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ECONOMICS
AUSTRALIA

NEW ZEALAND ELECTRICITY DISTRIBUTION BUSINESSES LABOUR AND MATERIAL COST ESCALATION

**REPORT FOR ORION NZ, WELLINGTON
ELECTRICITY AND VECTOR**

JUNE 2024

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1. EXECUTIVE SUMMARY

Summary

The Commission published the draft DPP4 on the 29th of May 2024, which sets out a methodology for the cost inflators that will form part of the operating and capital expenditure forecasts for the regulated NZ EDBs over the 2025-2030 regulatory period.

The Commission indicates that a forecast of the All Groups CGPI will be used as the basis for CAPEX cost escalation, with an additional adjustment of +0.8% per annum. The Commission indicates that a forecast of the All Industries LCI and PPI (weighted 60%/40%) will be used as the basis for OPEX cost escalation, with an additional adjustment of +0.3% per annum to both indices.

Inflationary pressures which impact the operating and capital expenditure of EDBs is likely to outpace economy-wide inflationary pressures over the forthcoming regulatory period (2025-2030). This is evidenced historically, wherein price indices which are more specific to the activities of EDBs (e.g., EGWWS LCI and EDB CGPI) have seen higher cost growth than other more broad measures of inflation (e.g., the All Groups CGPI, All Industries LCI and PPI).

We anticipate that this trend will continue over the 2025-2030 regulatory period – there is substantial upside risk to inflationary pressures which are targeted towards the electricity and construction sectors. This includes a significant ramp-up in the global demand for materials and equipment required for constructing or maintaining electricity assets and a strong outlook for relevant commodity markets (copper and aluminium). Uncertainty around the exact speed of the transition presents upside risk to energy commodity prices and construction materials, while still including a substantial rise in demand for materials and equipment related to the construction of new electricity assets. In our opinion, there is strong possibility of supranormal escalation pressures reemerging in forthcoming years.

Considering cost escalation for CAPEX, we consider that the upwards adjustment of 0.8% may underestimate the increased inflationary pressures faced by EDBs over the remainder of the decade. This would repeat the situation from DPP3, where EDBs have faced significantly higher cost escalation pressures than allowed for in the DPP3 regulatory period.

The adjustment of 0.8% is based on the disparity between the All Groups CGPI and the EDB CGPI over the five years to 2023, which is significantly below the long term difference in the two indices (+3.1%, see table below). Even if the highly volatile FY2007-2009 period is removed from the long term average, then the disparity is 1.8% which is more than double the proposed upwards adjustment. Similarly, this adjustment is below the long term historical disparity between the closest Australian equivalent of these two indices (GFCF IPD and Electricity IPD, +1.9%).

The historical 'closeness' of the reference period (CY2019-2023) is not necessarily good reasoning for the calculation of the potential future disparity between the All Groups CGPI and the EDB CGPI. The inflationary pressures which impacted domestic and global economies in the past three years have been uniquely far-reaching across many aspects of the economy. Recent growth outcomes in the All Groups CGPI are relatively extreme compared to historical growth whereas recent growth outcomes in the EDB CGPI are well beneath historical peaks in escalation. The historical reference period used for the calculation of the 0.8% adjustment covers a period where the disparity between the two indices is at its lowest.

Considering cost escalation for OPEX, we would suggest that the upwards adjustment of 0.3% to LCI, based on the average difference between EGWW LCI and All Industry LCI over the five years to 2023 for labour costs is reasonable. By comparison, the EGWWS LCI has outperformed the All Industries LCI by an average annual value of 0.5% between FY2020-2024 and by 0.2% since the inception of the index (FY2011). However, this long term average doesn't consider that there is likely to be increased wage pressure on the utilities sector over the next decade (related to heightened demand for electricity-related skills, both domestically and globally).

It is difficult to determine the adequacy of this adjustment for the All Industries PPI without a more detailed understanding of the cost inputs related to EDBs OPEX profiles. Given the likely overlap in cost drivers between network OPEX, as opposed to non-network OPEX, and CAPEX cost escalation, we would suggest that for network OPEX there is also a heightened risk of the upwards adjustment underestimating the full extent of the sector specific inflationary pressures compared to the broader economy PPI. An adjustment to the methodology which would account more readily for the sector-specific inflationary pressures would be to apply the escalator for CAPEX to non-labour network OPEX.

Time Period	EDB CGPI minus All Groups CGPI	Electricity CGPI minus All Groups CGPI	Australian Electricity IPD minus GFCF IPD
CY1994-2023	3.1%	1.5%	2.1%
CY2000-2023	3.6%	1.7%	2.5%
CY2010-2023	1.5%	0.2%	0.5%
CY2019-2023	0.8%	0.2%	0.4%

Notes: EDB CGPI represents the electricity distribution lines capital goods price index, the electricity CGPI represents the electricity distribution, transmission and generation capital goods price index, the Australian electricity IPD represents the non-hydroelectricity engineering construction implicit price deflator and the GFCF IPD represents the gross fixed capital formation implicit price deflator. The Australian Electricity IPD more closely aligns to the New Zealand Electricity CGPI, as it contains transmission and non-hydro generation capital goods, as compared to the New Zealand EDB CGPI.

The percentage figures represent the difference in annual growth rate between the two indices. The calculations are based on approach used by the Commerce Commission and is the moving annual average percentage change difference, calculated per quarter between calendar year 2019 and 2023. '

Introduction

Oxford Economics Australia (OEA) was engaged by Orion, Wellington Electricity and Vector to prepare a report detailing the key factors that underpin recent and future cost escalation pressures relevant to the New Zealand (NZ) electricity sector. This report includes a discussion on the broader outlook for the economy, recent cost escalation outcomes and key inflationary risks, and the implications for NZ EDBs given the regulatory environment.

Measures of Cost Escalation

Measures of inflation are used to convert real estimates of operating and capital expenditure into nominal. This is achieved through a price index, where growth in the index represents an increase in prices for a 'fixed' basket of goods or services – typically based on relevant survey data.

There are various price indices which are published by StatsNZ, including producer price indices (PPI) and capital goods price indices (CGPI). The PPIs measure changes in the price of outputs that generate operating income and inputs that incur operating expenses. The CGPIs estimates the overall price change in physical assets that the productive sector acquires or builds.

Broad economy-wide price indices which are relevant to the remainder of this section include the All Groups CGPI, All Industries LCI and PPI. More specific price indices relevant to the electricity sector include the electricity distribution lines CGPI ('EDB CGPI') and the electricity, gas, water and waste services LCI ('EGWWS LCI').

Historical Treatment of Regulatory Cost Inflation

The New Zealand Commerce Commission ('Commission') is responsible for regulating the price and quality of non-exempt electricity distribution businesses (EDBs). The electricity default price-quality path is set by the Commission and covers a five-year period – the current regulatory period covers 2020-2025 and is due to expire on 31 March 2025 (DPP3). The draft decision by the Commission for the 2025-2030 regulatory period (DPP4) was released on the 29th of May 2024.

A component of the default price-quality path is forecasts of operating and capital expenditure over the regulatory period, with a component of this forecast allocated to expected cost escalation over the period. In this context, cost escalation refers to inflationary pressures specific to the electricity sector that are expected to be faced by the NZ EDBs over the regulatory period. The forecast level of operating and capital expenditure partly determines the maximum price that EDBs are allowed to charge to their customers.

The current default price-quality path (DPP3) sets out a methodology for estimating cost escalation over the 2020-2025 regulatory period. Capital expenditure is escalated based on a forecast of the All Groups CGPI (the forecast provided by an independent consultant). Operating expenditure is escalated based on a forecast of the All Industries LCI and the All Industries PPI – a weighted average of growth rates in these two indices is used to generate the OPEX escalation index (60% LCI, 40% PPI).

The Commission published the draft DPP4 on the 29th of May 2024, which sets out a methodology for the cost inflators that will form part of the operating and capital expenditure forecasts for the regulated NZ EDBs over the 2025-2030 regulatory period.

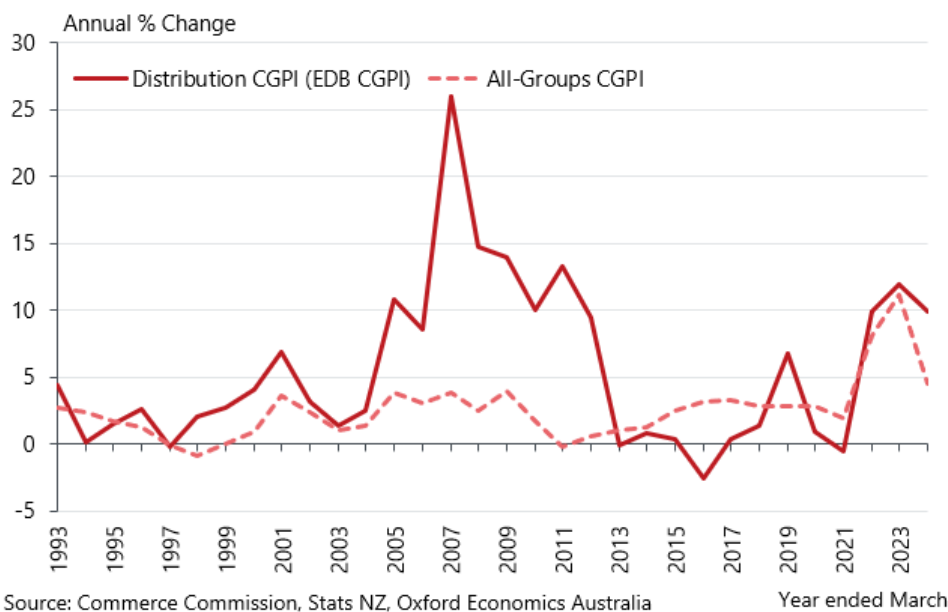
The Commission indicates in the draft that a forecast of the All Groups CGPI will be used as the basis for CAPEX cost escalation, with an additional adjustment of +0.8% per annum. The upwards adjustment is added based on the view, “that input price pressures are likely to continue over the short to medium term,” and “based on evidence of higher capital goods price inflation for EDBs than in the general economy.” The value of the adjustment is based on the additional inflation of the EDB CGPI beyond the All Groups CGPI over the past five years.

The Commission indicates that a forecast of the All Industries LCI and PPI (weighted 60%/40%) will be used as the basis for OPEX cost escalation, with an additional adjustment of +0.3% per annum to both indices. The uplift is included to reflect historic higher inflation in the EGWWS sector and is based on the disparity between the All Industries and the EGWWS LCI over the previous five years.

Historical Comparison between Regulatory Cost Escalators

The EDB CGPI has historically displayed high levels of index growth volatility compared to the broader All Groups CGPI measure. The EDB CGPI outpaced the All Groups CGPI throughout the 2000’s and in the early 2010’s – this gave way to a sustained period of weak cost pressures for the EDB CGPI between FY2013 and FY2021. This result is underpinned by a period of constraint in commodity markets over the 2010’s, leading into the broad deflationary pressures associated with the pandemic in the early 2020’s.

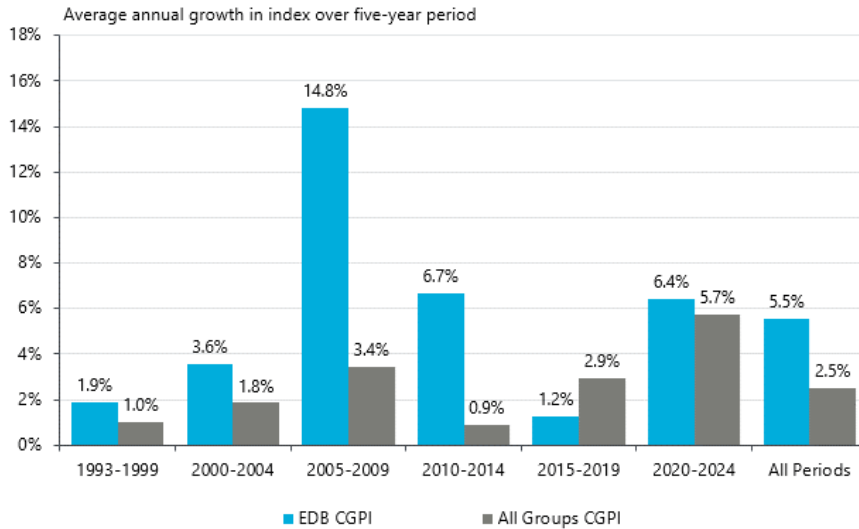
Fig. 1. EDB CGPI and All Groups CGPI Annual % Change



We have compared the average annual growth rate across the EDB CGPI, All Groups CGPI and the CPI over five-year periods, illustrated in Figure 2. The EDB CGPI has outpaced growth in the All Groups CGPI by an average of 3.0% per annum since the inception of the index (FY1993). The difference in annual growth between the two series has moderated in the past decade (FY2015-2019: -1.7%,

FY2020-2024: +0.7%¹) but the substantial disparity between FY2005-2014 drives the long-term difference in index growth.

Fig. 2. Average Five-Year Annual Growth Comparison, Selected Price Indices



Source: Stats NZ, Oxford Economics Australia

Year ended March

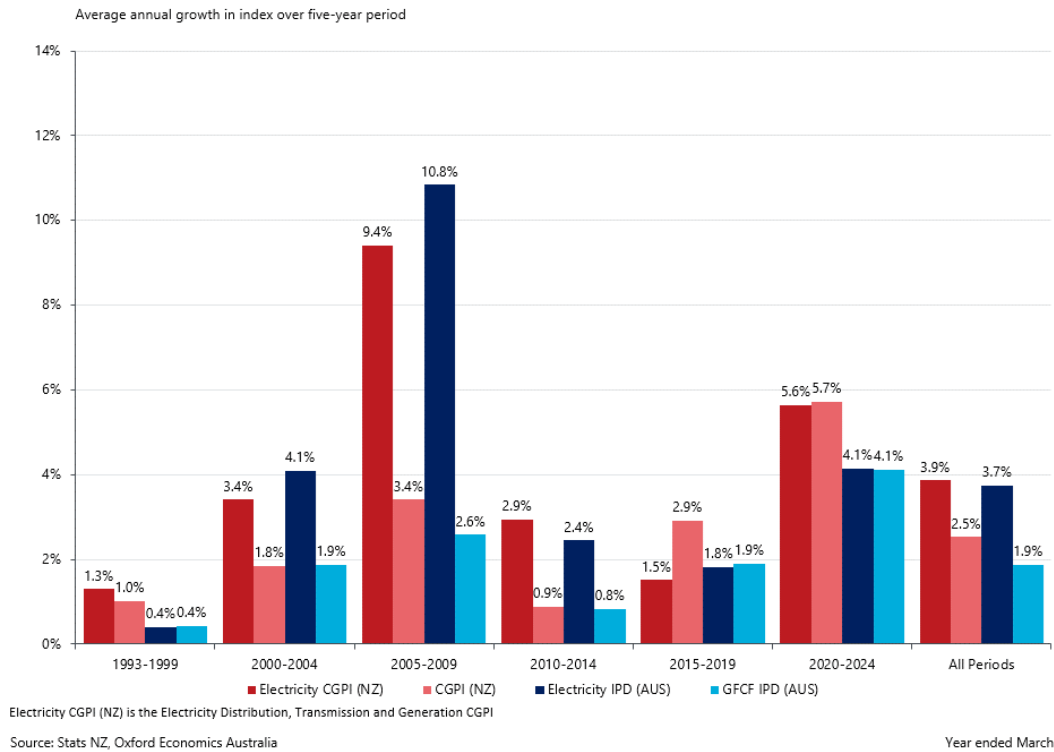
A similar disparity can be observed in equivalent Australian price indices – these include the All sector Gross Fixed Capital Formation IPD (GFCF IPD) for the All Groups CGPI and the “Non-Hydro Electricity Engineering Construction IPD” (electricity IPD) for the electricity distribution, transmission and generation CGPI. Given there is no equivalent published IPD for specifically electricity distribution (EDB CGPI), the analysis below focuses on the broader electricity sector CGPI grouping.

The Australian electricity IPD has demonstrated similar levels of historic volatility as the NZ equivalent, and the indices have averaged an annual long-term growth rate of 3.9% and 3.7% respectively between FY1993 and FY2024. Figure 3 provides a comparison between average annual growth between FY1993 and FY2024. The comparison covers the electricity CGPI and the All Groups CGPI for NZ and the electricity IPD and the GFCF IPD for Australia.

As in the NZ context, the Australian electricity IPD has outpaced growth in the GFCF IPD – the size of this disparity equal to 1.8% across the full period, with the most significant disparity occurring in the 2005-2009 period. Similar historical trends in cost growth across Australia and NZ would support the notion that electricity construction cost escalation is more exposed to stronger inflationary pressures compared to other capital or physical assets.

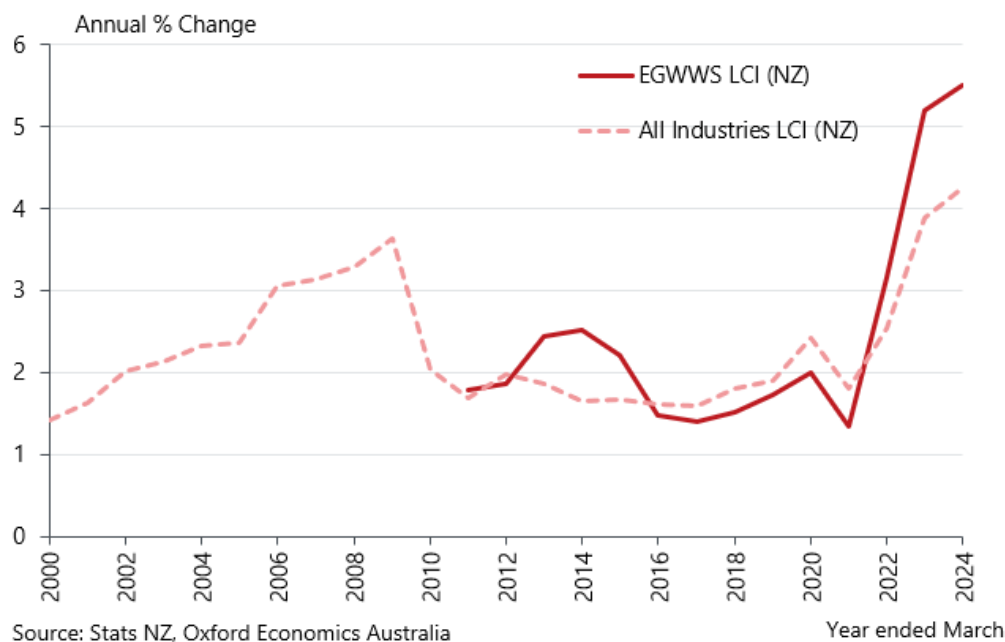
¹ This is calculated based on financial year end March moving annual average annual percentage change difference between the two indices. This may lead to slight discrepancies between calculations made by the Commission (and the table on page 3 of the report) which takes the moving annual average percentage change difference between the two indices for each quarter of the calendar year.

Fig. 3. Average Annual Five-Year Growth, Australian Comparison



The price indices used to measure OPEX cost escalation are the All Industries PPI and the LCI – the PPI does not have a sector specific equivalent which it can be historically compared against. However, labour cost growth in the All Industries LCI can be compared against the EGWWS LCI (see fig. below).

Fig. 4. EGWWS Wage Indices Comparison to All Industry



Data on sectoral wages is available from 2009 onwards, thus reducing the length of historical comparison between the two measures. Broadly, there is less volatility between the two labour cost indices compared to the CAPEX escalators – that said, the EGWWS LCI has outperformed the All Industries LCI by 0.2% since the inception of the index (FY2011-2024).

The past five years has seen this disparity widen, with the EGWWS LCI outpacing growth in the All Industries by an average annual value of 0.5% between FY2020-2024. Noting that the Commission has calculated a disparity of 0.3% between the two indices using the period between calendar year 2019-2023.

Cost Escalation Outlook and Inflationary Risks

Broadly, we anticipate that inflationary pressures will step-down over the rest of the decade, relative to the supranormal growth in recent years. That said, the current cycle of cost pressures is yet to fully play out – we anticipate continued strength in inflationary outcomes in FY2025. Partly, this is driven by the real wage declines over recent years, which is expected to lead to strong wage growth outcomes in years to come.

We anticipate that construction cost escalation will outpace broader inflationary measures over the second half of the decade. Construction input cost growth is relatively more exposed to international sectors than the broader economy – this is due to the relatively higher exposure to commodity prices, but also the higher usage of imported materials or equipment which are subject to global demand and supply pressures.

We expect significant demand pressures on material and equipment cost inputs related to (electricity) construction – furthermore, the outlook for key commodity markets such as copper and aluminium is strong due to global demand related to the energy transition.

There is upside risk to the inflationary pressures mentioned above – and in our opinion, the strong possibility of significant escalation pressures to remerge in forthcoming years. Key risk factors include:

Geopolitical Risk and Global Supply Chains

Global supply chains were constrained through the pandemic – rising levels of demand and rebounding economy activity was combined with lower productivity and industrial production. These supply chains are likely to remain relatively ‘thin’ compared to pre-COVID and prone to further disruptions/cost pressures if future shocks emerge such as geopolitical events (e.g., a ‘Middle East escalation’ scenario).

Cost escalation in the electricity sector is highly exposed to these shocks as evident in the historical volatility of the EDB CGPI. The surge of inflationary pressures captured in the index in the late 2000’s and early 2010’s is underpinned by (at that time) record heights of commodities such as copper, oil, aluminium, iron ore and coking coal.

The Global Energy Transition

Energy commodities (gas, oil, coal) are a key driver of construction cost escalation – this includes direct effects on fuel or electricity prices on-site, but also indirect effects on upstream manufacturing

and transport costs. This is particularly relevant for the construction sector which utilises materials that are relatively transport or energy intensive (e.g., steel and concrete).

The outlook for energy commodities is relatively soft over the second half of this decade and beyond, which places downward pressure on our expectations for cost escalation. However, on a global scale, the timing of the transition and thus demand for energy commodities is subject to significant uncertainty. There is a risk of prolonged or exacerbated volatility in energy commodity prices as the global economy transitions towards renewable sources of energy.

Net Zero Construction Materials

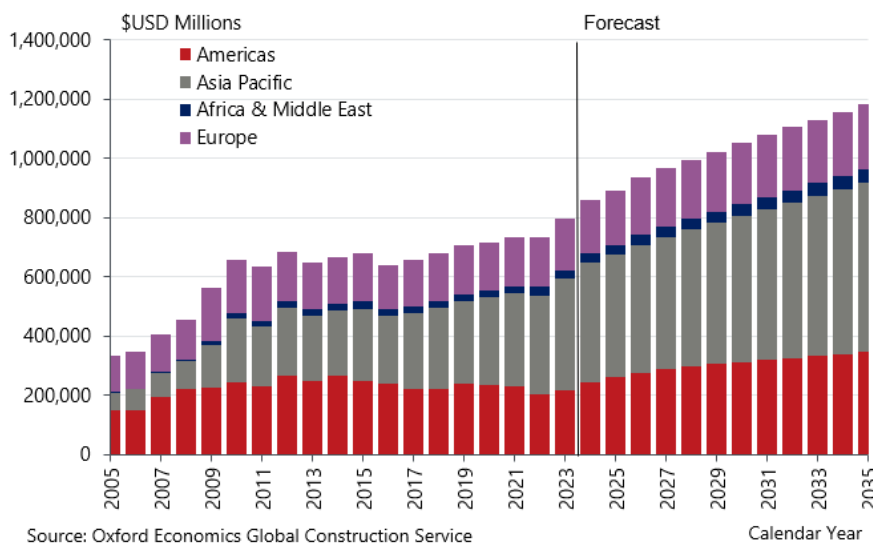
Similarly, there is significant uncertainty on the timing and cost of 'low carbon' alternatives to construction materials. Embodied emissions in the construction sector are primarily driven by the emissions created during the manufacturing of materials such as steel and concrete. A transition to net zero will require alternative methods of manufacturing for these materials and increased levels of recycling and re-use.

It is likely that the transition towards these materials will require, in the short term at least, an increase in costs. There is uncertainty in the timing of the transition and there is little understanding as to the impact on supply or price of construction materials as these markets do not yet exist.

Global Demand for Electricity Construction

The global electricity sector is entering a new paradigm in forthcoming years – the level of investment in electricity related infrastructure to meet emissions targets significantly exceeds previous levels of activity. Many of the materials relevant to the NZ electricity sector are imported, such that price growth is at least partially determined by global competing demand, which is expected to rise substantially over the next decade (see fig. below).

Fig. 5. Utilities Construction Work Done, by Regional Aggregate



Discussion of Draft Default Price-Quality Path (DPP4)

Inflationary pressures which impact the operating and capital expenditure of EDBs is likely to outpace economy-wide inflationary pressures over the forthcoming regulatory period (2025-2030). This is evidenced historically and discussed above, wherein price indices which are more specific to the activities of EDBs (e.g., EGWWS LCI and EDB CGPI) have seen higher cost growth than other more broad measures of inflation (e.g., the All Groups CGPI, All Industries LCI and PPI).

We anticipate that this trend will continue over the 2025-2030 regulatory period – there is substantial upside risk to inflationary pressures which are targeted towards the electricity and construction sectors. This includes a significant ramp-up in the global demand for materials and equipment required for constructing or maintaining electricity assets and a strong outlook for relevant commodity markets (copper and aluminium). Uncertainty around the exact speed of the transition presents upside risk to energy commodity prices and construction materials, while still including a substantial rise in demand for materials and equipment related to the construction of new electricity assets.

Discussion on CAPEX Cost Escalation Approach

A summary of the potential approaches referenced by the Commission in the draft DPP4 include:

- Usage of All Groups CGPI + 0.8% per annum
- Usage of EDB CGPI
- Usage of a weighted price index which combines numerous separate indices

The EDB CGPI would provide the most accurate measure of cost escalation for NZ EDB capital expenditure – it is a narrowly defined index specific to electricity distribution assets. However, usage of the EDB CGPI would increase the complexity of the approach, requiring forecasts of a historically more volatile cost index (relative to broader inflationary measures). The usage of a weighted price index has similar complexities.

The All Groups CGPI is a broader measure of capital goods inflationary pressures which doesn't capture the more targeted cost pressures faced by the electricity sector. However, the reasoning provided by the Commission for the usage of the index is reasonable – it is supported by the majority of stakeholders, it demonstrates relatively lower levels of volatility compared to alternatives and is defined broadly enough to not disincentivise effective cost management. Lower levels of volatility are not inherently a positive (indeed, historic volatility in the EDB CGPI is likely reflecting *actual* volatility in cost escalation) but it does allow for a simpler approach to forecasting future index growth.

However, the key issue remains that the All Groups CGPI does not account for the historically elevated cost escalation pressures which EDBs have faced (as measured by the EDB CGPI). The Commission acknowledges this and has adjusted the methodology to include a 0.8% increase above the forecast of All Groups CGPI per annum. The adjustment is calculated based on the disparity between the EDB CGPI and the All Groups CGPI between March 2019 and December 2023.

We agree with the reasoning provided for an upwards adjustment in cost escalation for construction-related activities. That said, the historical reference period used to calculate the size of the adjustment is unlikely to provide the most accurate representation of the potential disparity between the All

Groups CGPI and the EDB CGPI over the 2025-2030 regulatory period. As stated previously, the average long term disparity between the two price measures is 3.0% (FY1993-2024) – if the highly volatile FY2007-2009 period is removed from the long term average, then the disparity is 1.8% which is more than double the proposed upwards adjustment.

The historical 'closeness' of the reference period (CY2019-2023) is not necessarily good reasoning for the calculation of the potential future disparity between the All Groups CGPI and the EDB CGPI. The inflationary pressures which impacted domestic and global economies in the past three years have been uniquely far-reaching across many aspects of the economy. Recent growth outcomes in the All Groups CGPI are relatively extreme compared to historical growth (see Figure 1) whereas recent growth outcomes in the EDB CGPI are well beneath historical peaks in escalation.

The historical disparity between the two indices has been at its highest during periods of surging commodity prices that are directly related to the cost inputs or materials used in construction – that is, during periods of more targeted inflationary pressures to the construction (or electricity construction) sector.

We would suggest that the forthcoming regulatory period (2025-2030) has more targeted inflationary risks for (electricity) construction cost inflation relative to the broader economy. There is the risk that the 0.8% upwards adjustment will significantly underestimate the actual disparity in growth outcomes between the All Groups CGPI and the EDB CGPI over the 2025-2030 regulatory period.

Discussion on OPEX Cost Escalation Approach

The Commission establishes an approach for OPEX cost escalation wherein the weighted average of the All Industries LCI and PPI are used (60% and 40% respectively) to determine inflation, with an upwards adjustment of 0.3% per annum to both indices.

The upwards adjustment is based on the difference in moving annual percentage change in the EGWWS LCI and the All Industries LCI between March 2019 and December 2023. This adjustment related to labour cost would appear reasonable, it is above the long-term average disparity between the two indices (0.2% between FY2011-2024) but below the disparity in the past five years (0.5% between FY2020-2024). The long term average doesn't consider that there is likely to be increased wage pressure on the utilities sector over the next decade (related to heightened demand for electricity-related skills, both domestically and globally).

However, it is difficult to determine the adequacy of this adjustment for the All Industries PPI. We would suggest that there is overlapping inflationary pressures between non-labour network operating costs and capital good expenditure. Therefore, the input costs for certain materials used in network OPEX are impacted by stronger inflationary pressures than the broader economy. Further, we would then expect that these inflationary pressures would be subject to larger upside risk relative to economy-wide pressures over the forthcoming regulatory period.

An alternative approach which would account for this is to separate the treatment of cost escalation for network and non-network operating costs. The non-labour component of network operating costs would be escalated following the same methodology as capital expenditure. This would seem reasonable, given the assumption that the material requirements to maintain the network (network costs) would have costs driven by similar pressures as those used to build the network (capital costs).

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2. INTRODUCTION

Oxford Economics Australia (OEA) was engaged by Orion, Wellington Electricity and Vector to prepare a report detailing the key factors that underpin recent and future cost escalation pressures relevant to the New Zealand (NZ) electricity sector. This report includes a discussion on the broader outlook for the economy, recent cost escalation outcomes and key inflationary risks, and the implications for NZ EDBs given the regulatory environment.

The Stats NZ Tatauranga Aotearoa (*StatsNZ*) is New Zealand's official data agency is the primary data source for wages, employment, real gross value added, investment data and a range of other economic variables. The data used in the projections is the latest available as of June 2024, including the March quarter releases of the Consumer Price Index (CPI), Labour Cost Index (LCI) and the Producer Price Indices (PPI), plus the Reserve Bank of New Zealand's (RBNZ) forecasts for CPI contained in the RBNZ May 2024 'Monetary Policy Statement'. Other inflation and interest rate data were sourced from the Reserve Bank of New Zealand.

Section 3 provides a macroeconomic outlook for New Zealand. This section has forecasts of key economic variables plus a discussion of the drivers and logic underpinning the projections.

Section 4 includes a discussion on recent cost escalation pressures, a comparison between different cost escalators and key risks to future inflation.

Section 5 provides an overview of how cost escalation has been treated in the historical resets of the default price-quality path, with a focus on the DPP3 regulatory period (2020-2025).

Section 6 provides a discussion on the draft DPP4 treatment of cost escalation and the implications for NZ EDBs.

3. MACROECONOMIC AND INFLATIONARY OUTLOOK

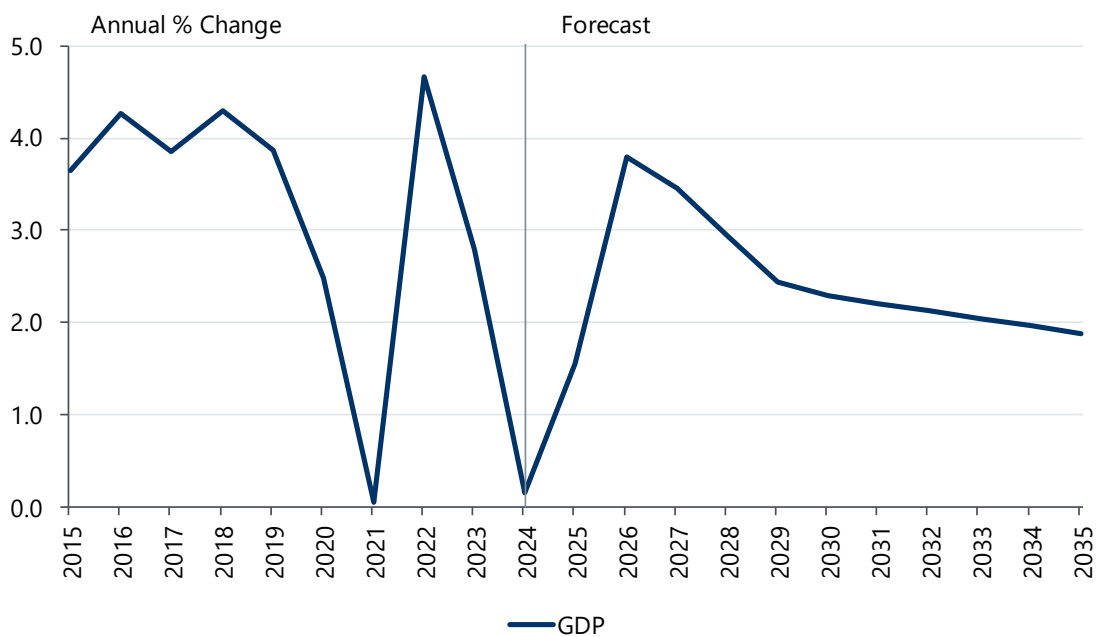
3.1 MACROECONOMIC OUTLOOK

The easing of pandemic-related restrictions boosted New Zealand’s Gross Domestic Product (GDP) to grow by 2.8% in FY2023. High inflation and interests have weighed on the economy with economic growth stalling in FY2024 – GDP growth easing to 0.2% in FY2024.

Inflationary pressure and persistently high interest rates have heavily impacted the New Zealand economy. The high cost of living increases has hampered consumption and investment. Importantly, this has seen increased pressure on wage growth to remain high in order to recover real wage losses over the past few years. Specifically for the utility sector, wage growth fell behind inflation from FY2021-2023. Whilst some minor recovery occurred in FY2024 (+0.4%), cost of living pressures is anticipated to keep wage growth high over the near term.

The New Zealand labour market, whilst easing, remains remarkably tight, adding further pressure on wage growth to perform strongly over the near term. The unemployment rate for New Zealand has begun increasing from historically low levels. After recording as low as 3.2% in early 2022, the unemployment has now reached 4%. This still represents a historically low level of unemployment signalling labour supply is yet to fully recover. Whilst supply remains tight, wage growth is expected to perform strongly over the near term.

Fig. 6. Gross Domestic Product Annual % Change



Source: Stats NZ, Oxford Economics Australia

Year ended March

The exchange rate, against the US dollar, for New Zealand has undergone strong levels of depreciation in recent years. The exchange rate dropped to a low of \$0.61 in December quarter 2022 and has hovered around this mark in the preceding 18 months. The New Zealand dollar is expected to undergo some minor appreciation over the decade, eventually reaching a long run average of \$0.69. Partly, this will offset some of the recent escalation pressures caused by increased import prices.

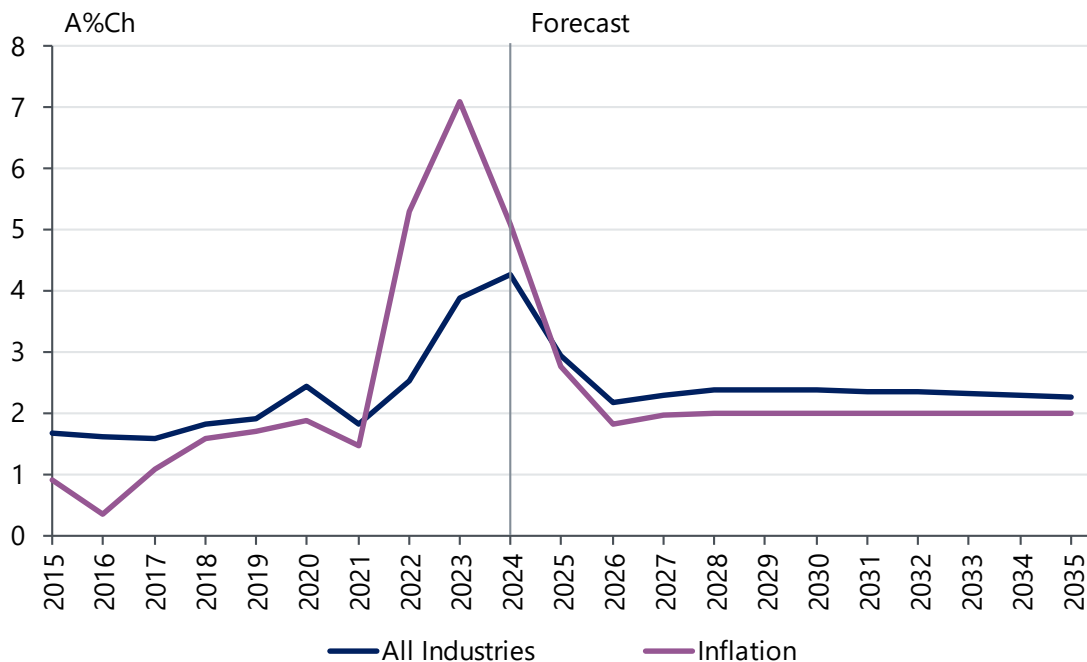
Forecasts of these key economic variables underpin our forecasts for inflationary pressures relevant to NZ EDBs. We have included a more detailed macroeconomic outlook in Appendix A.

3.2 CPI INFLATION AND WAGE GROWTH OUTLOOK

Inflation, as measured by the Consumer Price Index (CPI), is not an appropriate measure of construction cost escalation – the index measures changes in the cost of typical *household* expenditure items rather than the labour and materials used in construction. However, there is a correlation between inflation and construction costs, both directly (cost of new dwellings construction is in the CPI basket) and indirectly (relevance of inflation in determining wage outcomes).

Inflation was subdued for the five years to the March quarter of 2020, with annual (y/y) headline ranging between 0.3% and 1.9%; averaging 1.3%. The onset of COVID-19 saw considerable volatility in headline CPI measures over 2020 and 2021, however, by late 2021/early 2022 it was apparent that inflationary pressure was increasing and broadening. Severe supply chain disruptions, the outbreak of war in Ukraine, the zero-COVID-19 policy pursued by China and the tight labour market contributed to the demand-side pressures as lockdown measures eased.

Fig. 7. Consumer Price Inflation and Labour Cost Index, Annual % Change



Source: Stats NZ, Oxford Economics Australia

Year ended March

Resultingly, headline CPI moved up 5.3% and a further 7.1% in FY2022 and FY2023. The supply-side pressures have eased in recent quarters which has aided in slowing price increases – although demand-driven inflation will be slow to abate due to the tight labour market. Following an increase of 5.1% in FY2024, CPI is forecasted to fall within the RBNZ’s target range in FY2025, with an anticipated inflation rate of 2.8%.

The elevated inflation over the past few years has seen a decline in real wages. That is, the growth in wages has fallen behind the cost of the typical household’s goods and services. This loss is anticipated to drive wage growth over the near term as the labour force looks to recover the lost ground. This pressure is expected to be further exacerbated by the tight labour market as supply slowly meets demand.

The pandemic has resulted in a shift away from the low wage growth seen across 2014-21 with the All Industries Labour Cost Index (LCI) increasing to 2.5% in FY2022, 3.9% in FY2023 and a further 4.2% in FY2024. Ongoing labour market tightness will keep wage growth elevated until FY2027 with labour demand remaining strong and the unemployment rate stabilising between 4-5% over the next year.

Real growth for the New Zealand All Industries LCI is forecast to return to positive growth following three years of negative results to FY2024. Specifically, real wage growth is forecast to record a 0.3% increase in FY2025 as easing CPI inflation offers growth in real wages in subsequent years.

Further details on the drivers and outlook for CPI inflation and wage costs are included in Appendix C.

3.3 CONSTRUCTION OUTLOOK

Construction activity is measured by ‘work put in place’ and is published quarterly by Statistics New Zealand. Construction work put in place represents the level of demand in the economy for labour and relevant materials which are included in this report – thus, it is a key determinant for understanding historical cost escalation and contributes to our forecast for future cost growth across relevant wages and materials. This section includes the outlook for the sector across the three segments – residential, non-residential building and engineering construction.

The construction industry has performed robustly in recent years – work put in place has been relatively resilient to the impact of COVID-19. Despite holding near flat in FY2021 (+0.3%) with the initial onset of the restrictions limiting activity, the total sector has grown by an average of 4.3% over the eight years to FY2023, with work put in place exceeding \$48 billion in FY2023. This recent performance has been underpinned by development in residential activity and a large backlog of non-residential activity. However, the weight of elevated interest rates and construction costs have begun to hinder the industry, with total work put in place estimated to have declined in FY2024 (-1.0%).

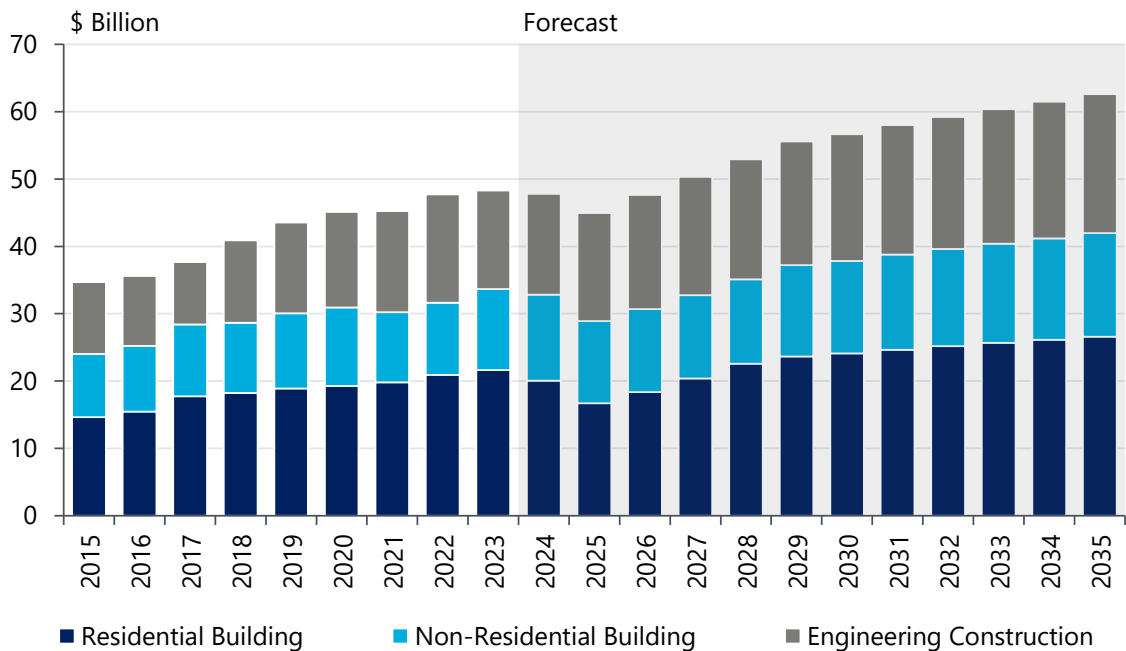
An increased pipeline of work anticipated across non-residential building and engineering construction is not forecast to offset a large decline in residential activity. As the cash rate remains at elevated rates and construction costs burden new developments, the residential sector is forecast to undergo a dramatic decline over the near term. From current levels (just over \$20 billion worth of work put in place in FY2024), the sector is forecast to fall by 16.6% in FY2025 to trough at \$16.7 billion. As a result, total construction work put in place is anticipated to fall by 6.0% in FY2025, which is

expected to see a decline in demand for construction workers across the near term. This is forecast to play through to a weaker growth profile for construction wages.

From FY2026, as interest rate pressures ease, cost pressures normalise and dwelling demand drives residential activity, work put in place is forecast to grow strongly to the end of the decade. Over the four years to FY2029, work put in place for the total construction sector is anticipated to grow by an average of 5.5% to exceed \$55 billion. Supporting the resurgent residential sector is expected to be a large pipeline of engineering construction work focused on improving the transport network’s resilience to natural disasters. This large uptick in construction work is expected to increase the demand for construction workers, resulting in upward pressure on construction wages.

A more detailed outlook for construction activity is included in Appendix B.

Fig. 8. Total Construction Work Put in Place by Segment



Source: Stats NZ, Oxford Economics Australia

Year ended March

4. MEASURES OF COST ESCALATION, HISTORICAL TRENDS AND FUTURE RISKS

4.1 MEASURES OF COST ESCALATION

Measures of inflation are used to convert real estimates of operating and capital expenditure into nominal. This is achieved through a price index, where growth in the index represents an increase in prices for a 'fixed' basket of goods or services – typically based on relevant survey data. The most prominent measure of inflation is the consumer price index (CPI), which measures changes in consumer prices based on the cost movements across a weighted basket of household goods and services.

However, CPI inflation is not an ideal measure of cost escalation in the construction or electricity sector² – it is a measure of *consumer* price movements, which is unlikely to align with the labour or materials required for operating or capital expenditure activities. There are various other price indices which are published by StatsNZ, including producer price indices (PPI) and capital goods price indices (CGPI). The PPIs measure changes in the price of outputs that generate operating income and inputs that incur operating expenses. The CGPIs estimates the overall price change in physical assets that the productive sector acquires or builds.

Based on prior experience and research conducted for this study, we have identified a selection of price indices relevant to NZ EDBs – these price indices overlap with measures identified in the draft default price-quality path (DPP4) by the Commission.

The category of price indices which are directly relevant to the escalation of physical assets is the capital goods indices. These measure price movements in the construction (or purchase) of physical assets and would implicitly capture labour and material cost escalation specific to that asset. The CGPIs are used in the New Zealand National Accounts to convert nominal values into a real constant price series. CGPIs relevant to the EDBs include:

- **All Groups:** a weighted average of individual capital good price indices.
- **Electricity generation, transmission and distribution:** a price index capturing price movements in electricity, generation, transmission and distribution physical assets.
- **Electricity distribution lines:** a price index which is a subset of the index above.
- **Electricity distribution and control apparatus:** a price index capturing price movements in electricity distribution and control apparatus.

² Noting that although this study is focused on businesses that operate within the electricity sector, capital expenditure activities would typically be considered construction related.

The PPI release from StatsNZ includes three types of price indices: input indices, output indices and commodity group indices. Relevant PPIs include (noting that this list is not exhaustive, just capturing the *most* relevant indices):

- **All Industries (input):** a weighted average of input price indices into industries of economy.
- **Construction (output):** a weighted average of output price indices related to segments of the construction industry (individual segment price indices are available; including building construction, heavy and civil engineering construction and construction services).

and more specific material related PPIs such as:

- Wood product manufacturing (output)
- Primary metal and metal product manufacturing (output)
- Fabricated metal product manufacturing (output)
- Electronics and electrical equipment manufacturing (output)

and commodity price indices such as:

- Ready-mixed concrete
- Diesel

Additionally, there are price indices which capture labour cost over time – these are published by StatsNZ and referred to as Labour Cost Indices (LCI). Relevant LCIs include:

- **All Industries:** a weighted average of labour cost movements across All Industries.
- **Construction:** labour cost index for construction industry.
- **Electricity, gas, water and waste services:** labour cost index for utility services industry.

Broadly, it should be noted that while some price indices are more relevant than others, there is no measure which will perfectly capture the cost escalation faced by EDBs³. Typically, price indices are broad measures that capture a range of occupations and products – partly, this is because the structure of the published indices are based on industry classifications rather than exact product categories.

This is particularly relevant for price indices related to electrical equipment used by EDBs (e.g., transformers and switchgears). The few indices related to electrical equipment are broad in nature (see ‘electronics and electrical equipment manufacturing’). Similarly, the price indices don’t consider the usage of imported materials in the construction or maintenance of electricity assets. For instance, electrical equipment used by EDBs may be predominately manufactured outside of NZ and thus a trade price index would be a more appropriate measure of historical cost growth. However, the Overseas Trade Indices (OTI) published by StatsNZ are similarly quite broadly defined - the most relevant index is the ‘electrical machinery and equipment import price index’.

³ There are various reasons for this – mainly, price indices are typically broad in definition due to the difficulty in accurately sampling price movements at higher levels of granularity (for instance, there is no price index for specifically transformers or switchgears). Further, price indices aim to capture *average* price movements across a fixed basket of goods or services – for instance, there may be regional differences in inflationary pressures which would not be accurately captured in a national price index.

4.2 HISTORICAL COST ESCALATION PRESSURES FOR NZ EDBS

4.2.1 Capital Expenditure Cost Escalation

This section will focus on historic escalation pressures for electricity construction and sectoral wages. The most relevant indices for electricity construction activities are the All Groups CGPI – a broad measure of capital good inflation – and the sector specific Electricity Distribution Lines CGPI ('EDB CGPI').

The EDB CGPI has historically displayed high levels of index growth volatility compared to the broader All Groups CGPI measure. The EDB CGPI outpaced the All Groups CGPI throughout the 2000's and in the early 2010's – this gave way to a sustained period of weak cost pressures for the EDB CGPI between FY2013 and FY2021. During this period, growth in the EDB CGPI fell below the All Groups CGPI by an average of 1.6% per annum (0.8% versus 2.4% between FY2013 and FY2021). This result is underpinned by a period of constraint in commodity markets over the 2010's, leading into the broad deflationary pressures associated with the pandemic in the early 2020's.

However, this period of low inflationary pressures would not persist – the most recent three financial years of data depict inflation pressures not experienced since the 2010's (and with respect to the All Groups CGPI, not ever experienced previously). The maturity of the pandemic and the loosening of movement restrictions generated sharp lifts in global economic activity (demand) – rising demand for transport and energy pressured commodity prices.

These demand pressures were further exacerbated by supply shocks – the outbreak of the Russia Ukraine War and the subsequent sanctions on Russian exports created an energy commodity crisis, with the aforementioned commodities moving to record heights. Benchmark oil prices (\$NZD/barrel) rose 77.4% in FY2022 and a further 32.4% in FY2023, with similar trends seen in steaming coal and LNG prices.

Construction material price growth is heavily influenced by underlying commodity prices, but escalation was further exacerbated by various other factors: increased import costs due to a depreciation in the New Zealand dollar, shipping costs sharply rose due to congestion and other supply disruptions related to the pandemic (including the weak industrial production out of China due to their prolonged lockdowns).

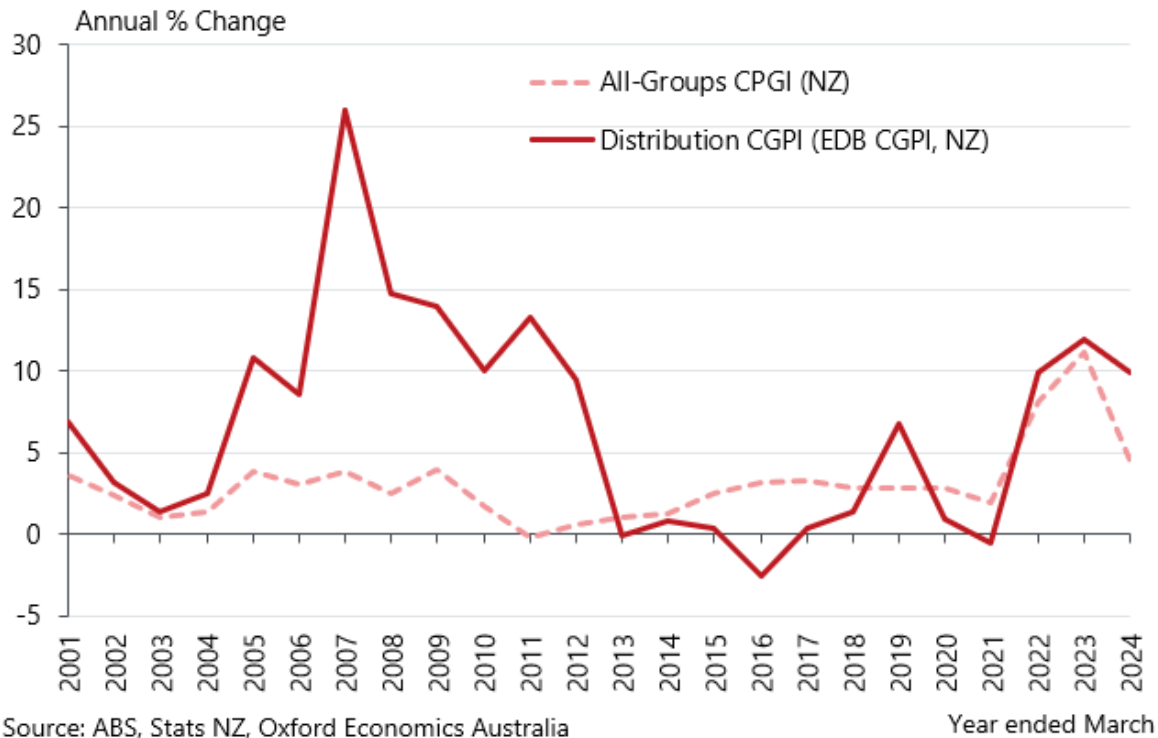
Domestically, higher levels of household savings during the pandemic provided a basis for consumption to return-to-form while fiscal stimulus targeted at infrastructure continued to drive up demand for construction materials. Additionally, the energy commodity crisis from the Russia Ukraine conflict had severe cost implications for international and domestic manufacturing supply chains – wherein strong growth in transport and electricity costs further contributed to the pressures listed above.

The above is reflected in relevant material price indices (whether that is capital goods price indices or producer price indices) – fabricated metal products rose 6.2% and 16.8% in FY2022 and FY2023, diesel prices (+40% and +48%) and concrete prices (+7.1% and +10.3%).

The recent inflationary pressures are broader based than the surge in cost escalation in the late 2000's and early 2010's – the EDB CGPI has risen by an average annual rate of 10.5% over FY2022 to FY2024

compared to an equivalent increase in the All Groups CGPI of 7.9% over the same period (+2.6% difference). Looking forward, inflationary pressures are easing – energy commodities have seen price reversions in the past 12 months, albeit prices are yet to return to pre-pandemic levels.

Fig. 9. EDB CGPI and All Groups CGPI Annual % Change



4.2.2 Operating Expenditure Cost Escalation

This section will focus on historic escalation pressures for electricity sector operating expenditure. The most relevant indices include the All Industries LCI – a broad measure of wage cost growth – and the sector specific electricity, gas, water and waste services LCI ('EGWWS LCI'). Additionally, we have included discussion on historical movements in the All Industries input PPI which is used by the Commission to estimate OPEX cost escalation.

The EGWWS LCI has historically demonstrated higher volatility compared to the All Industries LCI (see Figure 10). Relatively higher growth in the early 2010's reverted to a comparative underperformance against the All Industries LCI between FY2016-2021. Sectoral wage growth has ticked upwards in the past three years (3.1%, 5.2% and 5.5% in FY2022, 2023 and 2024) – although this represents a real wage decline in FY2022 and FY2023 (against CPI growth of 5.3% and 7.1% respectively).

Recent years also highlight an outperformance of EGWWS wage growth against the All Industries equivalent – utility wage growth has averaged 1.1% above broader economy wage growth between FY2022-2024. We anticipate continued pressure on wage growth in the forward outlook – although the EGWWS LCI saw real wage growth in FY2024, this was not mirrored in the All Industries LCI which saw a third consecutive year of real wage declines. The utilities and broader workforce will expect continued strength in wage growth to claw back the real wage losses from recent years.

The long-term difference between the EGWWS LCI and the All Industries LCI is equal to 0.2% (on an annual year end March basis). Data on sectoral wages is only available from June quarter 2009, thus the 0.2% is based on index growth between FY2011-2024. There is the risk that the divergence between the EGWWS and the All Industries LCI will outpace the long-term average (i.e., the EGWWS LCI will average annual growth higher than 0.2% above the All Industries in future years). The long-term average doesn't consider that there will likely be increased wage pressures on the utilities sector over the next decade related to heightened demand for electricity-related skills, both domestically and globally.

The All Industries PPI has been impacted by price pressures similar to what was discussed in Section 4.2.1. The index averaged a growth rate of 3.0% between FY2000-2024, with heightened levels of volatility compared to broader CPI inflation (see Figure 11). After falling to an annual growth rate of 0.2% in FY2021, the PPI shifted to 7.7% in FY2022 and FY2023. The most recent financial year has seen price growth soften, moving down to 1.8% in FY2024.

Fig. 10. EGWWS Wage Index Comparison to All Industries

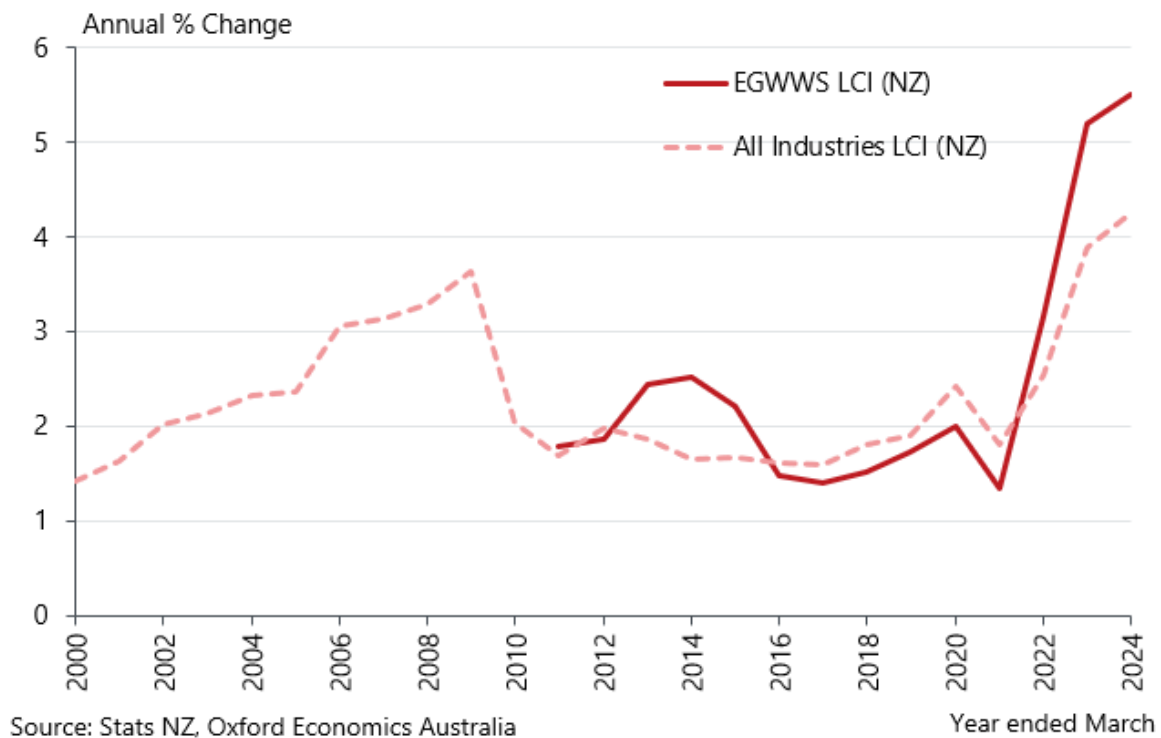
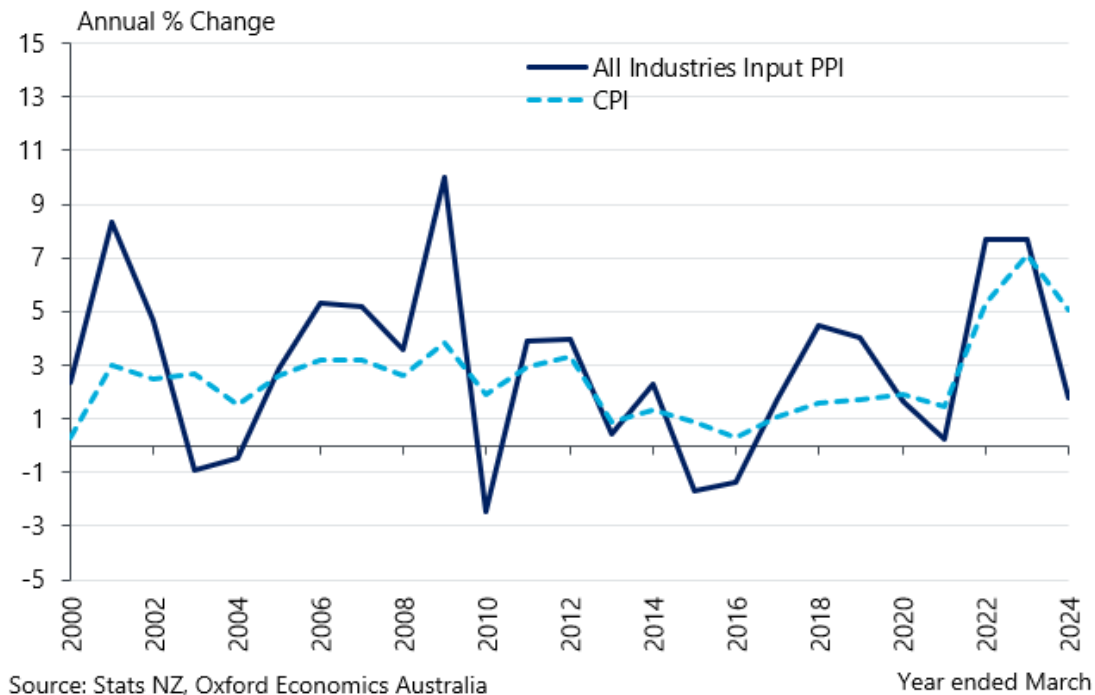


Fig. 11. All Industries PPI Comparison to CPI Inflation



4.2.3 Comparison to Australian Cost Escalation Outcomes

Historical cost escalation outcomes for capital expenditure (i.e., construction related) as measured by the capital goods price indices, has seen similar volatility as equivalent Australian indices. Australian equivalents would be the All sector Gross Fixed Capital Formation IPD (GFCF IPD) for the All Groups CGPI and the “Non-Hydro Electricity Engineering Construction IPD” (electricity IPD) for the electricity distribution, transmission and generation CGPI. There is no equivalent published IPD for specifically electricity distribution (EDB CGPI).

The Australian electricity IPD has historically followed similar growth trends as the electricity CGPI, as illustrated in Figure 12 below. The IPD has demonstrated similar levels of historic volatility as the NZ equivalent, with the indices averaging an annual growth rate of 3.7% and 3.9% respectively between FY1993-2024 (see Figure 13).

Figure 13 provides a comparison between average annual growth between FY1993 and FY2024. The comparison covers the electricity CGPI and the All Groups CGPI for NZ and the electricity IPD and the GFCF IPD for Australia. As in the NZ context, the Australian electricity IPD has outpaced growth in the GFCF IPD – the size of this disparity equal to 1.8% across the full period, with the most significant disparity occurring in the 2005-2009 period.

The main implication is that the similar historical trends in cost growth across Australia and NZ would support the notion that electricity construction cost escalation is more exposed to stronger inflationary pressures compared to other capital or physical assets. As discussed previously, we would suggest that the predominant driver of these inflationary pressures is a higher exposure of electricity construction costs to international markets, including commodity prices.

Fig. 12. Electricity Construction Price Index Comparison

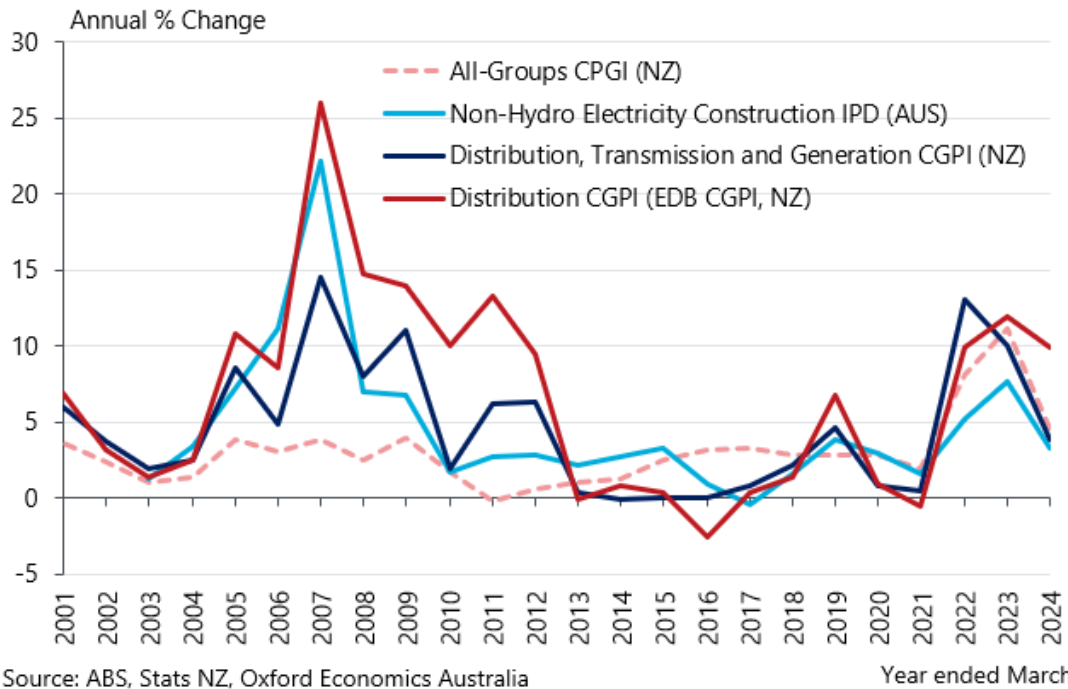
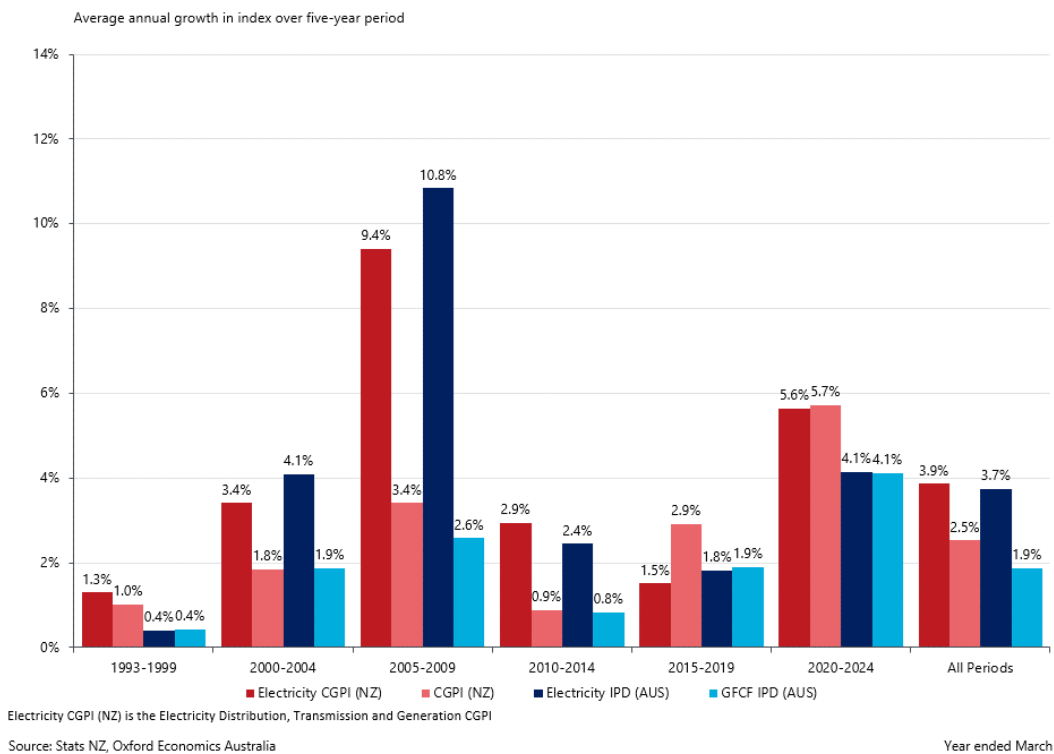


Fig. 13. Average Annual Five-Year Growth, Selected Price Indices



The escalation of Australian labour costs is based on the Wage Price Index (WPI) data series published by the ABS. The WPI data is available as a weighted average across All Industries but is also available by state and sector (e.g., New South Wales Construction WPI). The Australian WPI series is an

equivalent measure of labour cost growth to the NZ LCI. As with New Zealand, the sectoral WPIs in Australia have grown at a higher rate than the All Industries WPI. The EGWWS WPI has averaged long-term annual growth that is 0.4% higher than the All Industries between FY2020-2024.

Fig. 14. EGWWS Wage Indices Comparison to All Industries

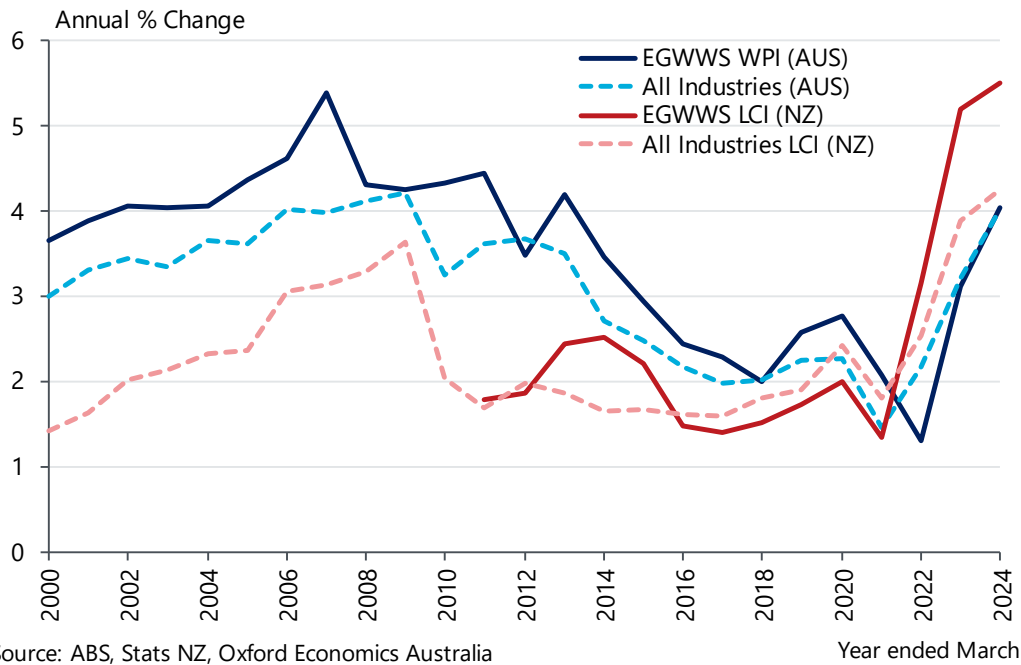
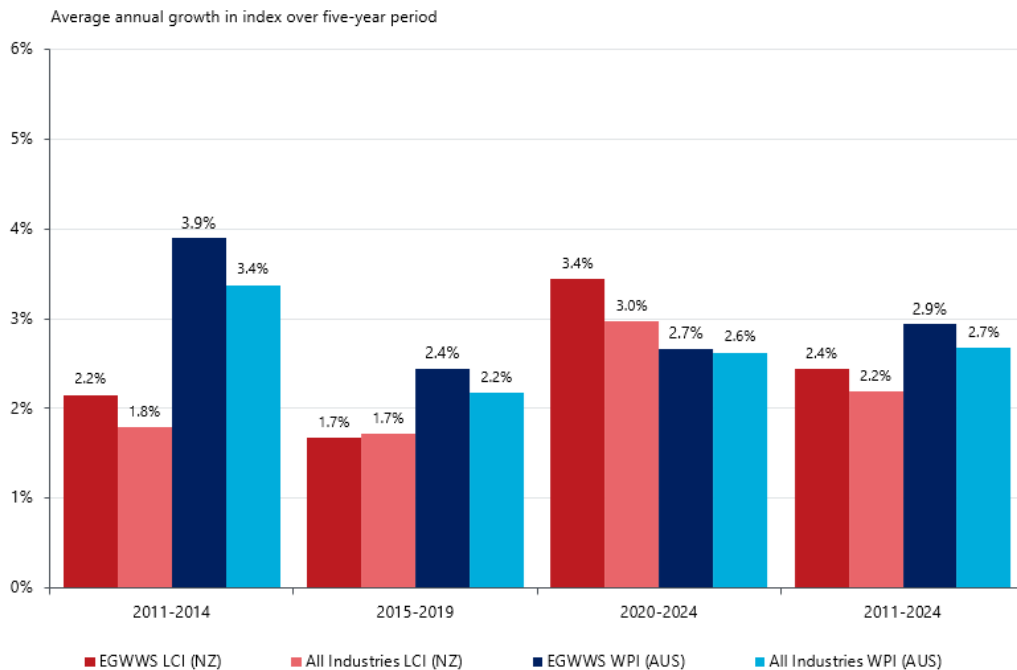


Fig. 15. Wage Index Growth Comparison, 5 Year Periods



4.3 DISCUSSION OF COST ESCALATION RISK AND IMPLICATIONS FOR NZ EDBS

Broadly, we anticipate that inflationary pressures will step-down over the rest of the decade (relative to growth in the past few years). That said, the current cycle of cost pressures is yet to fully play out – we anticipate continued strength in CPI inflation in FY2025 (+2.8%). Further, the real wage declines over recent years are expected to drive historically strong wage growth outcomes in years to come.

Weakened expectations for inflation over the second half of the 2020's is underpinned by a price reversion across most commodity markets (particularly energy commodities) and the resultant impacts on transport, electricity and manufacturing costs. Further, the exchange rate is set to appreciate over the decade, which will offset some of the recent inflationary pressures from a weakened NZD.

However, we anticipate that construction cost escalation will outpace broader inflationary measures over the second half of the decade. We expect significant demand pressures on material and equipment cost inputs related to (electricity) construction – furthermore, the outlook for key commodity markets such as copper and aluminium is strong due to global demand related to the energy transition.

Construction input cost growth is more heavily exposed to international sectors than the broader economy – this is due to the relatively higher exposure to commodity prices, but also the higher usage of imported materials or equipment which are subject to global demand and supply pressures. This is at least partly evidenced by the long-term average growth rate in the EDB CGPI of 5.5% between FY1993-2024, compared to an average growth rate of 2.5% in the All Groups CGPI over the same period – the long-term average driven up by historical periods of excessive cost growth in the index (see the 2000's, early 2010's and early 2020's).

The main implication here is that our expectation for electricity construction cost escalation over the remainder of this decade would include heightened levels of inflation (relative to CPI inflation or other broad measures of price growth). This is underpinned by various factors, including the strong outlook for copper and aluminium over the current decade and beyond. However, there is substantial upside risk and uncertainty – and in our opinion, the strong possibility of supranormal escalation pressures to re-emerge in forthcoming years. Key risk factors include:

Geopolitical Risk and Global Supply Chains

Global supply chains were constrained through the pandemic – rising levels of demand and rebounding economy activity was combined with lower productivity and industrial production. These supply chains are likely to remain relatively 'thin' compared to pre-COVID and prone to further disruptions/cost pressures if future shocks emerge such as geopolitical events (e.g., a 'Middle East escalation' scenario).

Cost escalation in the electricity sector is highly exposed to these shocks as evident in the historical volatility of the EDB CGPI. The surge of inflationary pressures captured in the index in the late 2000's and early 2010's is underpinned by (at that time) record heights of commodities such as copper, oil, aluminium, iron ore and coking coal.

The Global Energy Transition

Energy commodities (gas, oil, coal) are a key driver of construction cost escalation – this includes direct effects on fuel or electricity prices on-site, but also indirect effects on upstream manufacturing and transport costs. This is particularly relevant for the construction sector which utilises materials that are relatively transport or energy intensive (e.g., steel and concrete).

The outlook for energy commodities is relatively soft over the second half of this decade and beyond, which places downward pressure on our expectations for cost escalation. However, on a global scale, the timing of the transition and thus demand for energy commodities is subject to significant uncertainty. There is a risk of prolonged or exacerbated volatility in energy commodity prices as the global economy transitions towards renewable sources of energy.

Net Zero Construction Materials

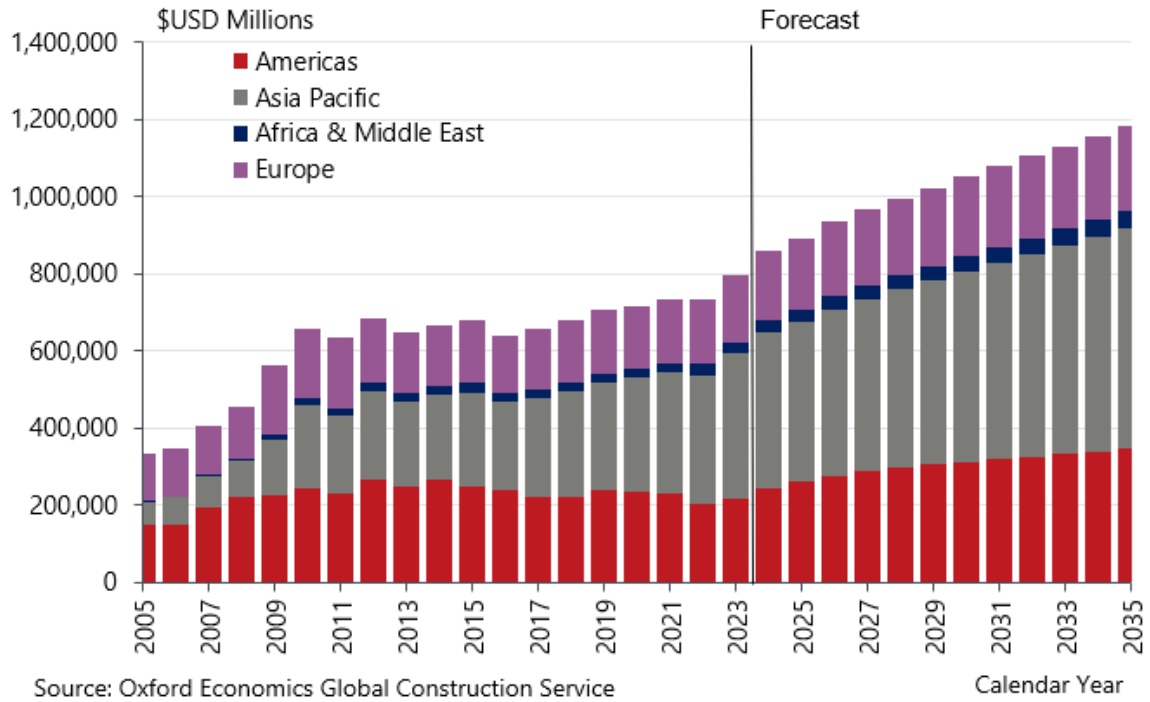
Similarly, there is significant uncertainty on the timing and cost of 'low carbon' alternatives to construction materials. Embodied emissions in the construction sector are primarily driven by the emissions created during the manufacturing of materials such as steel and concrete. A transition to net zero will require alternative methods of manufacturing for these materials and increased levels of recycling and re-use.

It is likely that the transition towards these materials will require, in the short term at least, an increase in costs. There is uncertainty in the timing of the transition and there is little understanding as to the impact on supply or price of construction materials as these markets do not yet exist.

Global Demand for Electricity Construction

The global electricity sector is entering a new paradigm in forthcoming years – the level of investment in electricity related infrastructure to meet emissions targets significantly exceeds previous levels of activity. Many of the materials relevant to the NZ electricity sector are imported, such that price growth is at least partially determined by global competing demand, which is expected to rise substantially over the next decade (see fig. below).

Fig. 16. Utilities Construction Work Done, by Regional Aggregate



5. HISTORICAL COST ESCALATION FOR REGULATED ELECTRICITY DISTRIBUTION BUSINESSES

5.1 REGULATORY BACKGROUND

The New Zealand Commerce Commission ('Commission') is responsible for regulating the price and quality of non-exempt electricity distribution businesses (EDBs). The electricity default price-quality path is set by the Commission and covers a five-year period – the current regulatory period covers 2020-2025 and is due to expire on 31 March 2025 (DPP3). The draft decision by the Commission for the 2025-2030 regulatory period (DPP4) was released on the 29th of May 2024.

A component of the default price-quality path is forecasts of operating and capital expenditure over the regulatory period, with a component of this forecast allocated to expected cost escalation over the period. In this context, cost escalation refers to inflationary pressures specific to the electricity sector that are expected to be faced by the NZ EDBs over the regulatory period. The forecast level of operating and capital expenditure partly determines the maximum price that EDBs are allowed to charge to their customers.

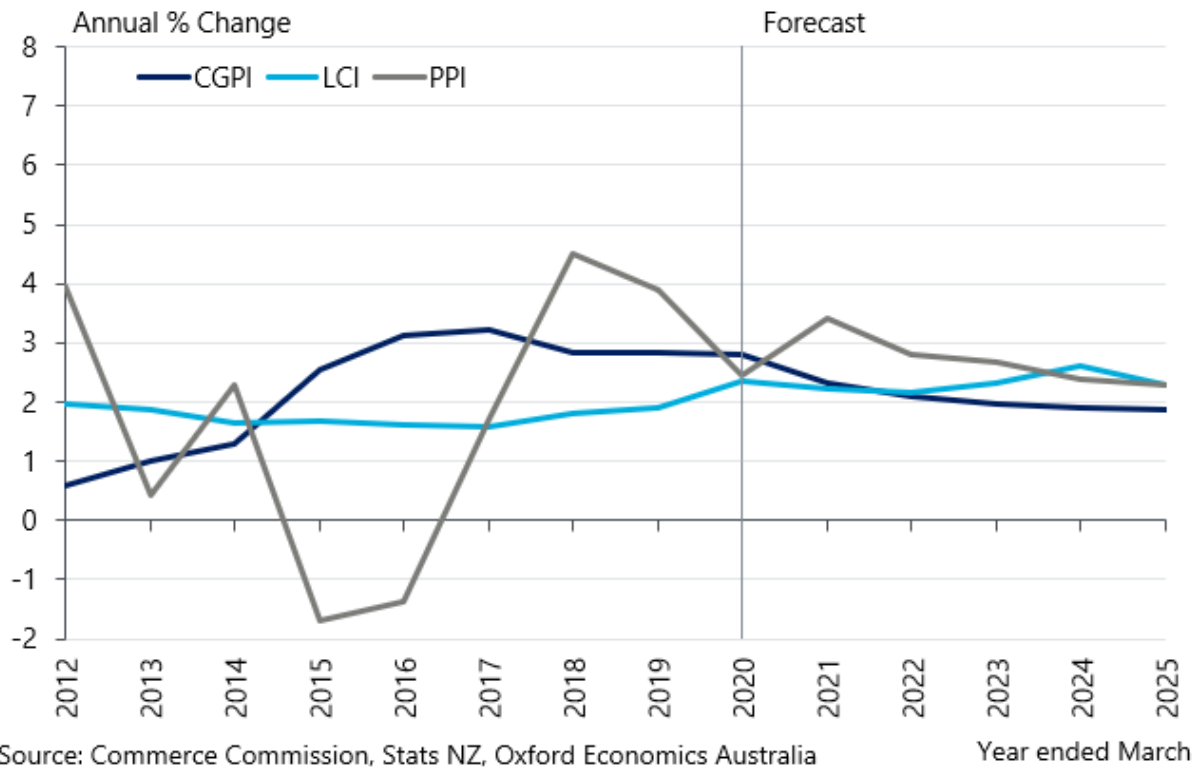
5.2 HISTORICAL REGULATORY TREATMENT OF COST ESCALATION

There are various considerations in the selection of an index (or indices) which would appropriately capture the cost escalation faced by EDBs over the relevant regulatory period. These considerations will be discussed in further detail in later sections – but we note that the price index(es) used to estimate cost escalation are required to be forecast over the regulatory period.

The current default price-quality path (DPP3) sets out a methodology for estimating cost escalation over the 2020-2025 regulatory period. Capital expenditure is escalated based on a forecast of the All Groups CGPI (the forecast provided by an independent consultant). Operating expenditure is escalated based on a forecast of the All Industries LCI and the All Industries PPI – a weighted average of growth rates in these two indices is used to generate the OPEX escalation index (60% LCI, 40% PPI).

The 'input cost inflations model' attachment to the DPP3 final determination indicates the estimated escalation over the 2020-2025 period. The final determination included historical price index data to June quarter 2019 with quarterly forecasts of the CGPI, PPI and LCI from September quarter 2019 to December quarter 2025. The forecast growth rates in these indices are depicted in Figure 17 – overall, the escalation allowance indicated average annual cost growth of 2.0% for CAPEX and 2.5% for OPEX between FY2021 and FY2025 (year end March)

Fig. 17. Price Index Annual % Change, Historical and Forecast (November 2019)



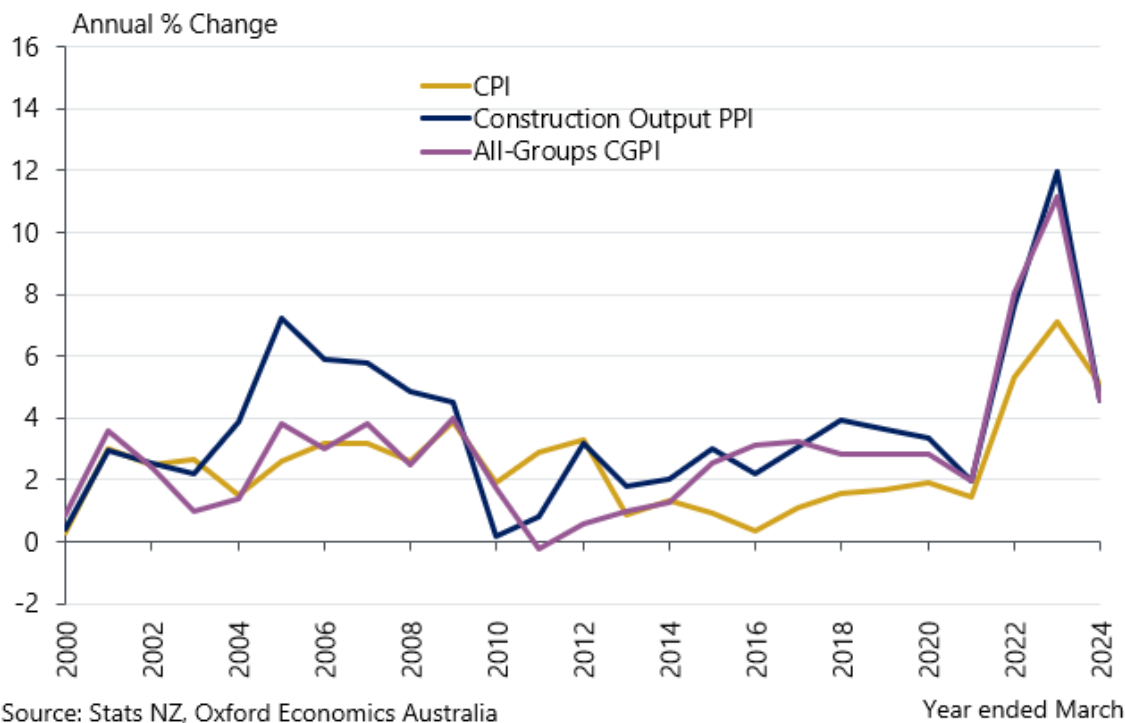
5.2.1 Adequacy of Previous Forecasts of Cost Escalation (DPP3)

The estimate of cost escalation factors for the regulatory period is based on a forecast of the relevant indices. The current regulatory period (2020-2025, DPP3) escalation factors for operating and capital expenditure are based on a forecast of CGPI, PPI and LCI growth conducted in 2019. These forecasts have not captured the severe inflationary pressures seen throughout the global and domestic economy in recent years⁴ - leaving a substantial disparity between the regulated cost inflator rates and actual escalation rates experienced by EDBs.

Construction cost escalation, as measured by the construction output PPI, has reached the highest level of growth on record over FY2022 and FY2023, underpinned by the combination of various severe shocks to demand and supply in domestic and overseas economies (see figure below). Deflationary pressures which echoed through the pandemic gave way to a sharp lift in global economic activity – supported by fiscal stimulus and the loosening of movement restrictions.

⁴ Nor should they be expected to, considering that recent inflationary pressures are driven by numerous unpredictable demand and supply shocks.

Fig. 18. Construction Cost Escalation and Price Indices, Annual % Change

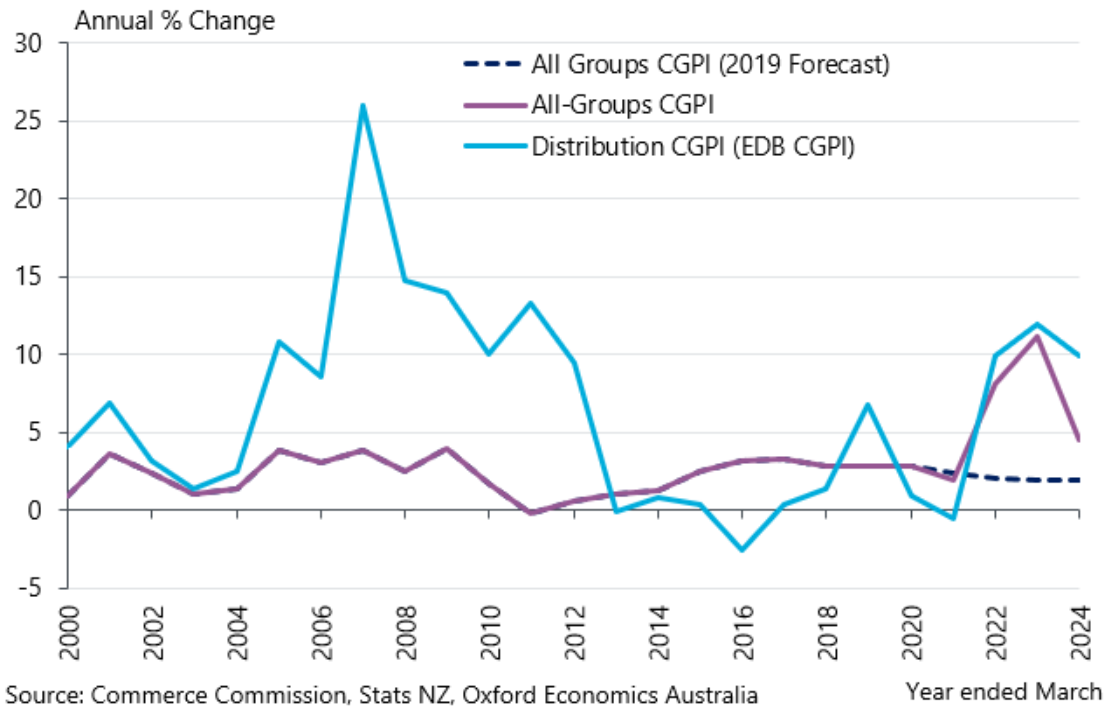


Emerging demand pressures were exacerbated by the supply shock related to sanctions on Russian exports following the invasion of Ukraine in February 2022. These factors culminated in the global energy crisis, wherein natural gas and steaming coal prices reached record highs, including benchmark oil prices returning to 2008 levels. The surge in energy commodities shifted up transport and electricity costs, contributing to sharp cost rises across the manufacturing sectors, and which is particularly relevant to the construction sector and its usage of materials which are both energy and transport intensive (e.g., steel and concrete).

During this period, the global economy contended with prolonged supply chain disruptions due to lingering effects of the pandemic. The importation of materials was constrained alongside lower industrial production – notably in China due to extended lockdowns. The outbreak of a global shipping crisis compounded these issues, with rising demand for containerised goods and a lack of shipping capacity driving up transportation costs. Import prices have been further hoisted by a depreciating New Zealand Dollar, which has cycled downwards throughout 2022 and 2023.

Price indices displayed record (or near) levels of cost growth across the economy – the CPI has moved up 5.3%, 7.1% and 5.1% across FY2022-2024 respectively. The All Groups CGPI has increased by 8.1% and 11.2% in FY2022 and FY2023, while the construction output PPI has increased 7.7% and 12.0% in the same period. Finally, the EDB CGPI has risen by 9.8%, 11.9% and 9.9% between FY2022-2024.

Fig. 19. All Groups CGPI Price Growth Comparison



The disparity between the forecast of the All Groups CGPI for the 2020-2025 regulatory period and the actual cost growth is depicted in Figure 19. Recorded growth in the All Groups CGPI has exceeded the forecast by an average of +4.3% between FY2021 and FY2024. Additionally, the EDB CGPI has exceeded the forecast of CGPI by an average of 5.7% over the same period. Although this analysis has focused on capital expenditure inflators, similar trends can be seen in the price indices used to escalate OPEX (i.e., PPI and LCI, see Figure 20 and 21 below).

There are two main implications from this disparity – first, to highlight the fact that EDBs have faced significantly higher cost escalation pressures than allowed for in the DPP3 regulatory period. Second, the disparity between forecast and actual cost escalation is subject to more upside risk than downside risk – put differently, unforeseeable shocks to the economy and/or inflation have historically had greater upside risk to cost escalation against previous expectations.

Fig. 20. All Industries PPI Price Growth Comparison

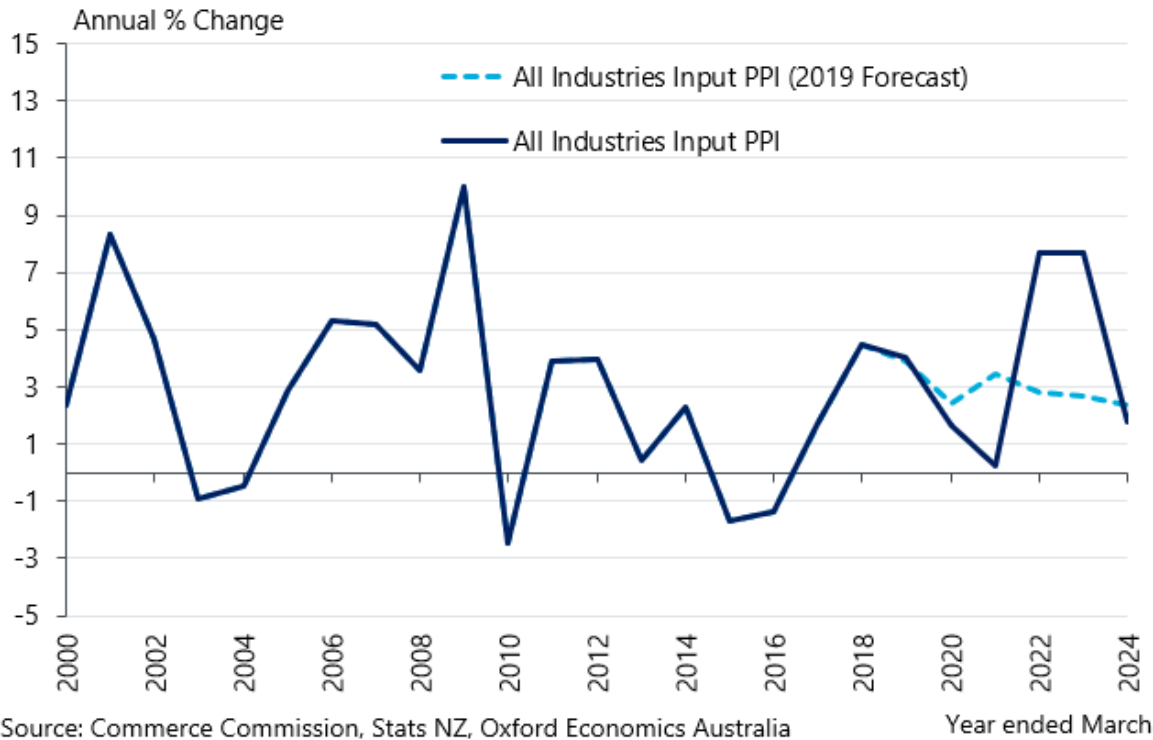
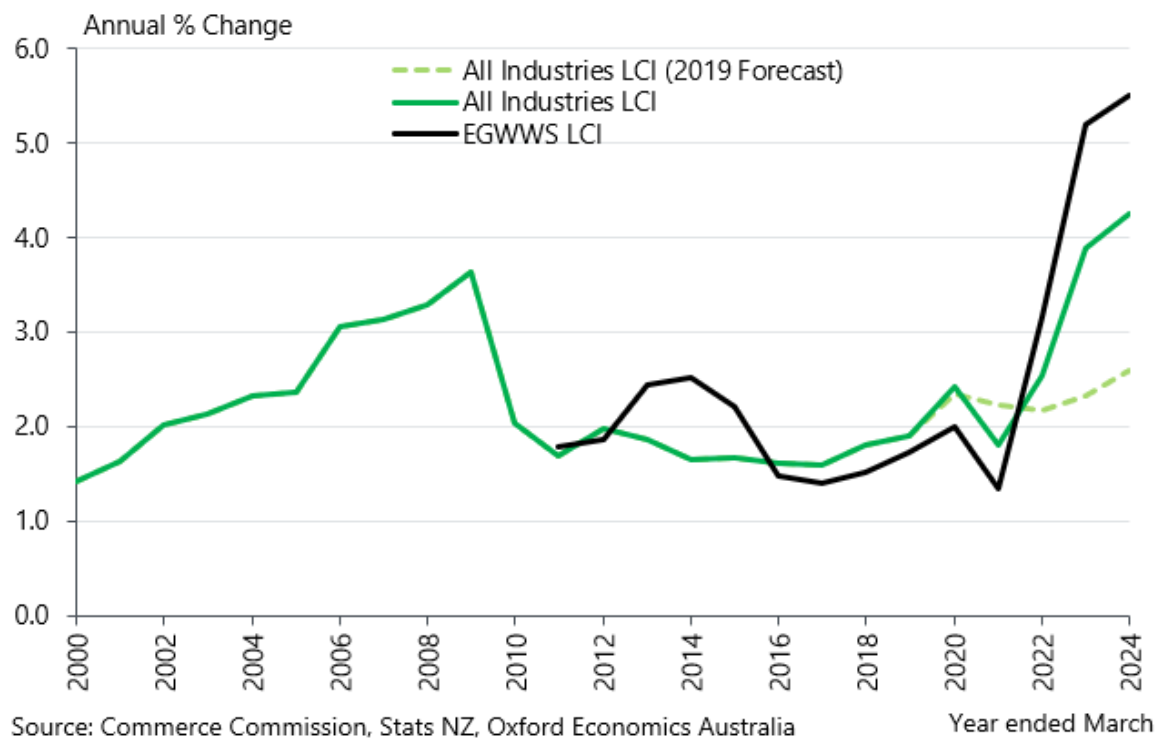


Fig. 21. All Industries LCI Price Growth Comparison



6. DISCUSSION ON DRAFT DEFAULT PRICE-QUALITY PATH FOR 2025-2030

6.1 DRAFT DECISION ON COST ESCALATION

The Commission published the draft DPP4 on the 29th of May 2024, which sets out a methodology for the cost inflators that will form part of the operating and capital expenditure forecasts for the regulated NZ EDBs over the 2025-2030 regulatory period.

The Commission indicates in draft decision C6 that a forecast of the All Groups CGPI will be used as the basis for CAPEX cost escalation, with an additional adjustment of +0.8% per annum. The upwards adjustment is added based on the view, "that input price pressures are likely to continue over the short to medium term," and "based on evidence of higher capital goods price inflation for EDBs than in the general economy." The value of the adjustment is based on the additional inflation of the EDB CGPI beyond the All Groups CGPI over the past five years.

The Commission indicates that a forecast of the All Industries LCI and PPI (weighted 60%/40%) will be used as the basis for OPEX cost escalation, with an additional adjustment of +0.3% per annum to both indices. The uplift is included to reflect historic higher inflation in the EGWWS sector and is based on the disparity between the All Industries LCI and the EGWWS LCI over the previous five years.

6.2 DISCUSSION ON DRAFT CAPEX COST ESCALATION DECISION

6.2.1 Cost Escalation Index Choice

The Commission explores various measures of CAPEX cost escalators in the draft submission, these include the usage of the All Groups CGPI, the usage of the EDB CGPI, the weighted average of numerous price measures and the EDBs' own implied inflation from their Asset Management Plans (AMP).

The Commission selects the All Groups CGPI as the basis for CAPEX cost escalation – the main basis for this is that most submitters (stakeholders) supported the usage of the CGPI and that compared to alternative measures, it demonstrates relatively lower levels of cost growth volatility. Another consideration raised by the Commission is that the usage of a more specific index may disincentivise EDBs from otherwise more efficient cost management.

We would add that another benefit of using the All Groups CGPI is the simplicity of the approach. Other approaches mentioned in the draft decision would require further analysis of the relative expenditure weightings of different cost inputs, forecasts for a variety of price indices and/or require an examination of detailed expenditure data from the regulated EDBs.

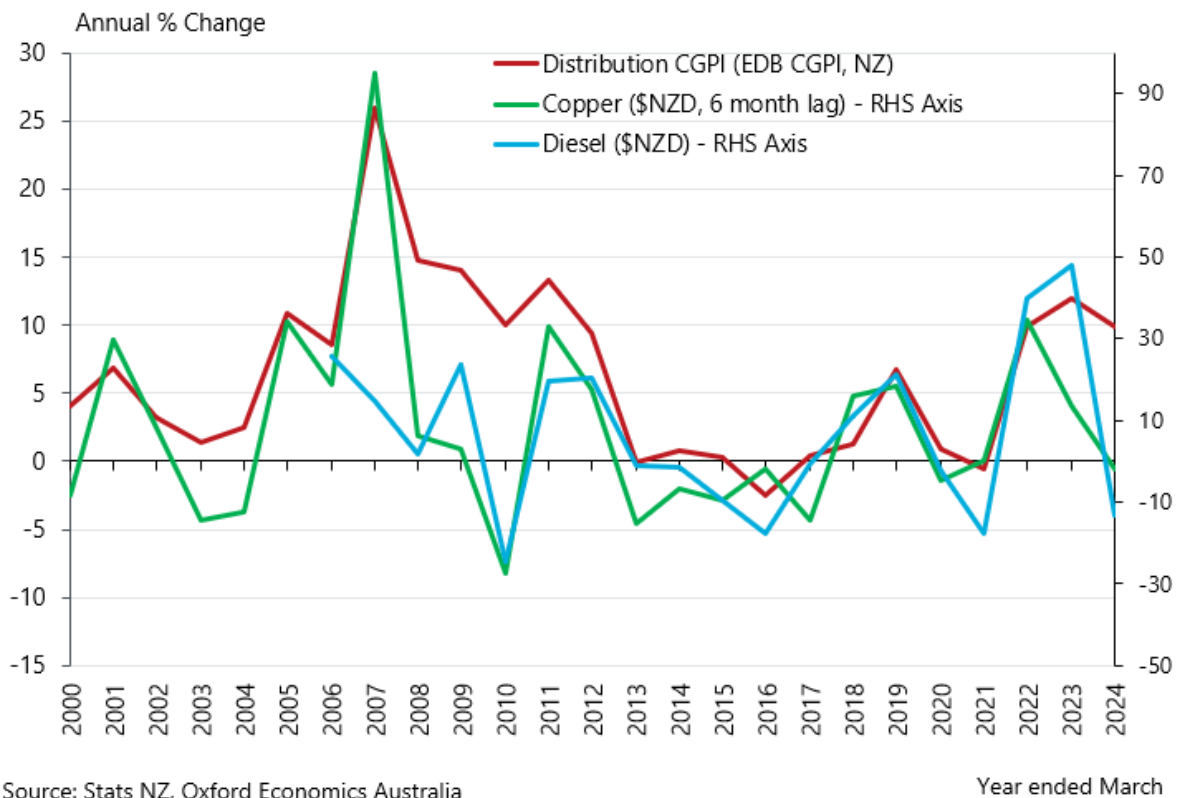
However, the All Groups CGPI is not the most accurate measure of cost escalation related to electricity distribution assets. The EDB CGPI would be the most appropriate measure of cost escalation – it is based on survey data collected by StatsNZ and provides a measure of price movements for capital expenditure related to electricity distribution assets.

Further, the historic volatility in the EDB CGPI is considered a detractor by the Commission in the draft decision, whereas we would consider this a more accurate reflection of cost escalation pressures in the sector. The historic volatility in index growth is likely reflecting *actual* volatility in cost escalation – this is supported by the correlation between the EDB CGPI and key commodity cost inputs (i.e., periods of high or low index growth are underpinned by input cost movements, see fig. below).

There is validity to an approach where the EDB CGPI is used as the basis for cost escalation. As discussed in Section 4, the EDB CGPI has historically grown at an average annual rate that is well above the All Groups CGPI (+3.0% per annum between FY1993-2024). This disparity will not be captured in forecasts of the All Groups CGPI for the 2025-2030 regulatory period. Forecasts of the EDB CGPI would need to take into account the outlook for key construction inputs, including labour, copper, metal, concrete and fuel.

That said, this does add additional complexity to the cost escalation forecasts – generating a forecast for the EDB CGPI would require forecasts of the key cost inputs which drive escalation in electricity asset capital expenditure. The forecasting accuracy of these cost inputs is subject to more variability than forecasts of broader measures of cost inflation in the economy. Additionally, it is unlikely that forecasts of future movements in key cost inputs (e.g., copper or oil prices) will account for price shocks which have driven the substantial volatility in the EDB CGPI over the past two decades.

Fig. 22. Commodity Drivers of EDB CGPI Growth



Source: Stats NZ, Oxford Economics Australia

Year ended March

Alternative methods mentioned include the usage of numerous price indices (e.g., copper, metals, labour and/or fuel) in a weighted price index. Conceptually, this is a similar approach to using the EDB

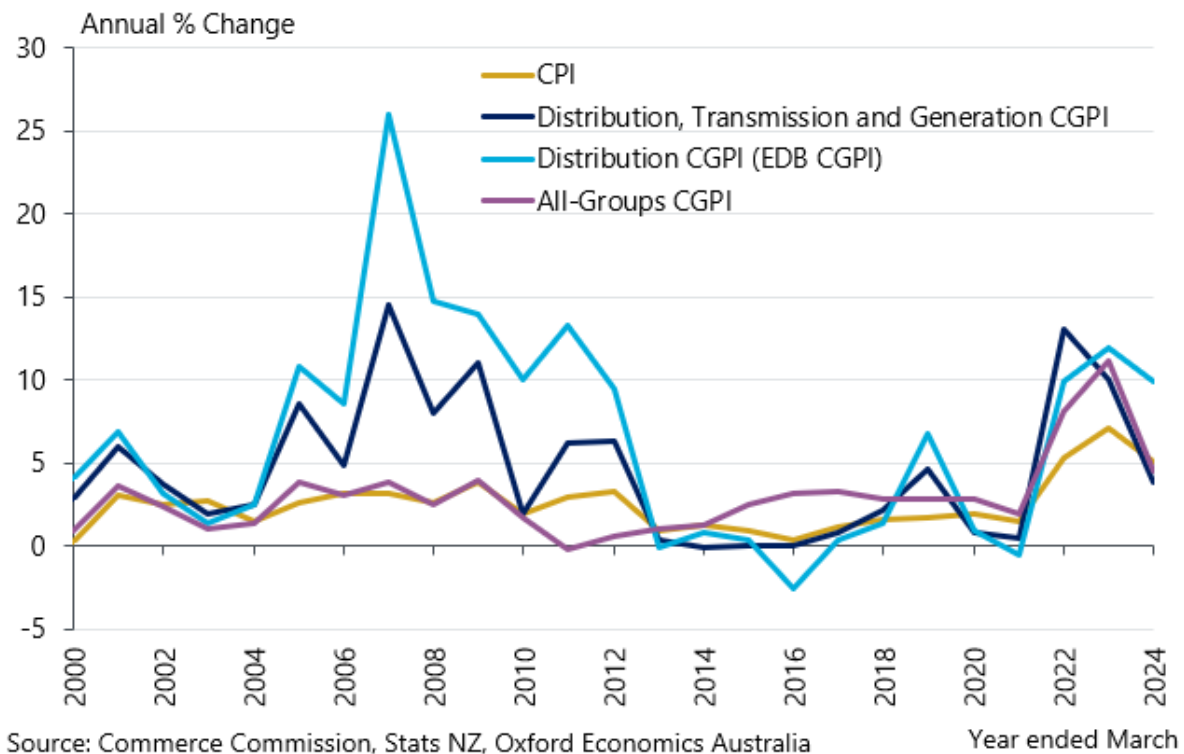
CGPI, which is presumably based on an implicit weighting of different cost inputs in a given period⁵. The main difference is that the relative weightings would be explicit, estimated by the Commission based on data provided by the EDBs or elsewhere. This adds further complexity to the methodology and potentially surfaces new issues, including the accuracy of consistent weightings across different EDBs.

6.2.2 Draft Adjustment to All Groups CGPI

Although it is our belief that the EDB CGPI would be a more appropriate measure of cost escalation relating to electricity distribution assets, the discussion provided by the Commission for the usage of the All Groups CGPI is reasonable.

However, the key issue remains that the All Groups CGPI does not account for the historically elevated cost escalation pressures which EDBs have faced. A comparison between historical annual percentage change in a selection of price indices is illustrated in Figure 23. We note that this figure (and all others) have based annual percentage change on a moving annual average (rolling four quarter average of the index) between March quarters of subsequent years. The EDB CGPI is found to be more volatile than the All Groups CGPI and the CPI – furthermore, the EDB CGPI has historically grown at a higher average annual rate than the same indices.

Fig. 23. Price Index Comparison, Annual % Change



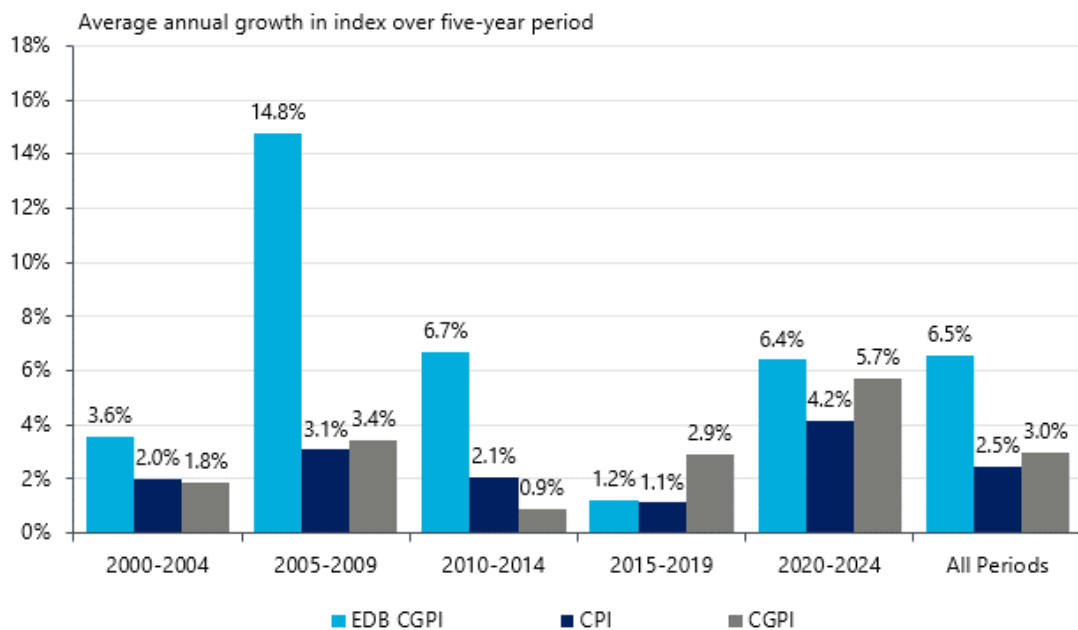
⁵ This is not indicating that the EDB CGPI is a weighted component index, but rather that the change in the price of capital goods would implicitly be related to an unmeasured weighting of cost growth in the relevant cost inputs.

We have compared the average annual growth rate across the EDB CGPI, All Groups CGPI and the CPI over five-year periods, illustrated in Figure 24 below. The EDB CGPI has outpaced growth in the All Groups CGPI by an average of 3.0% per annum since FY1993 (5.5% per annum versus 2.5%) – thus the difference between the two indices is higher than the actual average annual growth rate in the All Groups CGPI over the same period. The difference in annual growth between the two series has moderated in the past decade (FY2015-2019: -1.7%, FY2020-2024: +0.7%) but the substantial disparity between FY2005-2014 drives the long-term difference in index growth.

The broad implication is that the All Groups CGPI is not an adequate measure of construction cost escalation in the electricity sector over the long-term. The elevated growth in the EDB CGPI would suggest that the construction of electricity assets is more exposed to inflationary pressures than a weighted average of all capital goods in the NZ economy.

We would argue that the heightened inflationary pressures are primarily driven by an increased exposure to international markets compared to other capital goods. We have plotted the annual average growth difference between the EDB CGPI and the All Groups CGPI against annual price growth in benchmark Brent oil prices (\$NZD) and copper (\$NZD) in Figure 25 below. Broadly, periods of heightened commodity volatility are historically correlated with a larger disparity between the EDB CGPI and the All Groups CGPI.

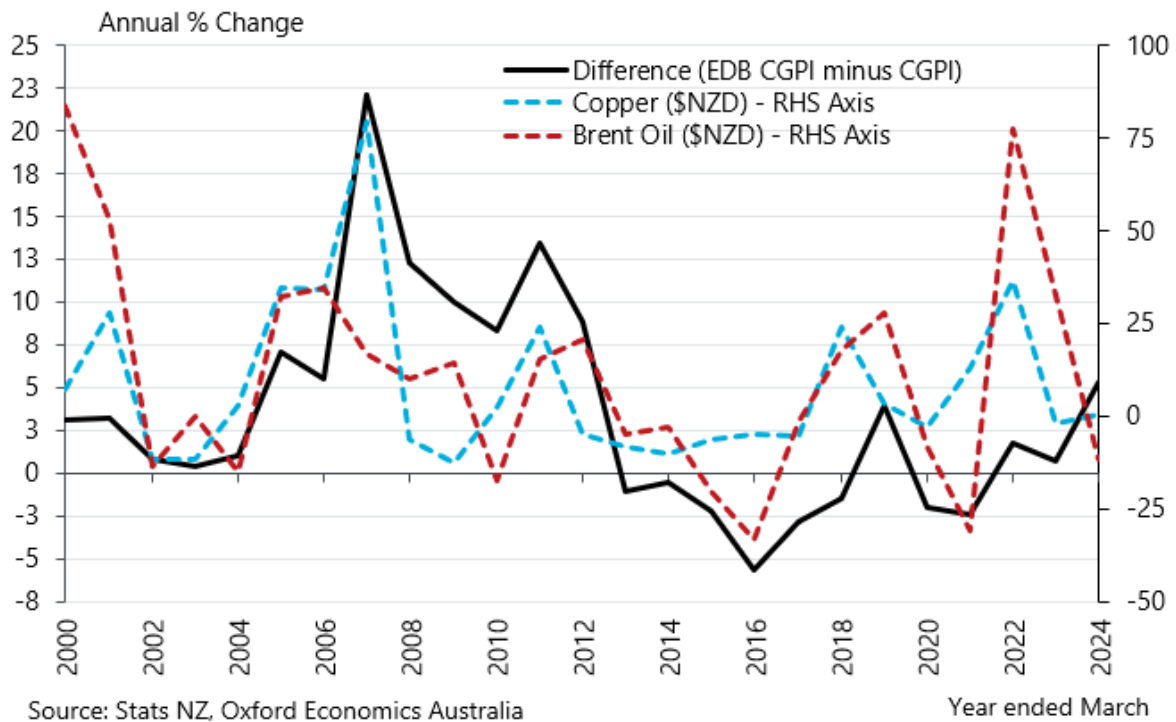
Fig. 24. Average Five-Year Annual Growth Comparison, Selected Price Indices



Source: Stats NZ, Oxford Economics Australia

Year ended March

Fig. 25. Index Growth Difference Compared to Commodity Price Movements



This correlation is weakened when examining the recent escalation pressures (FY2022-2024) – commodity prices have surged in recent years, which has driven an increase in the disparity between the two capital goods indices, but the size of this disparity is relatively small compared to historical index outcomes. This is not unsurprising – commodity prices have increased, but recent inflationary pressures have been broad-based across the NZ economy, and this is reflected in record index growth in the CGPI (+11.2%, FY2023) and the CPI (7.1%, FY2023).

Implication for Regulatory Treatment of Cost Escalation

Thus, forecasts of the All Groups CGPI will not accurately account for cost escalation over the regulatory period. The Commission acknowledges this and has adjusted the methodology to include a 0.8% increase above the forecast of All Groups CGPI per annum over the regulatory period. This is well below the long run average disparity since FY2000 (+3.0% between FY1993-FY2024) but corresponds to the average between CY2019-2023 and is above the average of FY2015-2019 (-1.7%)⁶.

We agree with the reasoning provided for an upwards adjustment in cost escalation for construction-related activities. As discussed previously, construction cost escalation has historically outpaced broader measures of cost growth in the NZ economy (a result which is mirrored in Australia) – primarily due to the increased exposure of construction costs to more volatile cost inputs relative to the rest of the economy.

⁶ We have calculated the disparity between the two measures based on annualised data (year ending March) which is equal to 0.7%. The Commission has not provided the underlying working for obtaining the 0.8% but we would suggest that it is due to the usage of quarterly annualised data in the calculations or has not taken into account the March quarter 2024 data.

That said, the historical reference period used to calculate the size of the adjustment is unlikely to provide the most accurate representation of the potential disparity between the All Groups CGPI and the EDB CGPI over the 2025-2030 regulatory period. As stated previously, the average long term disparity between the two price measures is 3.0% (FY1993-2024) – if the highly volatile FY2007-2009 period is removed from the long term average, then the disparity is 1.8% which is more than double the proposed upwards adjustment.

The historical ‘closeness’ of the reference period (FY2020-2024) is not necessarily good reasoning for the calculation of the potential future disparity between the All Groups CGPI and the EDB CGPI. The inflationary pressures which impacted domestic and global economies in the past three years have been uniquely far-reaching across many aspects of the economy.

This is evidenced in the scale of growth in the All Groups CGPI – the index reached record levels of annual growth in FY2022 (+8.1%) which grew further in FY2023 (+11.2%). Recent growth outcomes in the All Groups CGPI are relatively extreme compared to historical growth (see Figure 24) whereas recent growth outcomes in the EDB CGPI are well beneath historical peaks in escalation. The historical reference period used for the calculation of the 0.8% adjustment covers a period where the disparity between the two indices is at its lowest.

The historical disparity between the two indices has been at its highest during periods of surging commodity prices that are directly related to the cost inputs or materials used in construction – that is, during periods of more targeted inflationary pressures to the construction (or electricity construction) sector.

As discussed in Section 4, we would suggest that the forthcoming regulatory period (2025-2030) has more targeted inflationary risks for (electricity) construction cost inflation relative to the broader economy. There is the risk that the 0.8% upwards adjustment will significantly underestimate the actual disparity in growth outcomes between the All Groups CGPI and the EDB CGPI over the 2025-2030 regulatory period.

6.3 DISCUSSION ON DRAFT OPEX COST ESCALATION DECISION

6.3.1 Cost Escalation Index Choice

The Commission has proposed the usage of the All Industries PPI and LCI for OPEX cost escalation over the DPP4 regulatory period – this mirrors the approach adopted in the DPP3 period. There is a more specific sectoral index for labour costs compared to the All Industries LCI. This is the EGWWS LCI and is referenced as a comparative point by the Commission in the draft DPP4.

However, published PPI data does not provide an equivalent to the EDB CGPI (i.e., the electricity distribution capital good) – therefore any alternative approach to measuring OPEX material cost escalation would have to be based on a combination of numerous price indices which cover different materials⁷.

⁷ There is a PPI related to ‘electricity and gas supply’ but historical volatility in the index appears to mainly reflect the cost of supplying electricity rather than operating expenditure related to the EDBs.

This presents similar difficulties as a weighted average approach to estimating CAPEX cost escalation – it would require an understanding of the average relative expenditure on different cost items related to the EDBs OPEX, it would require that these cost items are mapped against the most appropriate price measure, and it would require forecasts of those price measures. There may also be significant variability in the quantity or proportion of materials used in different EDBs operating expenditure activities, such that a ‘one size fits all’ approach would not be adequate.

That said, this approach to OPEX material cost escalation would allow for a more targeted estimation of escalation pressures – particularly for the materials which are linked to cost inputs that are more volatile or are expected to have strengthening cost pressures (e.g., electrical equipment/cable and copper prices). The increased complexity of the approach is not inherently a negative, although it would require a more detailed understanding of the breakdown of EDB-specific cost drivers (this is noted by the Commission in the draft DPP4).

6.3.2 Draft Adjustment to All Industries PPI and LCI

The Commission indicates that differences can occur over the “short to medium term between economy-wide and sectoral inflation” and that they believe the historic higher inflation in the EGWWS sector is, “likely to persist in the medium-term.” As such, the Commission has added a 0.3% uplift to the per annum growth of both the All Industries LCI and PPI to account for the increased inflationary pressures in the sector.

The upwards adjustment is based on the average difference between the EGWWS LCI and the All Industries LCI (see Figure 26) over the past five years. We reason that the adjustment is based on the LCI difference because there is no singular equivalent index for the PPI which is specific to the electricity sector.

Broadly, this adjustment for labour costs appears reasonable – since the inception of the index, the annual average disparity between the All Industries and EGWWS LCI is equal to 0.2%. This long term average doesn’t consider that there is likely to be increased wage pressure on the utilities sector over the next decade (related to heightened demand for electricity-related skills, both domestically and globally).

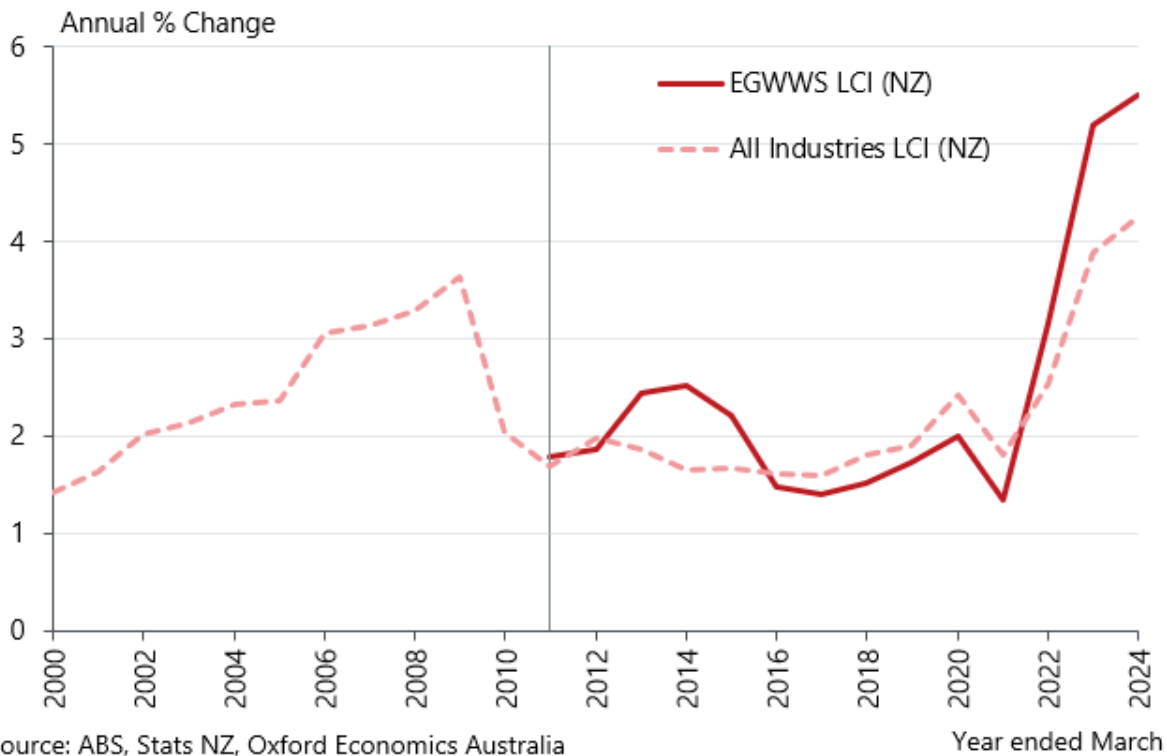
There is the risk of excessive labour cost pressures for particular occupations with more acute skills shortages (as is currently experienced in the construction and utilities sector in Australia) but these occupational specific factors are unlikely to be fully captured in the EGWWS LCI regardless.

Broadly, the reasoning that material cost inputs to EDB OPEX has been (and will be) subject to higher sectoral inflationary pressures than the rest of the economy is sensible. However, it is difficult to determine the adequacy of the +0.3% uplift applied to the All Industries PPI as there is no singular specific sub-index to use as a comparison point.

We would suggest that OPEX material cost pressures would at least partially overlap with cost pressures affecting capital goods – thus, historically, input costs for certain materials would have been impacted by stronger inflationary pressures than the broader economy. Similarly, we would expect that cost pressures impacting certain OPEX materials would be subject to heightened inflationary risk relative to economy-wide inflationary pressures over the forthcoming regulatory. This is underpinned

by the same factors stated previously in the report, including an expected strengthening in key commodity inputs (copper and aluminium) and risks regarding the global energy transition.

Fig. 26. EGWWS Wage Indices Comparison to All Industry



An alternative approach may be to use a weighted combination of sub-indices which reflect different cost inputs related to EDB expenditure – this would better recognise (and allow forecasting of) the specific inflationary pressures which impact EDBs, albeit increasing the overall complexity of the approach and require additional analysis of the cost inputs used by EDBs in their OPEX profile.

A simpler alternative may be to distinguish between network and non-network operating expenditure. Presumably, the overlapping inflationary pressures between operating and capital expenditure are related to network operating costs. An adjustment to the methodology which would account more readily for the sector-specific inflationary pressures would be to apply the escalator for CAPEX to non-labour network OPEX.

This would require an assumption (and/or for EDBs to submit) the relative proportion of expenditure on network versus non-network OPEX. Non-network OPEX would be escalated according to the methodology set out in the draft DPP4 (60% All Industries LCI, 40% All Industries input PPI with upwards adjustment) and network OPEX would be escalated based on 60% All Industries LCI with upwards adjustment and 40% All Groups CGPI with upwards adjustment).

6.4 SUMMARY AND IMPLICATIONS FOR NZ EDBS

Broadly, inflationary pressures which impact the operating and capital expenditure of EDBs is likely to outpace economy-wide inflationary pressures over the forthcoming regulatory period (2025-2030). This is evidenced historically, wherein price indices which are more specific to the activities of EDBs (e.g., EGWWS LCI and EDB CGPI) have seen higher cost growth than other more broad measures of inflation (e.g., the All Groups CGPI, All Industries LCI and PPI).

We anticipate that this trend will continue over the 2025-2030 regulatory period – there is substantial upside risk to inflationary pressures which are targeted towards the electricity and construction sectors. This includes a significant ramp-up in the global demand for materials and equipment required for constructing or maintaining electricity assets, a strong outlook for relevant commodity markets (copper and aluminium) and significant uncertainty regarding the speed of the energy transition, which may have unforeseen impacts on construction material or energy commodity prices.

The Commission echoes this sentiment in the draft DPP4 and suggests an upwards adjustment of 0.8% per annum to the All Groups CPGI for CAPEX escalation and an upwards adjust of 0.3% per annum to the All Industries PPI and LCI for OPEX escalation.

Considering cost escalation for CAPEX, we would suggest that the upwards adjustment of 0.8% may underestimate the increased inflationary pressures faced by EDBs over the remainder of the decade. The adjustment is based on the disparity between the All Groups CGPI and the EDB CGPI over the past five years, which is significantly below the long term difference in the two indices (+3.0%). Similarly, this adjustment is below the long term historical disparity between the Australian equivalent of these two indices (GFCF IPD and Electricity IPD, +1.8%).

Considering cost escalation for OPEX, we would suggest that the upwards adjustment of 0.3% for labour costs is reasonable. It is difficult to determine the adequacy of this adjustment for the All Industries PPI without a more detailed understanding of the cost inputs related to EDBs OPEX profiles. Given the likely overlap in cost drivers between OPEX and CAPEX cost escalation, we would suggest that there is also a heightened risk of the upwards adjustment underestimating the full extent of the sector specific inflationary pressures captured by the PPI compared to the broader economy.

Alternative approaches to estimating cost escalation for the EDBs could include:

- The **usage of the EDB CGPI** for CAPEX cost escalation. The sector specific CGPI is the more appropriate measure of capital good cost escalation for the sector. This would increase the complexity of the approach – requiring forecasts of the EDB CGPI based off the key construction inputs used to build electricity assets – but it would allow for more specific inflationary pressures relevant to EDBs to be considered.
- The **usage of a weighted price index** based off numerous price measures/indices for CAPEX and OPEX cost escalation. As with the usage of the EDB CGPI, this would allow for greater interrogation of the inflationary pressures that EDBs are relatively more exposed to compared to the broader economy. This would also increase the complexity of the approach, more so than the usage of the EDB CGPI – detailed data on EDB cost inputs would need to be collected and collated (which may be prohibitively difficult or otherwise not possible due to

existing data management practices). There is also the relevance of having a 'one size fits all' price index for the EDBs.

- The **usage of narrow-defined price indices for specific cost items** for CAPEX or OPEX. This approach would include the usage of broad economy wide inflationary measures (e.g., All Industries PPI or LCI) but would escalate certain cost items separately from these broad measures. The cost items would be chosen based on historical volatility in price and expectation that future price growth will significantly outstrip (or fall short of) general inflationary pressures. For instance, this could include electrical equipment items or insurance.
- The **separation of network versus non-network** operating costs. This approach would include the treatment of network operating costs similarly to CAPEX – i.e., the usage of the All Groups CPGI + upwards adjustment for non-labour network OPEX. This would provide a more accurate treatment of the inflationary pressures which target materials used by the EDBs.

7. APPENDIX A MACROECONOMIC OUTLOOK

7.1 NEW ZEALAND MACROECONOMIC OUTLOOK

Persistently elevated inflation and high interest rates have weighed on the New Zealand economy.

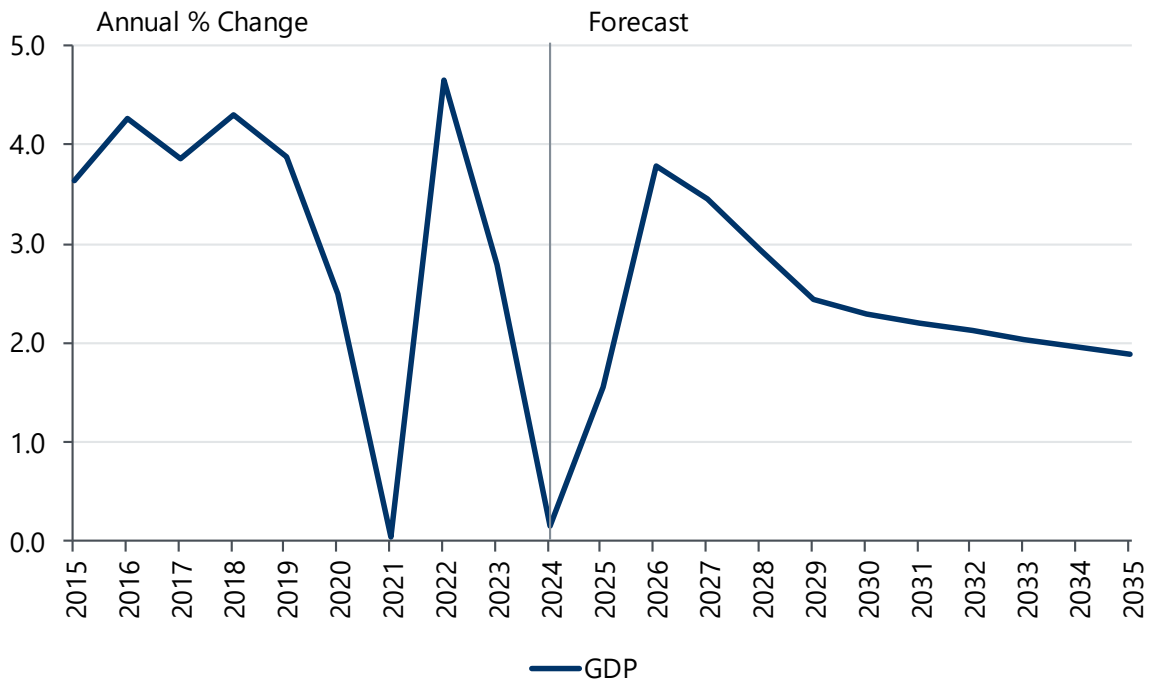
The New Zealand economy has endured a similar profile to many developed countries following the easing of COVID-19 restrictions. Supply constraints and capacity concerns drove a dramatic increase in inflation and central banks have since struggled to bring them back into their target range. New Zealand's economy is estimated to have only moderately grown over FY2024, as Gross Domestic Product (GDP) grew by 0.2% to just under \$283 billion. Quarterly declines in late 2023 hindered the country's development as consumption cooled. However, despite these effects, the impacts of higher interest rates have been contained so far and, if anything, have been less severe than originally anticipated.

A recent change in government has seen a shift in policy prioritisation which is expected to see construction activity be shifted out over the coming years. The recent election in October saw the New Zealand National Party (National) win the majority of seats taking office from the incumbent Labour Party. With the change of government, a number of key policy areas are set to undergo reprioritisation. Specifically, the National Party is expected to implement the following key changes and campaign promises:

- Strengthening law and order
- Cutting government spending and reducing taxes
- Reprioritise building infrastructure projects
- Compromising, where necessary, on policy priorities from the incumbent Labour Party

Importantly, for the broader construction sector, several programs of work are expected to be shifted out over the coming years. The new government is also expected to continue to increase the programs of work focused on improving the transport network's reliance to natural disasters. This is anticipated to play out through increased road spend over the later years of the decade.

Fig. 27. Gross Domestic Product Annual Growth



Source: Stats NZ, Oxford Economics Australia

Year ended March

Persistently high inflation has hindered the New Zealand economy despite the Reserve Bank of New Zealand (RBNZ) continuing to implement rate hikes. Inflation (as measured by the annual change in the Consumer Price Index) is anticipated to have peaked in mid-2022 at 7.3% (y/y) but remains above the central bank's target of 1-3% (4.0% in Q1 2024). Whilst the initial onset of inflation was driven through international pressures from supply constraints, recent developments have been more domestically focused. Rising food prices and well as high costs related to housing, including construction costs and rent have prevented inflation from falling in recent quarters.

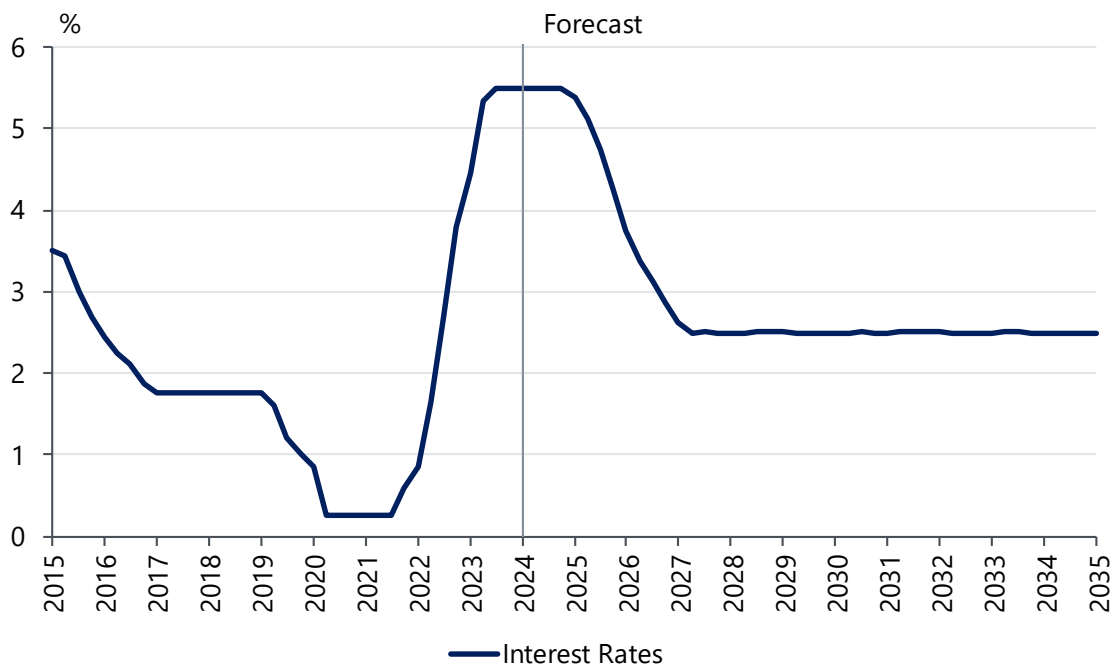
Additionally, inflation has been supported by strong migration flows which have boosted aggregate demand across the country. Migration has had a particularly notable impact on services inflation – the increase in aggregate consumption due to the additional population has placed a floor under the slowdown in price growth. Strong wage growth has also added to the underlying pressure on prices in addition to global developments such as the war in Ukraine and the conflict in Palestine are likely to continue driving up oil prices placing a floor under inflation. Whilst wage growth has the potential to keep inflation elevated, the losses in real wages in recent years as anticipated to keep wage growth positive in the near term.

The headwinds to households are expected to have reached their peak and played through to GDP per capita over FY2023 and FY2024. That is, the impact on households from tighter monetary policy and high inflation have likely delivered the largest impact on consumption and conditions are starting to normalise. Accordingly, the New Zealand economy is forecast to return to positive growth, with forecast growth of 1.6% and 3.8% in FY2025 and FY2026 respectively.

Whilst the short-term outlook is largely positive in terms of GDP growth, there are several underlying risks to the economy. Persistence of services inflation remains a concern and goods price inflation remains elevated. Anticipated near-term increases to local government rates, insurance and utility costs are likely to slow the decline in headline inflation. These factors could see interest rates remain at elevated levels longer than currently anticipated – this would hinder economic development and keep consumption muted. For cost escalation, if interest rates remain elevated longer than anticipated, this would continue to see real wages struggle. As a result, this would likely result in a later shift in wage growth – i.e., it would take longer to recover the losses in real wages meaning wage growth would have to be stronger for longer to recoup losses.

Alternatively, another notable downside risk is present across the global economy – the restrictive monetary policy in an environment of weak global growth could lead to a more rapid decline in inflation than expected. Business and consumer confidence remain particularly weak which could lead to more unemployment and financial stress than expected. Nonetheless, the outlook for the New Zealand economy is for consistent growth – by the end of the decade (FY2030) GDP is forecast to exceed \$330 billion – 17.8% above FY2024 levels.

Fig. 28. Interest Rate Setting Forecast



Source: Stats NZ, Oxford Economics Australia

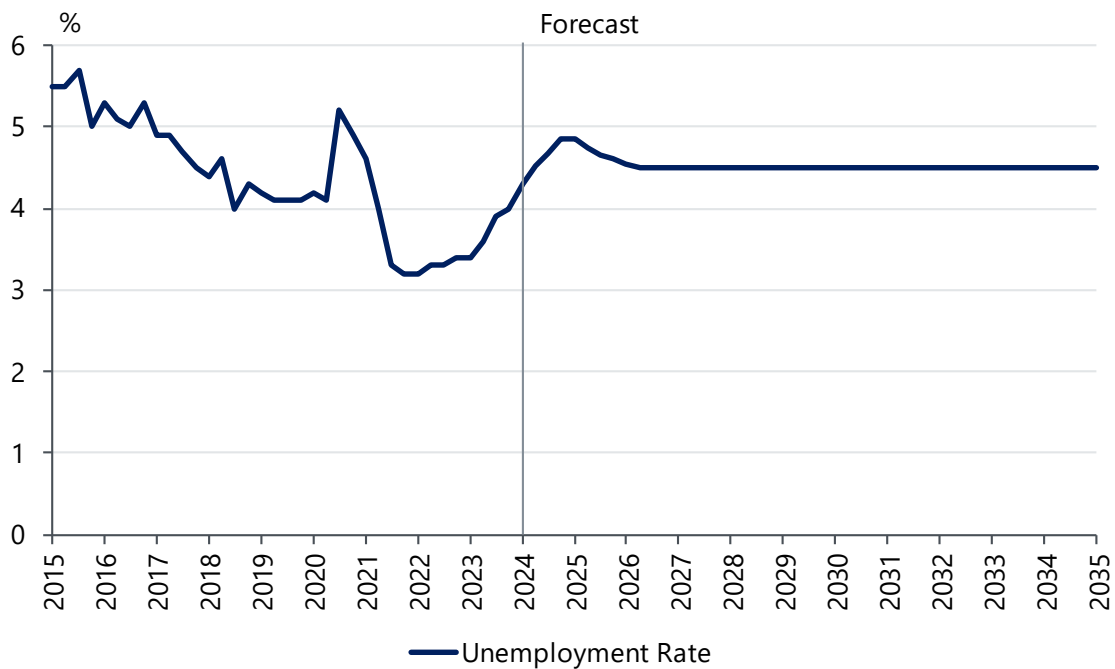
Year ended March

The labour market has been remarkably resilient in recent times. Whilst the unemployment rate has been gradually edging towards 4%, the market has endured record low levels of unemployment.

Prior to COVID-19, the unemployment rate averaged 4.9% over the five years to 2020, however, reached as high as 6.7% in 2012 before gradually declining. Following the onset of COVID-19, after an initial spike, the unemployment rate fell to historic low levels – falling as low as 3.2% in late 2021.

Migration has played a key role in New Zealand’s labour market, due to COVID-19 restrictions, labour supply was hindered by the departure of skilled migrants and prolonged border restrictions slowed the return of workers. The border restrictions saw international arrivals of workers fall from nearly 12,000 across the March quarter of 2020 to around 250 over the following quarter. Levels remained below 1,000 arrivals until the June quarter of 2022 and an arrival of nearly 13,000 migrant workers in November of 2022 alone highlighted a strong recovery in labour supply. As migration patterns continue to normalise, it’s expected to continue to relieve pressure on the labour market.

Fig. 29. Unemployment Rate



Source: Stats NZ, Oxford Economics Australia

Year ended March

Despite the tight labour market, wages have fallen behind inflation resulting in a decline in real wages. Wage growth has stabilised recently following a period of stronger performance underpinned by fast-paced public sector growth. However, this boost was not enough to lift overall wages above inflation. The wage price index (WPI) for All Industries endured growth of 2.5% and 3.9% in FY2022 and FY2023 respectively, compared to 6.9% and 6.7% for inflation. The negative returns to real growth were estimated to have continued in FY2024, with the all industry WPI falling 0.8% behind inflation (4.2% wage growth, 5.1% inflation). However, the fall in real wages will place pressure on wages to remain high over the short term, attracting additional workers to the market. Some downward pressure is expected to come from a change in government policy – the recently elected National government will likely reduce the pace of public-sector wage growth and enact a smaller rise in the minimum wage than the average 6.5% in the last five years. As a result, the WPI is forecast to grow by 2.9% in FY2025 and 2.2% in FY2026 – exceeding inflation in both years (2.8% and 1.8% inflation in FY2025 and FY2026 respectively).

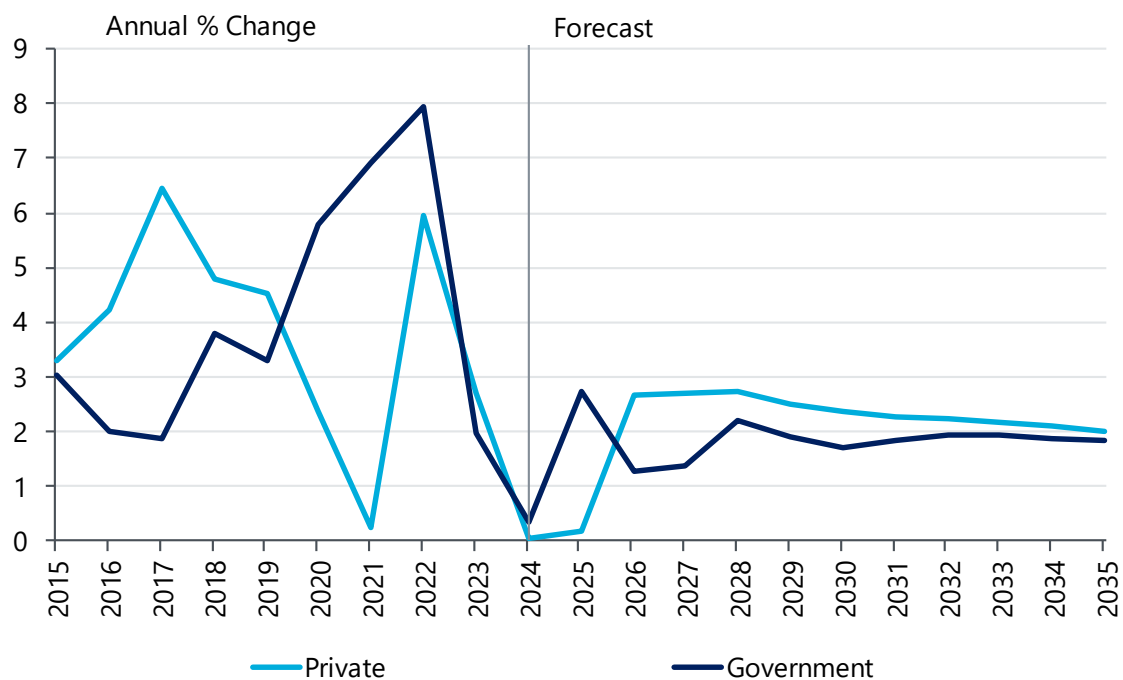
For the utility and construction sectors, wage growth has historically been above that experienced by the aggregated all industry series. Given the importance of wage growth and the weighting placed on

labour costs in these sectors, the outlook for wages is critical to mapping overall costs. Moreover, despite falling behind inflation over FY2021-FY2023, the utility sector wage growth has recorded consecutive years of record growth. Since the WPI for the utilities sector was first reported by Stats NZ (in 2009), the sector has reported two years of strong growth in FY2023 (+5.2%) and FY2024 (5.5%). For the New Zealand EDBs, this plays a key role in their cost profiles. Labour captures the highest proportion of costs in CAPEX and OPEX for the EDBs. For the construction sector, which captures labour costs for the majority of outsourced work on the broader network, growth has also been strong for the construction WPI (+4.4% and +4.1% in FY2023 and FY2024 respectively).

Consumption has cooled as high interest rates weigh on household spending.

The conclusion of most fixed-rate mortgages has resulted in the majority of borrowers being repriced at high interest rates and this has played a significant role in reducing household consumption. Whilst nominal income growth has supported household consumption to some degree, private consumption has fallen by 0.5% over FY2024 as households have reduced discretionary spending. As mentioned previously, as aggregated wage growth has fallen behind inflation, the loss in real wages has added to the fall in consumption.

Fig. 30. Private and Public Consumption Annual Growth



Source: Stats NZ, Oxford Economics Australia

Year ended March

Despite the movement of several key drivers of consumption, continued strength in migration has supported consumption as well as rising dwelling costs. Public (Government) consumption has also aided aggregate consumption levels – public consumption increased by 0.3% in FY2024 after a number of years of strong growth (+5.8% in FY20, +6.9% in FY2021 and +7.9% in FY2022). however, public consumption comprises less than 25% of total consumption, so the impact to broader consumption profile has been slightly muted. Additionally, the uptick in public consumption was

moderated to some degree over the past year in order to limit the upside risk to inflation. Accordingly, overall consumption held near constant over FY2024, growing 0.1% to nearly \$236 billion.

The current pressures on consumption across New Zealand are forecast to persist over the immediate outlook. The elevated interest rates are anticipated to keep household consumption is forecast to continue through FY2025, with private consumption expected to only grow by 0.2% over the coming year. Accordingly, total consumption is forecast to increase by 0.8% to \$237 billion in FY2025. However, as interest rates and cost pressures ease, consumption patterns are anticipated to return to a more 'normal' growth profile – from FY2026, total consumption growth is expected to average 2.3% per year to reach \$267 billion by FY2030.

Businesses face ongoing pressures from increased costs and reduced economic activity. Accordingly, investment has fallen recently and a slower return to 'normal' conditions has deterred flows across the outlook.

Whilst investment recovered quickly following the easing of COVID-19 restrictions (+10.2% in FY2022), persistently high inflation and the continued restrictive monetary policy from the RBNZ weighed heavily on investment across the country. After reaching record levels in FY2023 (\$72.6 billion), investment fell by 2.1% in FY2024 as optimism around a quick return to lower interest rates dwindled.

The business sector is facing subdued demand compared to the past few years, owing to the impact of high interest rates on domestic spending and below-trend global growth. High operating costs are accentuating lower demand, even as capacity pressure in the economy has eased somewhat. Growth in labour costs remains high, putting pressure on margins. Insurance costs and local authority rates have also increased considerably for businesses.

Whilst the overall profile of the investment has slowed in New Zealand, the recent developments have had varied impacts across certain sectors. Retail trade, manufacturing and construction face weak demand owing to the impact of high interest rates, particularly on the housing market. Service-based sectors like restaurants and hospitality appear more resilient, benefiting from a rebound in net migration and international tourist arrivals.

The falling momentum of investment in New Zealand is expected to continue in FY2025. With current conditions expected to weigh on the outlook for business activity and several global risks of note, investment growth is not forecast to return until FY2026 as conditions ease. Total investment is forecast to decline 3.2% in FY2025 to \$68.9 billion, the lowest level since FY2021. However, stable growth is anticipated over the longer term as concerns subside. From FY2026, investment growth is forecast to average 2.9% to exceed \$84.0 billion by FY2032.

New Zealand exports, whilst recovering, are yet to return to pre-COVID-19 levels.

The exchange rate, against the US dollar, for New Zealand has undergone strong levels of appreciation in recent years. From its low in 2022 of \$0.61 against the USD, it is estimated to have firmed to around \$0.67 across 2024 on the bank of the recovery in the global dairy industry. New Zealand's exposure to volatile agricultural product prices can result in high levels of exchange rate volatility. But thanks to a very stable institutional and policy environment, risk around the New Zealand dollar has been tempered.

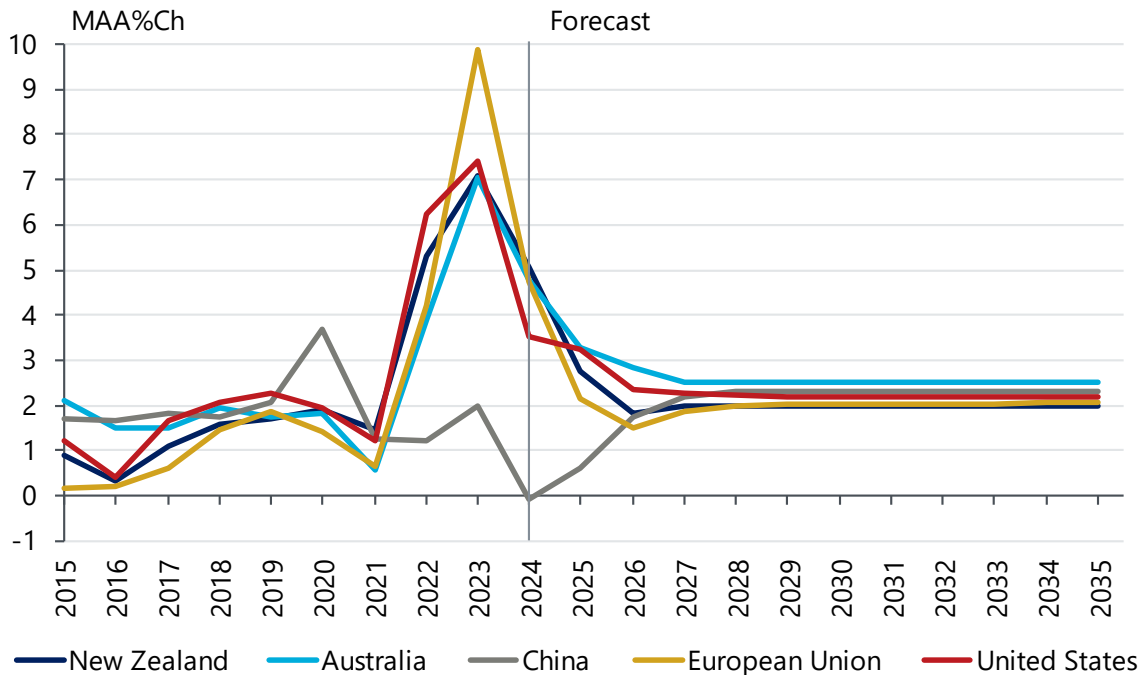
International trade plays a critical role in the New Zealand economy, making up around 60% of total economic activity⁸. Goods have historically made up around 70% of the country's exports with the primary good exports including meat, dairy, fisheries, wine, forestry, and other horticulture products. Tourism accounts for the largest share of the country's export market for services. Dairy export revenue is forecast to decrease by 7% to \$24.1 billion over the year to 30 June 2024. This is driven by a weakening demand resulting in lower global dairy prices and a likely drop in export volumes due to a decline in milk production. However, a slightly weaker NZD will offer some support to export revenue.

New Zealand's trade is highly dependent on the economic health of key trading partners. Globally, while there are differences across regions, economic growth remains below trend and is expected to remain subdued. Most major central banks remain cautious about easing monetary policy given the ongoing risk of persistent inflation. China's position as a major importer of New Zealand goods has hindered exports as the country's recovery stalls. After lifting COVID-19 restrictions, China has recently endured a number of challenges including real estate concerns, a high level of government debt, deflation (negative price growth in FY2024) and falling investment. For New Zealand, this has resulted in a slowing demand for exports, particularly across dairy, meat and wool.

As a result, New Zealand's exports are yet to reach pre-COVID-19 levels despite two years of growth to FY2024. A 17.9% decline in exports in FY2021 reversed a strong run of growth before COVID-19 – export growth averaged 4.2% over the five years to FY2019. Nonetheless, since the trough at \$61.0 billion in FY21, exports have recovered somewhat recording 6.1% and 7.3% growth in FY2023 and FY2024 respectively.

⁸ [NZ trade policy | New Zealand Ministry of Foreign Affairs and Trade \(mfat.govt.nz\)](https://www.mfat.govt.nz/nz-trade-policy)

Fig. 31. Inflation by Country



Source: Stats NZ, ABS, China National Bureau of Statistics, Statistical Office of the European Communities, Bureau of Labor Statistics, Oxford Economics Australia

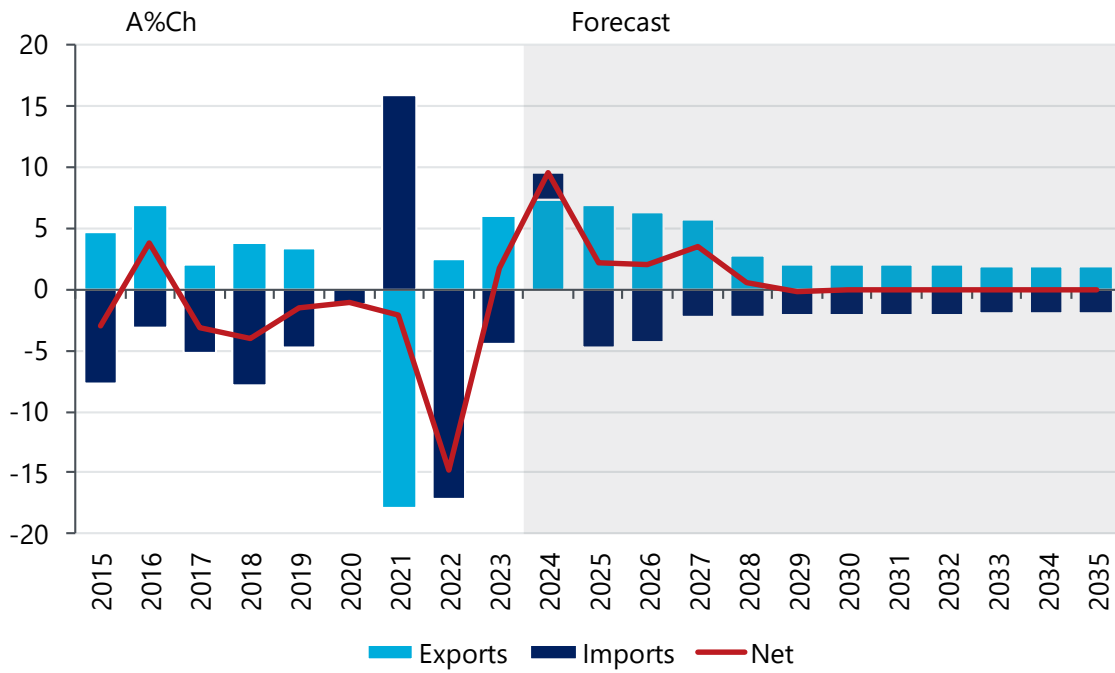
Year ended March

Aggregated commodity price indices have remained relatively stable despite ongoing geopolitical uncertainties. Oil prices have increased while agricultural commodity prices have generally been weaker. The recent spike in global shipping costs, which has partially receded, has yet to be observed in the trade data. However, as trade continues to normalise, exports are forecast to continue its recent strong growth. Over the three years for FY2027, the total export market for New Zealand is forecast to grow by an average of 6.4% to reach \$85.4 billion. From there, growth is expected to slow, reverting to more moderate rates, averaging 2.1% per year to FY2032.

New Zealand has historically had a net loss from international trade in part due to a large reliance on imports of cars, oil and mechanical machinery and equipment. All petroleum products make up the largest percentage of New Zealand's imports (including refined petroleum products) and price increases in recent years have underpinned a decline in the country's net trade position. Following a decline in imports in FY2021, imports increased by 22.3% to peak at \$91.8 billion in FY2023, compared to the more moderate 8.6% recovery in exports over the same time. Accordingly, the country's net trade position fell from a loss of \$14.2 billion in FY2021 to \$25.6 billion in FY2023.

With the global economy continuing to return to a normalised growth path, imports (along with exports and, hence, net trade) are forecast to stabilise over the outlook. After cooling in FY2024 (-2.3%) in FY2024 to \$89.7 billion, imports are forecast to grow by an average of 2.5% over the forecast period. Imports are anticipated to reach \$111.3 billion by FY2032 with the country's net trade position a loss of around \$16.2 billion.

Fig. 32. Net Exports



Source: Stats NZ, Oxford Economics Australia

Year ended March

8. APPENDIX B CONSTRUCTION OUTLOOK

Construction activity is measured by 'work put in place' and is published quarterly by Statistics New Zealand. Construction work put in place represents the level of demand in the economy for labour and relevant materials which are included in this report – thus, it is a key determinant for understanding historical cost escalation and contributes to our forecast for future cost growth across relevant wages and materials. This section includes the outlook for the sector across the three segments – residential, non-residential building and engineering construction.

Over the decade to FY2023, total construction activity (constant FY2023 prices) has maintained an upwards trajectory and grown at a CAGR of 4.6% per annum to NZ\$48.3 billion by FY2023. However, activity in the second half of the decade grew at a slower pace than the first half. The largest construction sector – residential building – has been leading this slowdown as a result of weak household demand, growing at a CAGR of only 3.4% over the 5 years to FY2023 (compared to 9.2% over the 5 years to FY2018). A further drag on activity has also come from sluggish non-residential activity due to a larger backlog of non-residential projects as older and longer timeline projects in the pipeline continue to suffer from significant cost blow outs. After 5 years of strong positive consecutive growth, engineering construction activity in FY2023 took a step back and fell by 9.0% to NZ\$14.6 billion.

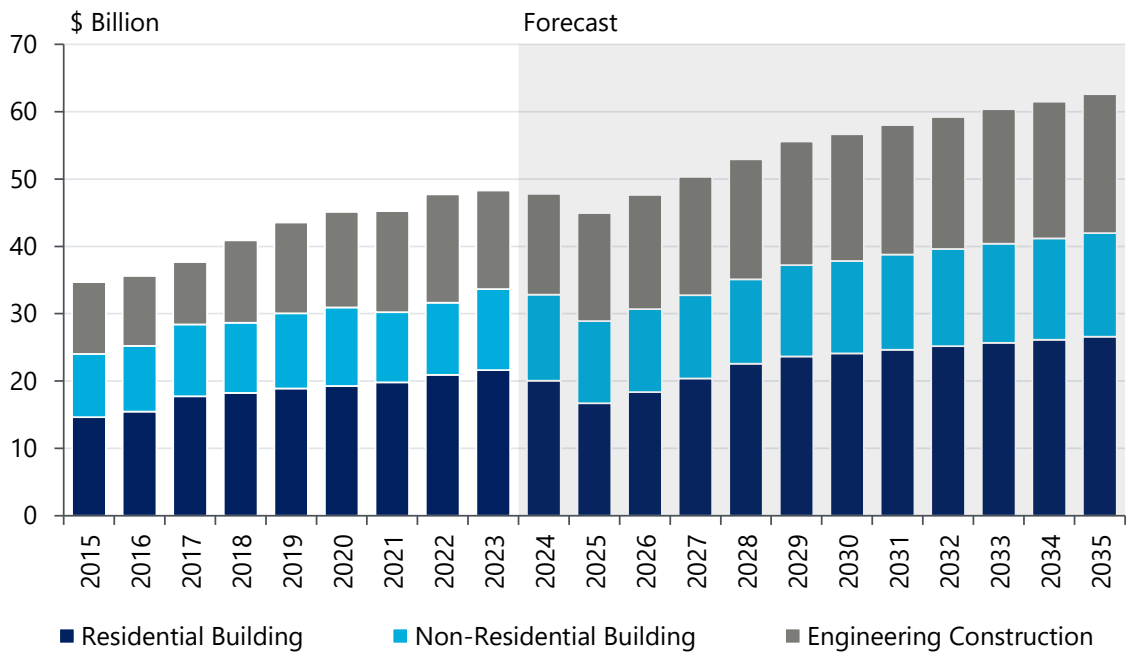
We expect total construction activity levels to be subdued over FY2024 (-1.0%) and FY2025 (-6.0%), as heightened inflationary pressures and an elevated cash rate will place a drag on new demand for construction over the near term. While supply chain constraints are easing, higher input prices continue to keep the cost of new builds elevated. These factors are expected to primarily impact new residential building activity which will dip from historically high levels in FY2024 (-7.2%) and FY2025 (-16.6%), falling for the first time in over a decade. While the backlog of civil engineering projects remains large, progress continues to remain slow on government expenditure plans, pushing activity further along the forecast horizon. Construction job vacancies surged following the pandemic as covid-induced restrictions still applied which caused a lack of supply of workers to fulfil the growing backlog of work. Following the easing of travel restrictions, vacancies have declined in recent years but benefitted building construction more than civil engineering due to the more specialised nature of engineering construction that cannot be borrowed from the building sector.

In the medium term, support for the outlook will come from strengthening net migration and progress on the backlog of civil engineering projects. Additionally, the FY2023 Government Budget includes NZ\$71 billion worth of infrastructure spending – on education, health, public housing, road and rail – in the next five years. Construction activity levels are expected to improve over the three years to FY2028 to NZ\$52.9 billion, growing at a CAGR of 5.4% per annum. With cash rate cuts from the RBNZ expected in H1 2025, residential building is expected to pick up from FY2026 (+9.9%) and grow at a CAGR of 10.9% per annum over the three years to FY2028. However, there remains significant downside risk should inflationary pressures and higher input prices persist more than

expected. Another consideration is market capability constraints and uncertainty around New Zealand’s ability to meet the delivery of all projects in the pipeline.

Over the remainder of the forecast horizon, long-run construction activity is expected to grow at a CAGR of 2.0% per annum over the six years to FY2035. It is forecast to grow to NZ\$62.6 billion by then, reaching record levels of activity across all segments, with residential and non-residential building making up NZ\$26.6 billion and NZ\$15.4 billion, respectively. Engineering construction activity is expected to reach NZ\$20.6 billion as support will mainly stem from transport (road and rail) construction as well as infrastructure developments in the power and water sectors to support energy transition and address water security concerns.

Fig. 33. Total Construction Work Put in Place by Subsector



Source: Stats NZ, Oxford Economics Australia

Year ended March

9. APPENDIX C INFLATION AND WAGE OUTLOOK

9.1 CPI INFLATION OUTLOOK

Current strong inflation pressures will be slow to abate.

Consumer price inflation was subdued for the five years to the March quarter of 2020, with the annual (through-the-year or y/y) headline CPI inflation ranging between 0.3% and 1.9%; averaging 1.3%. The onset of COVID-19 in early 2020 then saw considerable volatility in CPI measure over 2020 and 2021, due to volatility in oil prices, government responses to COVID-19, demand impacts and then supply chain impacts – but the CPI remained under 2% over FY2020 and FY2021.

However, by late 2021/early 2022 it was apparent that inflationary pressures were increasing and broadening. CPI accelerated through 2022, with CPI peaking at 7.3% in the June quarter of 2022, as a number of factors conspired to worsen the local and global inflation. These factors included severe supply chain shortages and delays, the zero-Covid policy pursued by China, and the outbreak of war in Ukraine (and associated sanctions on Russian oil and other commodity exports). Food prices also jumped in early 2022 because of the impact on wheat and other food prices from the Ukraine war. The supply-chain disruptions for imported goods were also exacerbated by the decline in the New Zealand dollar over 2022 and into 2023.

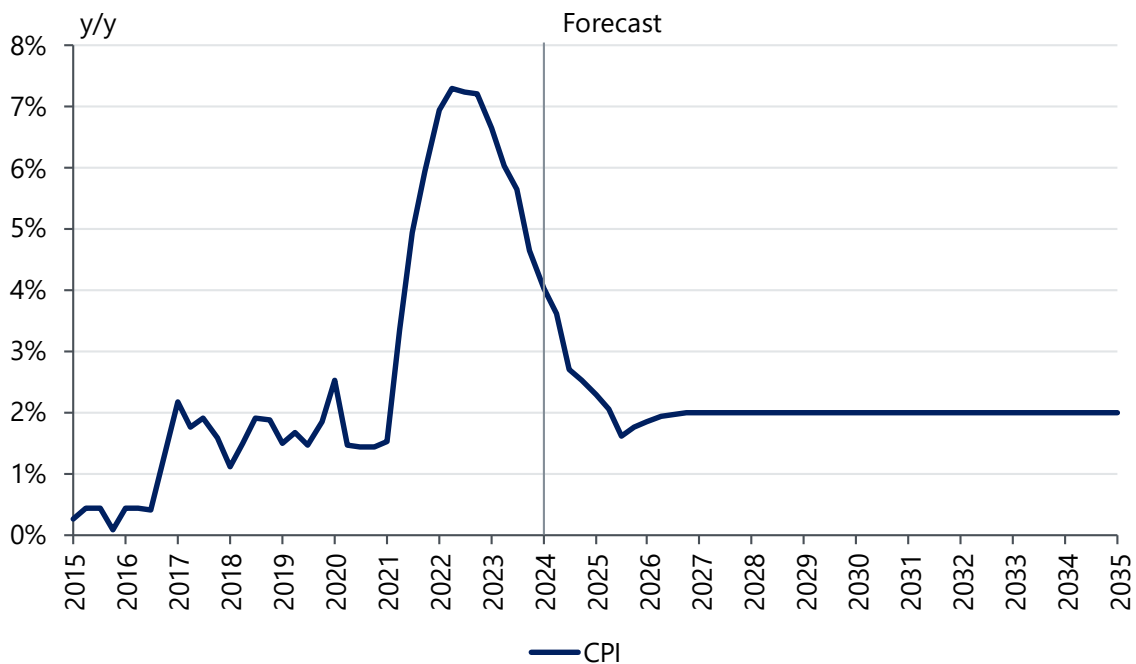
Whilst the initial jump in inflation was due to the aforementioned international factors, the recent persistence in inflation growth has been underpinned by domestic factors. Rising food prices and well as high costs related to housing, including construction costs and rent have prevented inflation from falling in recent quarters. Additionally, inflation has been supported by strong migration flows which have boosted aggregate demand across the country. Migration has had a particularly notable impact of services inflation – the increase in aggregate consumption due to the additional population has placed a floor under the slowdown in price growth. Strong wage growth has also added to the underlying pressure on prices.

Price inflation to ease back to RBNZ target over next two years as supply pressures ease.

Accordingly, inflation is anticipated to have peaked in mid-2022 but remains above the central bank's target of 1-3% (4.0% in Q1 2024). With most of the above supply-side pressures to ease further and oil and other commodity prices weakening over FY2024 and FY2025, their absence is expected to help subdue headline inflation materially through FY2024 and FY2025. However, demand-driven inflation will be slow to abate over the year, despite the RBNZ's attempts to 'cool' strong demand with higher interest rates. Moreover, the tight labour market – with the unemployment rate currently around 3.9% and expected to stay between 4-5% over the next year – will contribute to wage pressures. Overall, CPI inflation was 5.3% in FY2022 and 7.1% in FY2023 (following 1.5% in FY2021), with annual price growth easing back over the most recent year – inflation growth was 5.1% in FY2024.

Whilst recent inflationary pressures will drive wages over the short term, inflation is expected to cool over the outlook supporting real wage growth. Inflation is expected to remain somewhat elevated over FY2025 as the supply and demand pressures slowly abate, the labour market remains tight, and wage growth remains relatively high. Although global inflation pressures will continue to ease over the next year, they will remain elevated, contributing to higher manufacturing costs and prices over the near term. Overall, CPI inflation is forecast to return within the RBNZ's target range from FY2025, with inflation forecast to be 2.3% in FY2025, 1.9% in FY2026 and 2.0% in FY2027.

Fig. 34. CPI Inflation Annual Percentage Change



Source: Stats NZ, Oxford Economics Australia

Year ended March

9.2 NEW ZEALAND ALL INDUSTRIES WAGES

The key determinants of nominal wage growth are consumer price inflation, productivity, the relative tightness of the labour market (i.e., the demand for labour compared to the supply of labour), and the compositional (structural) changes in the labour market. The low growth of the 2014-21 period was both a product of and a key contributor to low underlying inflation. Low wages helped keep business costs down and thus mute upward price pressures, while a significant section of pay deals are set in line with CPI inflation. The unemployment rate (and underemployment rate) is a key indicator of the amount of 'slack' in the labour market. The unemployment rate was just above 4% over the two years to the March quarter of 2020, before the COVID-19 impacts.

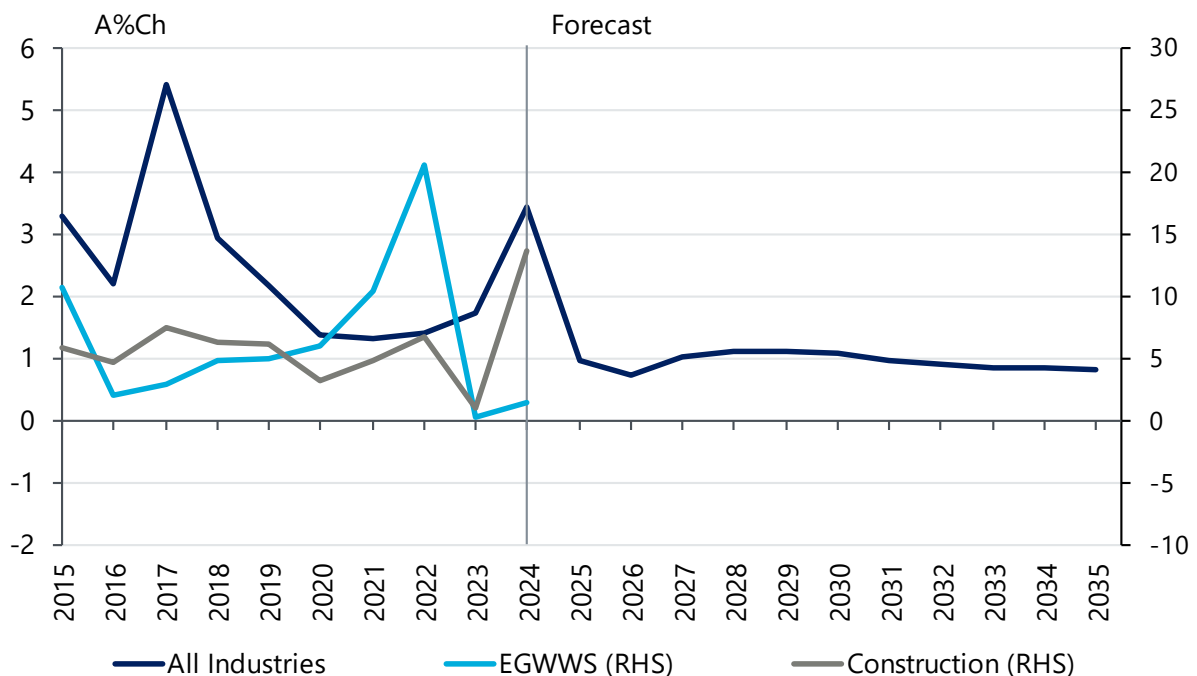
Wage growth will remain elevated as the labour market remains tight.

Following the covid-inspired slump in wages in FY2020 and FY2021, wage growth picked up over FY2022 with the All Industries LCI increasing to 3.9% in FY2022 (from 2.5% in FY2021). A further acceleration in wages occurred in FY2023 and FY2024 – to 3.9% and 4.2% respectively and this growth is expected to persist over FY2025 and FY2026, before easing over the late decade. Despite the

nominal improvements, from FY2021, the growth in wages has fallen behind inflation meaning a loss of real wages. Importantly for the near term forecast this is anticipated to result in increased pressure on wage growth as the labour force looks to recover from the extended period of declines.

A key element adding to wage pressures in FY2022 and over FY2023 was the rapid tightening in the national labour market. Employment is now well above pre-COVID-19 levels, with the unemployment rate averaging 3.3% in FY2023 before slightly rising in FY2024 to 3.7% and the labour force participation rate at record levels. A key to the outcomes over FY2022 was little growth in the pool of available labour. Growth in the labour force has been facilitated by a marked increase in the labour force participation rate to record levels. However, there is now little scope to raise the participation rate further and, with the underemployment rate at historical lows and job vacancies well above pre-Covid levels, wage pressures are expected to remain elevated.

Fig. 35. Employment Annual Growth– All Industries, EGWWS and Construction



Source: Stats NZ, Oxford Economics Australia

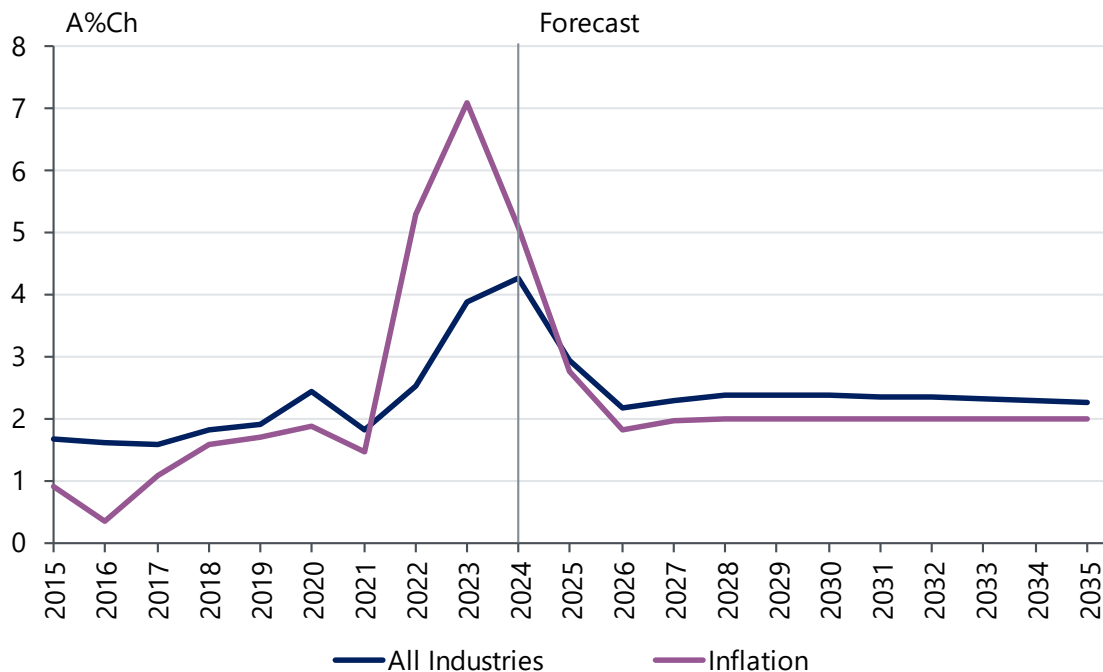
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The economy is expected to remain resilient over the short-to-medium term and, although GDP is forecast for modest weakening over FY2025 and FY2026, it is still expected that the labour market will remain tight, with labour demand still relatively strong and the unemployment rate remaining between 4-5% over the next year to early-to-mid 2025. Furthermore, while employment growth forecasts are similar over the next year, it's expected that the rise in the unemployment rate will be kept in check by falls in participation rate from current record levels, as employment growth slows. This is likely to occur amongst those currently in the workforce with a 'loose attachment' to the workforce, such as older workers who stayed in the workforce due to strong labour demand. As demand eases, a significant proportion of workers are likely to drop out of the workforce (and hence the labour force statistics) and possibly retire.

Skill shortages, which have already emerged, are expected to remain acute in many parts of the economy, although there has been some recent evidence of shortages of unskilled labour beginning to ease. The tight labour market will see wage pressure remain elevated. Wages have been slower to pick up compared to the inflation rate, due to lags in the transmission of wage increases, particularly in the enterprise bargaining segment, where the duration typically runs for two years.

The All Industries LCI for All Industries is forecast to remain above historical averages over the short term as the tight labour market and persistent CPI inflation underpin stronger growth. From averaging 1.8% over the five years to FY2020, the LCI for All Industries is anticipated to grow by 2.9% in FY2025. Against CPI inflation, this is expected to represent a 0.2% increase in the real wage (CPI inflation 2.8% in FY2025). As conditions cool, wage growth is expected to return to a stable growth path over the remaining years of the forecast. From FY2026, the LCI for All Industries is anticipated to average 2.3% growth over the forecast period. Overall, comparing to the forecasted CPI inflation, this is expected to ensure an average real wage growth of 0.3% from FY2026 to FY2032.

Fig. 36. Wage Price Index – All Industries and Inflation



Source: Stats NZ, Oxford Economics Australia

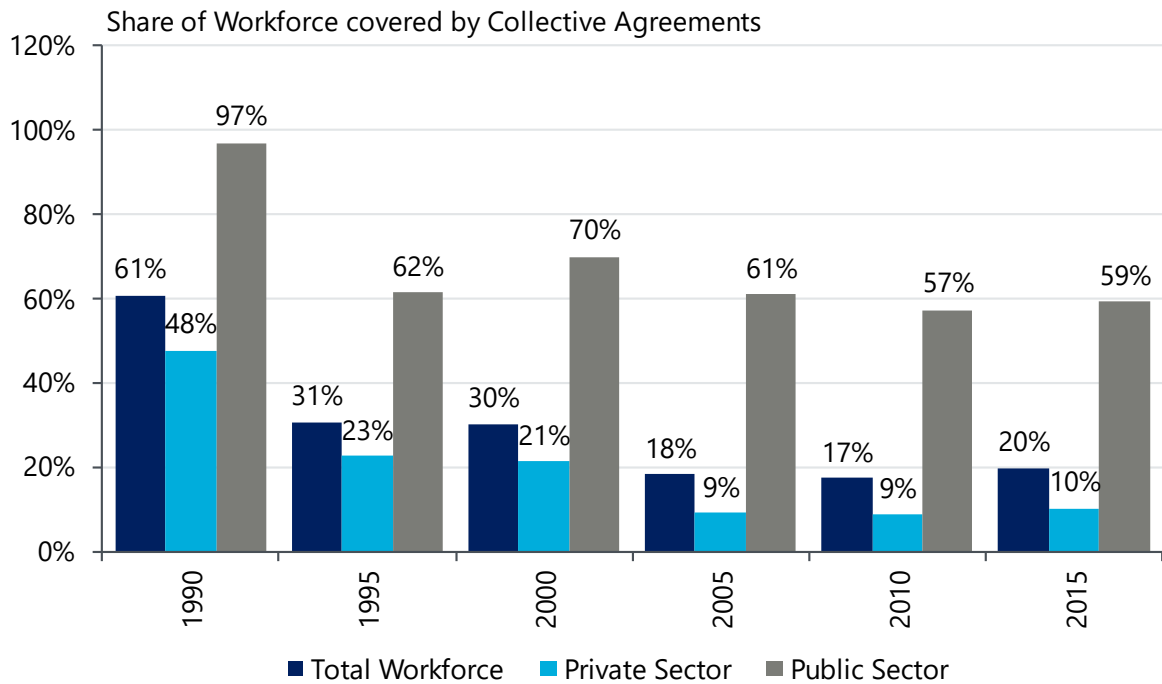
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As mentioned above, inflation is a key benchmark for wage growth. Whilst it is an important comparison for real wage growth, inflation plays a more direct role in wage setting through collective agreements. Collective bargaining agreements (CBAs) are typically benchmarked around inflation and see wage growth lag inflation as CBAs take time to come into effect. Importantly for New Zealand, recent real wage declines may be harder to 'claw back' compared to Australia due to a smaller share of the labour workforce covered by CBAs.

The prevalence of collective bargaining has been declining in New Zealand over the past couple of decades. Key policy changes have resulted in the number of employees covered by agreements falling

steeply across all sectors. In the late 1980s and the early 1990s, New Zealand made a series of changes to sectoral bargaining and unions, which brought it close the system in the United States. As a result, the of all employees covered by agreements fell from 61% in 1990 to 31% by 1995, with the public sector share falling from 97% to 62% over the same years. In 2000, New Zealand attempted to strengthen unions and improve collective bargaining and, whilst stabilised the share of employees covered by agreements, levels are still significantly below that experienced during the early 1990s.

Fig. 37. Share of the Workforce Covered by Collective Agreements by Sector



Source: Stats NZ, Oxford Economics Australia

Year ended March



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