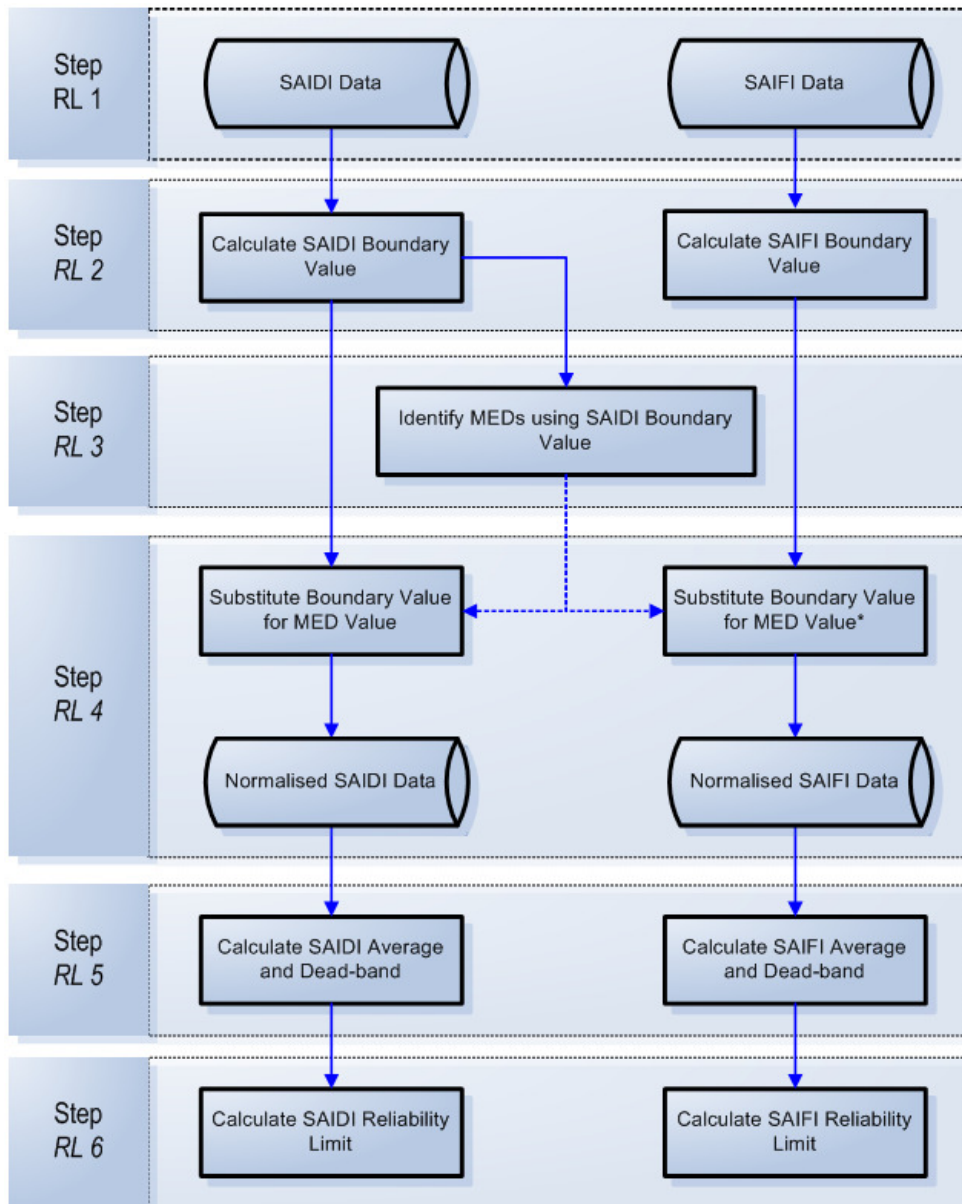
- B15 As set out in paragraph B7, the actual  $i^{\text{th}}$  Price at the end of the preceding regulatory period is used to define the  $i^{\text{th}}$  starting Price. For clarity, Pass-Through Costs ( $K_{2010}$ ) in the allowable notional revenue formula in the First Assessment Period are to exclude amounts in respect of Commerce Act Levies.

## APPENDIX C: QUALITY STANDARDS

C1 This appendix sets out further details on the quality standards.<sup>235</sup> Where there is any inconsistency between the description in this appendix and the Initial Reset Determination, the determination takes precedence.

### *Process for Calculating Reliability Limit*

C2 The diagram below depicts the steps a Non-exempt EDB is to take to calculate its Reliability Limits. These steps are set out in detail in the following section.



\* SAIFI substitution is subject to MED value > SAIFI Boundary Value

<sup>235</sup> Capitalised terms in this appendix bear the meanings, where set out, in clause 4 of the Initial Reset Determination.

C3 The diagram above depicts two parallel processes that involve a number of activities, which are set out in further detail below:

- *Step RL1*: assemble SAIDI and SAIFI datasets;
- *Step RL2*: calculate SAIDI and SAIFI boundary values;
- *Step RL3*: identify the Major Event Days (“MED”) in the Reference Period;
- *Step RL4*: substitute MED values with boundary values;
- *Step RL5*: assemble the Normalised Reference Dataset; and
- *Step RL6*: calculate SAIDI and SAIFI Reliability Limits.

***Step RL1 Assemble Reference Dataset***

- |   |  |
|---|--|
| a | Prepare the Reference Dataset, comprising the daily SAIDI Values and SAIFI Values for the five year period 1 April 2004 to 31 March 2009, with SAIDI Values and SAIFI Values for an Interruption that span multiple calendar days accrued to the day on which the Interruption began. <sup>236</sup> |
|---|--|

***Step RL2 Calculate the SAIDI and SAIFI boundary values***

- |   |  |
|---|--|
| a | Develop a non-zero dataset using only those days where the daily SAIDI Value is greater than zero (i.e., exclude zero-SAIDI days).   |
| b | Calculate the SAIDI boundary value <sup>237</sup> ( $B_{SAIDI}$ ) as follows: <ul style="list-style-type: none"> <li>i Calculate the natural logarithm (<math>\ln</math>) of each daily SAIDI Value of the non-zero dataset;</li> <li>ii Calculate <math>\alpha_{SAIDI}</math>, the average of the natural logarithms of the non-zero dataset;</li> <li>iii Calculate <math>\beta_{SAIDI}</math>, the standard deviation of the natural logarithms of the non-zero dataset; and</li> <li>iv <math>B_{SAIDI}</math> is then calculated as follows:             <math display="block">B_{SAIDI} = e^{(\alpha_{SAIDI} + 2.5\beta_{SAIDI})}</math> </li> </ul> |
| c | Repeat step b to calculate the SAIFI boundary value ( $B_{SAIFI}$ ), using SAIFI data to calculate $\alpha_{SAIFI}$ and $\beta_{SAIFI}$ .  |

<sup>236</sup> Values in the Reference and Assessment Datasets are for Class B and Class C Interruptions (i.e., respectively, Interruptions planned by the Non-exempt EDB and Unplanned Interruptions).

<sup>237</sup>  $B_{SAIDI}$  is equivalent to  $T_{MED}$  in the IEEE Standard.

**Step RL3**      *Identify Major Events Days*

- a      Identify days with daily SAIDI Values greater than  $B_{SAIDI}$ . These are to be the MEDs in both the SAIDI and SAIFI datasets.

**Step RL4**      *Prepare the Normalised Reference Dataset*

- a      In the SAIDI dataset, replace the daily SAIDI Values of MEDs with  $B_{SAIDI}$ .
- b      In the SAIFI dataset, replace the daily SAIFI Values of MEDs with  $B_{SAIFI}$  if the daily SAIFI Value exceeds  $B_{SAIFI}$ .

**Step RL5**      *Calculate the SAIDI and SAIFI Averages and Dead-bands*

- a      Calculate the average of the SAIDI Values and SAIFI Values in the Normalised Reference Dataset:

$$\mu_{SAIDI} = \frac{\text{Sum of 5 years of daily normalised SAIDI Values}}{5}$$

$$\mu_{SAIFI} = \frac{\text{Sum of 5 years of daily normalised SAIFI Values}}{5}$$

- b      Calculate a single standard deviation for both the SAIDI Values and SAIFI Values in the Normalised Reference Dataset:

$$\sigma_{SAIDI} = \text{Standard Deviation of 5 years of daily SAIDI Values in the Normalised Reference Dataset} \times \sqrt{365}$$

$$\sigma_{SAIFI} = \text{Standard Deviation of 5 years of daily SAIFI Values in the Normalised Reference Dataset} \times \sqrt{365}$$

**Step RL6**      *Calculate the SAIDI and SAIFI Reliability Limits*

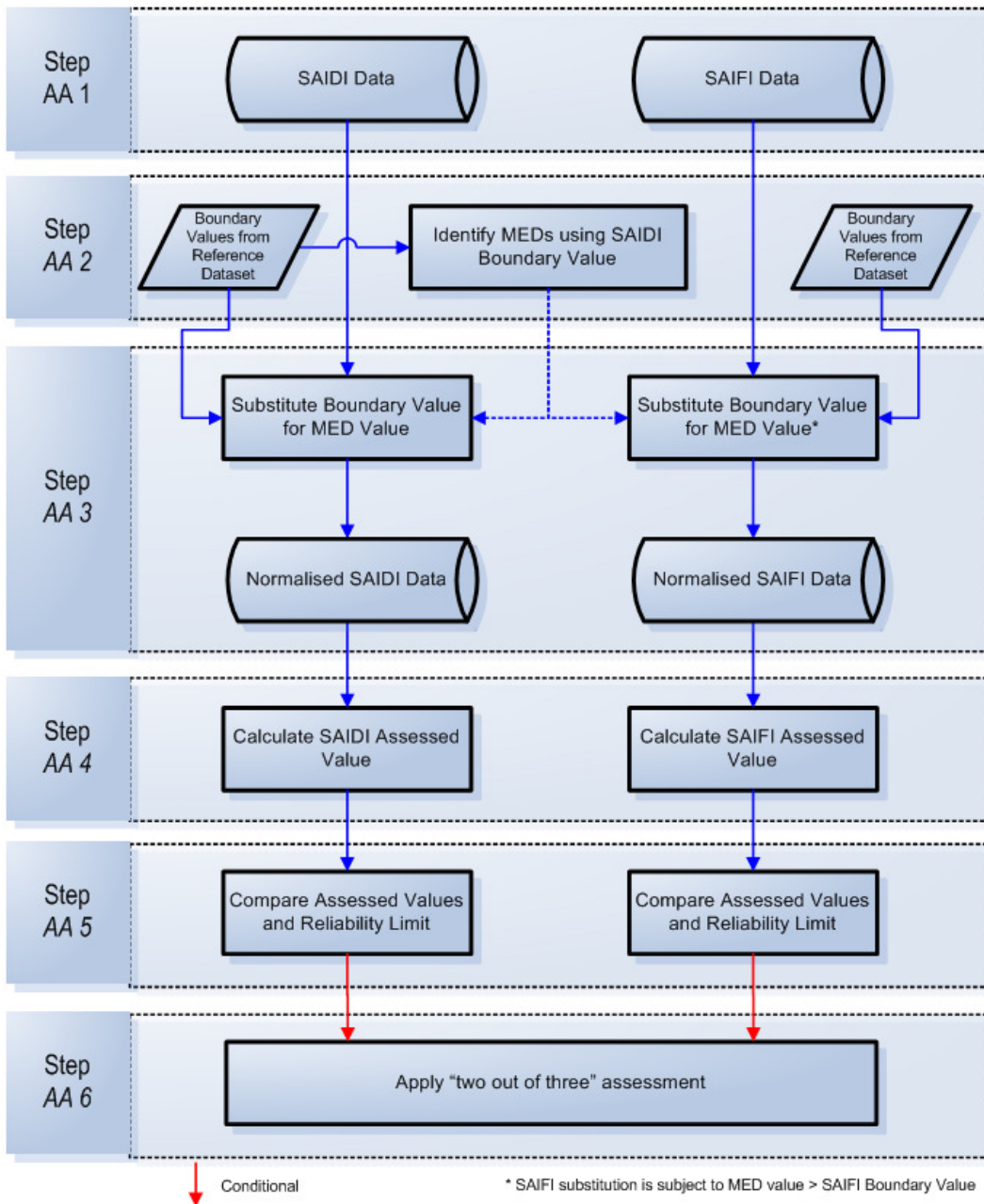
- a      Calculate the SAIDI and SAIFI Reliability Limits (being the annual average plus the dead-band) as follows:

$$SAIDI_{LIMIT} = \mu_{SAIDI} + \sigma_{SAIDI}$$

$$SAIFI_{LIMIT} = \mu_{SAIFI} + \sigma_{SAIFI}$$

**Assessment against the Quality Standards**

C4 The diagram below depicts the annual process to be undertaken by a Non-exempt EDB to assess its compliance with the quality standards. Firstly, it should calculate its *Assessed Values*. As part of the Annual Reliability Assessment, these *Assessed Values* are to be compared with the Non-exempt EDB’s respective *Reliability Limits*. If required, the Non-exempt EDB should then assess its past Annual Reliability Assessment performance under the multi-year assessment scheme (i.e., the “two out of three” assessment). These steps are set out in detail in the following section.



### ***Steps Used to Assess Annual Performance***

C5 The diagram above depicts the annual process to assess compliance with the quality standards. The following steps are required, and are set out in detail below:

- *Step AA1*: assemble SAIDI and SAIFI datasets;
- *Step AA2*: identify the MEDs in the Assessment Period;
- *Step AA3*: substitute MED values with boundary values;
- *Step AA4*: calculate SAIDI and SAIFI Assessed Values;
- *Step AA5*: compare the Assessed Values with the Reliability Limits; and
- *Step AA6*: if required, apply the multi-year assessment scheme.

#### ***Step AA1 Assemble Assessment Dataset for the Assessment Period***

- |   |  |
|---|--|
| a | Prepare the <i>Assessment Dataset</i> comprising the daily SAIDI Values and SAIFI Values for the current Assessment Period. SAIDI Values and SAIFI Values for an Interruption that span multiple calendar days are to be accrued to the day on which the Interruption began. |
|---|--|

#### ***Step AA2 Identify Major Events Days***

- |   |  |
|---|--|
| a | Identify days in the Assessment Dataset with daily SAIDI Value greater than $B_{SAIDI}$ (as calculated in <i>Step RL2</i> ). These are to be the MEDs for the Assessment Period. |
|---|--|

#### ***Step AA3 Prepare the Normalised Assessment Dataset***

- |   |   |
|---|---|
| a | In the SAIDI dataset, replace the daily SAIDI Values of MEDs with $B_{SAIDI}$ (as calculated in <i>Step RL2</i> ).  |
| b | In the SAIFI dataset, replace the daily SAIFI Values of MEDs with $B_{SAIFI}$ (as calculated in <i>Step RL2</i> ) <u>if</u> the daily SAIFI Value exceeds $B_{SAIFI}$ . |

#### ***Step AA4 Calculate the Assessed Values***

- |   |   |
|---|---|
| a | The Assessed Values for the Assessment Period $t$ are defined as follows:<br>$SAIDI_{ASSESS,t}$ = sum of daily SAIDI Values in the Normalised Assessment Dataset for the Assessment Period $t$<br>$SAIFI_{ASSESS,t}$ = sum of daily SAIFI Values in the Normalised Assessment Dataset for the Assessment Period $t$ |
|---|---|

**Step AA5** Compare the Assessed Values with the Reliability Limits

- a Determine whether the Assessed Values for Assessment Period  $t$  exceed their respective Reliability Limits, specifically whether:
- $$SAIDI_{ASSESS,t} > SAIDI_{LIMIT}$$
- or
- $$SAIFI_{ASSESS,t} > SAIFI_{LIMIT}$$
- b If neither of the Assessed Values exceed their respective Reliability Limits, a Non-exempt EDB will be in compliance with the quality standards for the Assessment Period  $t$ . Conversely, if one or both of the Assessed Values exceed their respective Reliability Limits the multi-year assessment scheme in *Step AA6* applies.

**Step AA6** Apply Multi-year Assessment Scheme

- a If one or more of the Assessed Values in either of the previous two extant Assessment Periods exceed their respective Reliability Limits the Non-exempt EDB is in breach of the quality standards. Conversely, if no Assessed Values in the previous two extant Assessment Periods exceed their respective Reliability Limits the Non-exempt EDB will be in compliance for the Assessment Period  $t$ .

**Illustration of the Multi-year Assessment Scheme**

- C6 The table below illustrates six examples of how the multi-year assessment scheme would apply to hypothetical sequences of performance. An “X” signifies a year in which a Non-exempt EDB’s SAIDI or SAIFI Assessed Values exceed its respective Reliability Limits. A tick signifies a year in which a Non-exempt EDB’s performance in both SAIDI and SAIFI Assessed Values are less than or equal to its respective Reliability Limits. An underlined red “X” signifies a year in which the Non-exempt EDB has breached the quality standards.

|              | 2011 | 2012     | 2013     | 2014     | 2015     |                         |
|--------------|------|----------|----------|----------|----------|-------------------------|
| <b>EDB 1</b> | X    | ✓        | <u>X</u> | ✓        | ✓        | Breach in 2013          |
| <b>EDB 2</b> | X    | ✓        | ✓        | X        | <u>X</u> | Breach in 2015          |
| <b>EDB 3</b> | ✓    | X        | ✓        | <u>X</u> | ✓        | Breach in 2014          |
| <b>EDB 4</b> | X    | <u>X</u> | <u>X</u> | ✓        | ✓        | Breaches in 2012 & 2013 |
| <b>EDB 5</b> | X    | <u>X</u> | ✓        | <u>X</u> | ✓        | Breaches in 2012 & 2014 |
| <b>EDB 6</b> | ✓    | X        | ✓        | ✓        | X        | No breach in period     |

**X** indicates a year in which the Non-exempt EDB *does not* comply with its Reliability Limits.

✓ indicates a year in which the Non-exempt EDB *complies with* its Reliability Limits.

X indicates a year in which the Non-exempt EDB *breaches* the quality standards.

## **APPENDIX D: INITIAL RESET DETERMINATION**

## **COMMERCE ACT (ELECTRICITY DISTRIBUTION DEFAULT PRICE-QUALITY PATH) DETERMINATION 2010**

Pursuant to Part 4 of the Commerce Act 1986, the Commerce Commission makes the following determination:

### **1 Title**

This determination is the Commerce Act (Electricity Distribution Default Price-Quality Path) Determination 2010.

### **2 Commencement Date**

This determination comes into force on 1 April 2010.

### **3 Application**

3.1 This determination resets the default price-quality path provided for by section 54J(2) of the Act, as required by section 54K(1) of the Act.

3.2 This determination applies to every Non-exempt EDB during the Regulatory Period.

### **4 Interpretation**

4.1 In this determination, unless the context otherwise requires,—

**Act** means the Commerce Act 1986

**Annual Compliance Statement** means a written statement made by a Non-exempt EDB under clause 11

**Assessed Values** means the aggregate SAIDI Values and SAIFI Values for an Assessment Period, which are derived from a Normalised Assessment Dataset

**Assessment Dataset** means the set of daily SAIDI Values and SAIFI Values for an Assessment Period, with SAIDI Values and SAIFI Values for an Interruption that spans multiple calendar days accrued to the day on which the Interruption began

**Assessment Date** means a date as at which compliance with the default price-quality path must be demonstrated, being 31 March of each of the years 2011 to 2015

**Assessment Period** means a period of 12 months ending on an Assessment Date

**Auditor**, in relation to a Non-exempt EDB, means a Person who:

- (a) is qualified for appointment as auditor of a company under the Companies Act 1993 or, where the Non-exempt EDB is a public entity (as defined in section 4 of the Public Audit Act 2001), is the Auditor-General; and
- (b) has no relationship with, or interest in, the Non-exempt EDB that is likely to involve the Person in a conflict of interest; and
- (c) has not assisted with the preparation of the Annual Compliance Statement or provided advice or opinions (other than in relation to audit reports) on the methodologies or processes used in preparing the Annual Compliance Statement; and
- (d) has the necessary expertise to properly undertake an audit required by clause 11.2; but

- (e) need not be the same Person as the Person who audits the Non-exempt EDB's accounts for any other purpose

**Avoided Transmission Charge** means any expense (including the cost of capital) of a Non-exempt EDB that arises during an Assessment Period from any activity which substitutes for use of the Transmission System

**Class B Interruptions** means planned Interruptions by a Non-exempt EDB

**Class C Interruptions** means Unplanned Interruptions originating within the System Fixed Assets of a Non-exempt EDB

**Commerce Act Levy** means an electricity industry levy paid or payable by a Non-exempt EDB under the Commerce Act 1986

**Commission** means the Commerce Commission

**Consumer** has the same meaning as in section 2(1) of the Electricity Act 1992

**Consumer-Owned** has the meaning set out in section 54D of the Act

**CPI** means the consumer price index stipulated in the "All Groups Index SE9A" (or any successor to that index), as published by Statistics New Zealand

**Director** means, in the case of a Non-exempt EDB that is not a company, a person occupying a position in, or in relation to, the Non-exempt EDB that is comparable with that of a director of a company

**EDB** means a supplier of Electricity Lines Services other than Transpower

**Electricity Commission Levy** means an industry levy paid or payable by a Non-exempt EDB in accordance with section 172ZC of the Electricity Act 1992

**Electricity Lines Services** has the meaning set out in section 54C of the Act

**First Assessment Period** means the period 1 April 2010 to 31 March 2011

**Interruption** means, in relation to the conveyance of electricity to a Consumer by means of a Prescribed Voltage Electric Line, the cessation of conveyance of electricity to that Consumer for a period of 1 minute or longer, other than by reason of disconnection of that Consumer—

- (a) for breach of the contract under which the electricity is conveyed; or
- (b) as a result of a request from the Consumer; or
- (c) as a result of a request by the Consumer's electricity retailer; or
- (d) for the purpose of isolating an unsafe installation

**Non-exempt EDB** means an EDB other than a Consumer-Owned EDB exempt under section 54G(2) of the Act

**Normalised Assessment Dataset** means an Assessment Dataset normalised in accordance with Schedule 3

**Normalised Reference Dataset** means a Reference Dataset normalised in accordance with Schedule 3

**Pass-Through Costs** means:

- (a) the Transmission Charges, Rates, Electricity Commission Levies, and Commerce Act Levies paid or payable by a Non-exempt EDB during a Pricing Period;

but does not include:

- (b) any amounts described in paragraph (a) if the Non-exempt EDB demonstrates to the satisfaction of the Commission that those amounts were passed on transparently to its Consumers and/or electricity retailers

**Person** includes a corporation sole, a body corporate, and an unincorporated body

**Posted Discount** means a discount to line charges payable for Electricity Line Services where those discounts are offered by way of published tariffs schedules, whose take-up is determined by Consumers

**Prescribed Voltage Electric Line** means an electric line that is capable of conveying electricity at a voltage equal to or greater than 3.3 kilovolts

**Price** means:

- (a) a posted price (as defined in section 52C of the Act) in nominal terms (such as a tariff, fee or charge) or a component thereof, in relation to an Electricity Lines Service, and may include a Posted Discount;

but does not include:

- (b) any amounts described in paragraph (b) of the definition of Pass-Through Costs

**Pricing Period** means a 12 month period ending on 31 March

**Quantity** means the unit of quantity (which may include, but is not limited to, kWh, kVA, kW, and day) corresponding to a Price

**Rates** means the rates on System Fixed Assets paid or payable by a Non-exempt EDB to a territorial local authority under the Rating Powers Act 1988 or the Local Government (Rating) Act 2002

**Reference Dataset** means the set of daily SAIDI Values and SAIFI Values for the Reference Period, with SAIDI Values and SAIFI Values for an Interruption that spans multiple calendar days accrued to the day on which the Interruption began

**Reference Period** means the period 1 April 2004 to 31 March 2009

**Regulatory Period** means the period 1 April 2010 to 31 March 2015

**Reliability Limits** means the SAIDI and SAIFI levels against which a Non-exempt EDB's annual reliability performance is assessed

**SAIDI Values** means system average interruption duration index values based on Class B Interruptions and Class C Interruptions

**SAIFI Values** means system average interruption frequency index values based on Class B Interruptions and Class C Interruptions

**System Fixed Assets** means all fixed assets owned, provided, maintained, or operated by a Non-exempt EDB or Transpower that are used or intended to be used for the supply of Electricity Lines Services

**System Operator Services** means co-ordination services for the control, dispatch, and security functions necessary to operate the Transmission System

**Transmission Charge** means any amount in respect of:

- (a) Electricity Lines Services provided to a Non-exempt EDB in respect of the Transmission System in accordance with the Transmission Pricing Methodology; and
- (b) the provision of System Operator Services; and
- (c) new investment contracts, as defined in Schedule F5 of Section IV of Part F of the Electricity Governance Rules 2003, between Transpower and a Non-exempt EDB; and
- (d) Avoided Transmission Charges

**Transmission Pricing Methodology** means the methodology Transpower uses to determine the prices it charges for its services, as set out in Schedule F5 of Section IV of Part F of the Electricity Governance Rules 2003

**Transmission System** means New Zealand's national electricity grid

**Transpower** has the meaning set out in section 54B of the Act

**Unplanned Interruption** means any Interruption in respect of which less than 24 hours notice, or no notice, was given, either to the public or to all Consumers affected by the Interruption.

4.2 Unless the context otherwise requires,—

- (a) terms used in this determination that are defined in the Act but not in this determination have the same meanings in this determination as in the Act;
- (b) words appearing in this determination with capitalised initial letters are defined terms and bear the meanings given to them in this clause 4; and
- (c) a word which denotes the singular also denotes the plural and vice versa.

## **5 Default price-quality path**

During the Regulatory Period every Non-exempt EDB must comply with the default price-quality path, which consists of both:

- (a) the price path specified in clause 8; and
- (b) the quality standards specified in clause 9.

## **6 Applicable input methodologies**

No input methodologies will apply to this determination until applicable input methodology determinations have been made.

## **7 Customised price-quality path proposal date**

The annual period within which any proposal for a customised price-quality path must be received by the Commission will be determined following the publication of input methodology determinations.

## 8 Price path

### 8.1 Starting Prices

The starting Prices that apply during the Regulatory Period are as set out in Schedule 1 unless reset or amended as provided for under the Act.

### 8.2 Rate of change

The annual rate of change in Prices (i.e.,  $X$ ), relative to the CPI, allowed during the Regulatory Period is as set out in Schedule 2.

### 8.3 Allowable notional revenue

Allowable notional revenue ( $R_t$ ) specifies the maximum Prices that may be charged during an Assessment Period.

### 8.4 Compliance with the price path

The notional revenue ( $NR_t$ ) of a Non-exempt EDB at any time during the Assessment Period must not exceed the allowable notional revenue ( $R_t$ ) for the Assessment Period, such that:

$$\frac{NR_t}{R_t} \leq 1$$

where:

$NR_t$  is the notional revenue for the Assessment Period  $t$ , being equal to:

$$\sum_i P_{i,t} Q_{i,t-2} - K_t$$

$R_t$  is the allowable notional revenue for the Assessment Period  $t$ , other than the First Assessment Period, being equal to:

$$\left( \sum_i P_{i,t-1} Q_{i,t-2} - K_{t-1} \right) \times ((1 + \Delta CPI_t) \times (1 - X))$$

where:

$t$  denotes the year of the Assessment Date in the Assessment Period, for which compliance is being assessed;

$i$  denotes each Price relating to an Electricity Lines Service;

$P_{i,t}$  is the  $i^{\text{th}}$  Price during any part of the Assessment Period  $t$ ;

$P_{i,t-1}$  is the  $i^{\text{th}}$  Price during any part of the Pricing Period  $t-1$ ;

$Q_{i,t-2}$  is the Quantity corresponding to the  $i^{\text{th}}$  Price during the Pricing Period  $t-2$ ;

$K_t$  is the sum of all Pass-Through Costs during the Assessment Period  $t$ ;

$K_{t-1}$  is the sum of all Pass-Through Costs during the Pricing Period  $t-1$ ;

$X$  is the rate of change for the Non-exempt EDB as specified in Schedule 2; and

$\Delta CPI_t$  is the derived change in the CPI to be applied during the Assessment Period  $t$ , being equal to:

$$\frac{CPI_{Dec,t-3} + CPI_{Mar,t-2} + CPI_{Jun,t-2} + CPI_{Sep,t-2}}{CPI_{Dec,t-4} + CPI_{Mar,t-3} + CPI_{Jun,t-3} + CPI_{Sep,t-3}} - 1$$

where:

$CPI_{q,t}$  is the CPI for the quarter  $q$  of year  $t$

## 8.5 Allowable notional revenue ( $R_t$ ) for the First Assessment Period

$R_{2011}$  is the allowable notional revenue for the First Assessment Period, being equal to:

$$\left( \sum_i P_{i,2010} Q_{i,2009} - K_{2010} \right) \times ((1 + \Delta CPI_{2011}) \times (1 - X))$$

where:

$P_{i,2010}$  is the  $i^{\text{th}}$  starting Price as specified in Schedule 1;

$Q_{i,2009}$  is the Quantity corresponding to the  $i^{\text{th}}$  Price for the Pricing Period 1 April 2008 to 31 March 2009;

$K_{2010}$  is the sum of all Pass-Through Costs, other than Commerce Act Levies, during the Pricing Period 1 April 2009 to 31 March 2010;

$X$  is the rate of change for the Non-exempt EDB as specified in Schedule 2; and

$\Delta CPI_{2011}$  is the derived change in the CPI to be applied during the First Assessment Period, being equal to:

$$\frac{CPI_{Dec,2008} + CPI_{Mar,2009} + CPI_{Jun,2009} + CPI_{Sep,2009}}{CPI_{Dec,2007} + CPI_{Mar,2008} + CPI_{Jun,2008} + CPI_{Sep,2008}} - 1$$

## 8.6 Restructuring of Prices

If a Non-exempt EDB restructures its Prices that apply during an Assessment Period, it must demonstrate to the satisfaction of the Commission in its Annual Compliance Statement for that Assessment Period:

- (a) whether or not the restructuring of itself increased its allowable notional revenue for that Assessment Period above that which would have applied if the restructuring had not occurred; or
- (b) where it is not possible to demonstrate the effects of the restructure on allowable notional revenue under paragraph (a), whether or not the restructuring of itself increased its revenue for that Assessment Period above that which would have applied if the restructuring had not occurred;

and, if the restructuring of itself—

- (c) did not increase the Non-exempt EDB's allowable notional revenue (referred to in paragraph (a)) or revenue (referred to in paragraph (b)) for that Assessment Period, clause 8.4 will apply as if the new Price structure applied on and from the beginning of that Assessment Period; or

- (d) did increase the Non-exempt EDB's allowable notional revenue (referred to in paragraph (a)) or revenue (referred to in paragraph (b)) for that Assessment Period, the price path will not have been complied with.

#### 8.7 Alternative compliance following restructuring of Prices

If a Non-exempt EDB restructures its Prices that apply during an Assessment Period, and—

- (a) the Commission is satisfied that, because of a lack of information beyond the control of the Non-exempt EDB, it is not practicable for the Non-exempt EDB to demonstrate the effect of the restructuring under clause 8.6 and therefore to demonstrate compliance with the price path for that Assessment Period; and
- (b) the Non-exempt EDB demonstrates to the satisfaction of the Commission, by use of an alternative approach that has the equivalent effect of clause 8.6, that the substance of that clause has been complied with—

the Non-exempt EDB will be regarded as having complied with the price path during that Assessment Period.

#### 8.8 2009/10 Commerce Act Levies

If a Non-Exempt EDB paid Commerce Act Levies during the Pricing Period 1 April 2009 to 31 March 2010 then that Non-Exempt EDB may apportion those levies evenly over the Regulatory Period and include the resulting apportioned amounts as Pass-Through Costs.

### 9 **Quality standards**

#### 9.1 Compliance with quality standards

A Non-exempt EDB must, in respect of each Assessment Period other than the First Assessment Period, either:

- (a) comply with the annual reliability assessment specified in clause 9.2 for that Assessment Period; or
- (b) have complied with those annual reliability assessments for the two immediately preceding extant Assessment Periods.

## 9.2 Annual reliability assessment

A Non-exempt EDB's Assessed Values for an Assessment Period must not exceed its Reliability Limits for that Assessment Period, such that:

$$\frac{SAIDI_{ASSESS,t}}{SAIDI_{LIMIT}} \leq 1 ; \text{ and}$$

$$\frac{SAIFI_{ASSESS,t}}{SAIFI_{LIMIT}} \leq 1$$

where:

$SAIDI_{ASSESS,t}$  is the SAIDI Assessed Value for the Non-exempt EDB for the Assessment Period  $t$ , and is calculated using the process outlined in Schedule 3;

$SAIDI_{LIMIT}$  is the SAIDI Reliability Limit for the Non-exempt EDB, and is calculated using the process outlined in Schedule 3;

$SAIFI_{ASSESS,t}$  is the SAIFI Assessed Value for the Non-exempt EDB for the Assessment Period  $t$ , and is calculated using the process outlined in Schedule 3; and

$SAIFI_{LIMIT}$  is the SAIFI Reliability Limit for the Non-exempt EDB, and is calculated using the process outlined in Schedule 3.

## 10 Mergers and acquisitions

10.1 If a Non-exempt EDB completes a purchase, merger, takeover, disposal, or other similar transaction with another Non-exempt EDB during an Assessment Period, it must state, to the extent practicable, as part of its Annual Compliance Statement for that Assessment Period:

- (a) whether or not each of the Non-exempt EDBs involved in the transaction complied with the price path in clause 8 for that Assessment Period; and
- (b) whether or not each of the Non-exempt EDBs involved in the transaction complied with the quality standards in clause 9 for that Assessment Period.

10.2 If a Non-exempt EDB completed a purchase, merger, takeover, disposal, or other similar transaction with an EDB in the preceding Assessment Period:

- (a) the price path for the current Assessment Period must be calculated in accordance with clause 8 as if the transaction occurred at the beginning of the current Assessment Period; and
- (b) the Reliability Limits for the current Assessment Period must be recalculated using the process outlined in Schedule 3 as if the transaction occurred at the beginning of the Reference Period; and
- (c) the Assessed Values for the current Assessment Period must be calculated using the process outlined in Schedule 3; and
- (d) the annual reliability assessments as specified in clause 9.2 for the two immediately preceding extant Assessments Periods must be recalculated using the process outlined in Schedule 3 as if the transaction had occurred at the beginning of those periods.

10.3 If—

- (a) the Commission is satisfied that, because of a lack of information, beyond the control of the Non-exempt EDB, it is not practicable to determine whether a Non-exempt EDB involved in a purchase, merger, takeover, disposal, or other similar transaction complied with the price path and quality standards in an Assessment Period; and
- (b) the Non-exempt EDB demonstrates to the satisfaction of the Commission, by use of an alternative approach that has the equivalent effect of clauses 8 and 9, that the substance of those clauses has been complied with—

the Non-exempt EDB will be regarded as having complied with the default price-quality path during that Assessment Period.

10.4 If System Fixed Assets were transferred from Transpower to a Non-exempt EDB by way of sale, gifting, lease or similar transaction, the Non-exempt EDB must, for the Assessment Period that immediately follows the Assessment Period in which the transfer was completed:

- (a) recalculate its Reliability Limits using the process outlined in Schedule 3, including the planned and unplanned interruptions by Transpower that are relevant to the System Fixed Assets transferred, as if the transfer occurred at the beginning of the Reference Period; and
- (b) calculate its Assessed Values using the process outlined in Schedule 3, including any planned and unplanned interruptions by Transpower that are relevant to the System Fixed Assets transferred.

## 11 Annual Compliance Statement

11.1 Every Non-exempt EDB must provide to the Commission within 50 working days following each Assessment Date, an Annual Compliance Statement consisting of:

- (a) a written statement that states whether or not the Non-exempt EDB has complied with the price path in clause 8 and the quality standards in clause 9 in respect of the Assessment Period ending on that Assessment Date;
- (b) sufficient information to support the statement required by paragraph (a), including:
  - (i) the amount of allowable notional revenue, the amount of notional revenue, Prices, Quantities, units of measurement associated with all numeric data, and other relevant data, information, and calculations;
  - (ii) the amounts of Pass-Through Costs, including both the forecast amounts when the Non exempt EDB set Prices for the Assessment Period and the actual amounts for the Assessment Period, and any information relevant to the variance between the forecast and actual amounts;

- (iii) if the Non-exempt EDB restructured its Prices as referred to in clause 8.6, information of the kind set out in clause 11.1(b) paragraphs (i) and (ii) that demonstrates:
  - (a) if clause 8.6(a) applies, whether or not the restructuring has of itself increased the Non-exempt EDB's allowable notional revenue above that which would have applied if the restructuring had not occurred, using both the previous and restructured Prices and Quantities; and
  - (b) if clause 8.6(b) applies, whether or not the restructuring has of itself increased the Non-exempt EDB's revenue above that which would have applied if the restructuring had not occurred, using both the previous and restructured Prices and Quantities, and reasoning why it is not practicable for the Non-exempt EDB to demonstrate the effects of the restructuring on allowable notional revenue; and
  - (c) if clause 8.7 applies, why it is not practicable for the Non-exempt EDB to demonstrate the effects of the restructuring on allowable notional revenue or revenue;
- (iv) Assessed Values and Reliability Limits for the Assessment Period, relevant SAIDI and SAIFI statistics and calculations (including those in Schedule 3), the annual reliability assessments for the two immediately preceding extant Assessment Periods, and other relevant data and information;
- (v) a description of policies and procedures which the Non-exempt EDB has used for recording the SAIDI and SAIFI statistics for the Assessment Period;
- (vi) if System Fixed Assets were transferred from Transpower to the Non-exempt EDB, SAIDI and SAIFI statistics and calculations (including those in Schedule 3) for the Assessment Period in which the transfer was completed that demonstrate whether or not the transfer increased the Non-exempt EDB's Assessed Values;
- (vii) if a Non-exempt EDB used an alternative approach to demonstrate compliance as referred to in clause 10.3, an explanation as to why that alternative approach was needed;
- (viii) the date on which the statement was prepared; and
- (c) a certificate in the form set out in Schedule 5, signed by at least one Director of the Non-exempt EDB.

11.2 An Annual Compliance Statement referred to in clause 11.1 must be accompanied by a report on the Annual Compliance Statement that is signed by an Auditor and is in the form set out in Schedule 4.

11.3 An Auditor's report given for the purposes of clause 11.2:

- (a) may be qualified only if the Auditor considers that the Annual Compliance Statement concerned has not been prepared, in all material respects, in accordance with this determination, and the report explains with full reasons the respects in which the statement so fails; and
- (b) where this determination requires the Commission to be satisfied in relation to a matter, need not express a view in relation to the Commission's satisfaction.

Dated at Wellington this 30th day of November 2009.  
COMMERCE COMMISSION

## **SCHEDULE 1**

*Clause 8*

### **STARTING PRICES**

The starting Prices that apply during the Regulatory Period are the Prices that applied as at 31 March 2010.

## **SCHEDULE 2**

*Clause 8*

### **RATE OF CHANGE**

The annual rate of change in Prices (i.e., X) is 0%.

## SCHEDULE 3

Clause 9

### RELIABILITY LIMITS AND ASSESSED VALUES

This schedule sets out the process for calculating a Non-exempt EDB's Reliability Limits and Assessed Values for the purposes of assessing compliance with the quality standards as set out in clause 9.

#### Reliability Limits

In order for a Non-exempt EDB to calculate its Reliability Limits, the Non-exempt EDB must undertake the steps set out below:

##### *Develop a non-zero dataset*

Construct a non-zero dataset containing only those days from the Reference Dataset where the daily SAIDI Value is greater than zero (i.e., exclude zero SAIDI days).

##### *Calculate boundary values*

Using the non-zero dataset, calculate the SAIDI boundary value ( $B_{SAIDI}$ ) as follows:

$$B_{SAIDI} = e^{(\alpha_{SAIDI} + 2.5\beta_{SAIDI})}$$

where:

$\alpha_{SAIDI}$  is the average of the natural logarithm ( $\ln$ ) of each daily SAIDI Value in the non-zero dataset;

$\beta_{SAIDI}$  is the standard deviation of the natural logarithm ( $\ln$ ) of each daily SAIDI Value in the non-zero dataset.

Using the non-zero dataset, calculate the SAIFI boundary value ( $B_{SAIFI}$ ) as follows:

$$B_{SAIFI} = e^{(\alpha_{SAIFI} + 2.5\beta_{SAIFI})}$$

where:

$\alpha_{SAIFI}$  is the average of the natural logarithm ( $\ln$ ) of each daily SAIFI Value in the non-zero dataset;

$\beta_{SAIFI}$  is the standard deviation of the natural logarithm ( $\ln$ ) of each daily SAIFI Value in the non-zero dataset.

##### *Normalise the Reference Dataset*

For any day in the Reference Dataset where the daily SAIDI Value is greater than  $B_{SAIDI}$ :

- (i) replace the daily SAIDI Value with  $B_{SAIDI}$ ; and
- (ii) replace the daily SAIFI Value with  $B_{SAIFI}$  if the daily SAIFI Value for that day exceeds  $B_{SAIFI}$ .

### ***Calculate Reliability Limits***

The SAIDI Reliability Limit ( $SAIDI_{LIMIT}$ ) is as follows:

$$SAIDI_{LIMIT} = \mu_{SAIDI} + \sigma_{SAIDI}$$

where:

$\mu_{SAIDI}$  is the average annual SAIDI Value in the Normalised Reference Dataset, which is given by:

$$\frac{\text{Sum of daily SAIDI Values in the Normalised Reference Dataset}}{5}$$

$\sigma_{SAIDI}$  is the standard deviation of daily SAIDI Values in the Normalised Reference Dataset multiplied by  $\sqrt{365}$ .

The SAIFI Reliability Limit ( $SAIFI_{LIMIT}$ ) is as follows:

$$SAIFI_{LIMIT} = \mu_{SAIFI} + \sigma_{SAIFI}$$

where:

$\mu_{SAIFI}$  is the average annual SAIFI Value in the Normalised Reference Dataset, which is given by:

$$\frac{\text{Sum of daily SAIFI Values in the Normalised Reference Dataset}}{5}$$

$\sigma_{SAIFI}$  is the standard deviation of daily SAIFI Values in the Normalised Reference Dataset multiplied by  $\sqrt{365}$ .

### **Assessed Values**

In order to calculate its Assessed Values, a Non-exempt EDB must undertake the steps set out below.

#### ***Normalise the Assessment Dataset***

For any day in the Assessment Dataset for Assessment Period  $t$  where the daily SAIDI Value is greater than  $B_{SAIDI}$ :

- (i) replace the daily SAIDI Value with  $B_{SAIDI}$ ; and
- (ii) replace the daily SAIFI Value with  $B_{SAIFI}$  if the daily SAIFI value for that day exceeds  $B_{SAIFI}$ .

#### ***Calculate Assessed Values***

- (a) The SAIDI Assessed Value ( $SAIDI_{ASSESS,t}$ ) is the sum of daily SAIDI Values in the Normalised Assessment Dataset for the Assessment Period  $t$ ; and
- (b) The SAIFI Assessed Value ( $SAIFI_{ASSESS,t}$ ) is the sum of daily SAIFI Values in the Normalised Assessment Dataset for the Assessment Period  $t$ .

## SCHEDULE 4

Clause 11

### FORM OF AUDITOR'S REPORT ON ANNUAL COMPLIANCE STATEMENT

To the readers of the Annual Compliance Statement of *[insert name of Non-exempt EDB]* for the Assessment Period ended on *[insert Assessment Date]*:

I/We have audited the attached statement, which is an Annual Compliance Statement in respect of the default price-quality path prepared by *[insert name of Non-exempt EDB]* for the period *[insert Assessment Period]* and dated *[insert date]* for the purposes of clause 11 of the *Commerce Act (Electricity Distribution Default Price-Quality Path) Determination 2010* (“the Determination”).

In relation to the price path set out in clause 8 of the Determination, my/our audit included examination, on a test basis, of evidence relevant to the amounts and disclosures contained on pages *[insert page references]* of the Annual Compliance Statement.

In relation to the SAIDI and SAIFI statistics for the Reference Period and the Assessment Period ended on *[insert Assessment Date]*, including the calculation of the Reliability Limits and the Assessed Values, which are relevant to the quality standards set out in clause 9 of the Determination, my/our audit included examination, on a test basis, of evidence relevant to the amounts and disclosures contained on pages *[insert page references]* of the Annual Compliance Statement.

My/Our audit also included assessment of the significant estimates and judgments, if any, made by *[insert name of Non-exempt EDB]* in the preparation of the Annual Compliance Statement and assessment of whether the basis of preparation has been adequately disclosed.

#### **Directors' Responsibilities**

The Directors of *[insert name of Non-exempt EDB]* are responsible for the preparation of the Annual Compliance Statement in accordance with the Determination and for such internal control as the Directors determine is necessary to enable the preparation of an Annual Compliance Statement that is free from material misstatement, whether due to fraud or error.

#### **Auditor's Responsibilities**

My/Our responsibility is to express an opinion on the Annual Compliance Statement based on my/our audit. I/We conducted my/our audit in accordance with International Standards on Auditing (New Zealand). Those standards require that I/we comply with ethical requirements and plan and perform the audit to obtain reasonable assurance about whether the Annual Compliance Statement is free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the Annual Compliance Statement. The procedures selected depend on the auditor's judgement, including the assessment of the risks of material misstatement of the Annual Compliance Statement, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the entity's preparation of the Annual Compliance Statement in order to design audit procedures that are appropriate in the

circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of accounting estimates, as well as evaluating the overall presentation of the Annual Compliance Statement.

I/We believe that the audit evidence I/we have obtained is sufficient and appropriate to provide a basis for my/our audit opinion.

I/we have no relationship with, or interests in *[insert name of Non-exempt EDB]* other than *[insert relationship and/or interests including a statement verifying that no conflict of interest exists]*.

## **Opinion**

In my/our opinion, the Annual Compliance Statement of *[insert name of Non-exempt EDB]* for the Assessment Period ended on *[insert Assessment Date]*, has been prepared, in all material respects, in accordance with the Determination.

### **\*[Qualification on Opinion]**

\*[My/Our opinion is qualified as follows:]

\**[Insert the nature of and reason(s) for the qualification together with the impact on the Annual Compliance Statement]*.

My/Our audit was completed on *[insert date]* and my/our opinion is expressed as at that date.

*[Signature of Auditor]*

*[Name of auditing firm]*

*[Address of auditing firm]*

*[Date]*

\*Delete if inapplicable.

Note: Section 103(2) of the Commerce Act 1986 provides that no person shall attempt to deceive or knowingly mislead the Commission in relation to any matter before it. It is an offence to contravene section 103(2) and any person who does so is liable on summary conviction to a fine not exceeding \$10,000 in the case of an individual or \$30,000 in the case of a body corporate.

## SCHEDULE 5

Clause 11

### FORM OF DIRECTORS' CERTIFICATE ON ANNUAL COMPLIANCE STATEMENT

I/We, *[insert full name/s]*, being director/s of *[insert name of Non-exempt EDB]* certify that, having made all reasonable enquiry, to the best of my/our knowledge and belief, the attached Annual Compliance Statement of *[name of Non-exempt EDB]*, and related information, prepared for the purposes of the *Commerce Act (Electricity Distribution Default Price-Quality Path) Determination 2010* are true and accurate *\*[except in the following respects]*.

*\*[insert description of non-compliance]*

*[Signatures of Directors]*

*[Date]*

*\*Delete if inapplicable.*

Note: Section 103(2) of the Commerce Act 1986 provides that no person shall attempt to deceive or knowingly mislead the Commission in relation to any matter before it. It is an offence to contravene section 103(2) and any person who does so is liable on summary conviction to a fine not exceeding \$10,000 in the case of an individual or \$30,000 in the case of a body corporate.

## EXPLANATORY NOTE

The purpose of the *Commerce Act (Electricity Distribution Default Price-Quality Path) Determination 2010* (“the Determination”) is to set a default price-quality path for non-exempt EDBs for the 5 years beginning 1 April 2010, pursuant to Part 4 of the Commerce Act 1986 (“the Act”).

Pursuant to section 53N of the Act, each non-exempt EDB is required to provide to the Commission an annual compliance statement stating whether or not it has complied with the default price-quality path set in this determination together with supporting evidence. The annual compliance statement is to be accompanied by both an auditor’s report and a directors’ certificate. Each non-exempt EDB should publish its annual compliance statement on its website as soon as practicable.

The Commission is permitted under section 54K(2) of the Act to make this determination prior to the determination of applicable input methodologies. The Commission intends to amend this determination (including the provisions relating to starting prices) following the publication of input methodology determinations.

Once applicable input methodologies have been determined, the Commission will also amend this determination to state the annual period during which any proposal for a customised price-quality path must be received (given that the requirements and criteria for such proposals will be set in input methodology determinations under section 52T(1)(d) of the Act).

The allowable notional revenue for the first assessment period (i.e., the period from 1 April 2010 to 31 March 2011) has been set out in clause 8.5. This clause has been included to remove potential misunderstanding of the use of starting prices in the price path and demonstrates that 31 March 2010 prices may be inflated by the CPI-X term.

The Commission has conducted a comprehensive process of consultation before making this determination. A decisions paper providing detailed background to, and analysis of, this determination, has been issued together with this determination, and can be found at:

<http://www.comcom.govt.nz/IndustryRegulation>

Copies of this determination are available for inspection free of charge at the Commission (during ordinary office hours), on the Commission’s website at the above link, or for purchase at a reasonable price at the Commission.