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Power prices can be fairer and more affordable

Urgent action needed to tackle billions in unearned network supernormal profits

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Key Findings

IEEFA estimates electricity networks extracted $2 billion of supernormal profits in FY22 – making total profits 2.5 times the levels necessary to compensate shareholders for risk.

The supernormal profit per customer for FY22 ranged from $80-$400, depending on the network area.

The excessive supernormal profits were caused by weaknesses in the regulatory regime in favour of networks.

Governments can improve transparency, change the rules to avoid excessive network supernormal profits, and get power bills down.

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Executive Summary

Opportunity to reduce power bills

Power bills can be fairer and more affordable if Australian governments agree to tackle unearned, persistent and excessive supernormal network profits that are inflating power prices without performance or reliability benefits. Change can only occur with government action.

IEEFA estimates the 18 monopoly electricity networks serving the national electricity market (NEM) are extracting persistent supernormal profits that inflated customer power bills in affected network areas by between $80 and $400 per customer in the 2022 financial year. IEEFA's analysis uses profitability data from the 18 monopoly electricity networks in the NEM, released by the Australian Energy Regulator (AER) in July 2023.[1]

An analysis of this data shows that supernormal profits have been recorded every year since 2014, and that these were excessive in eight of the past nine years. Estimated sector-wide supernormal profits were persistent, averaging about $1.2 billion a year over FY14-FY22 or 11% of total cost (including allowed profits). In FY2022, the combined actual profits were $3.4 billion, 2.5 times the risk-adjusted, allowed profit of $1.4 billion – a supernormal profit of $2 billion.

The estimated supernormal profits in FY22 compared with the nine-year period FY14-FY22 are summarised in Figure 1.

Figure 1: Network cost and profit outcomes annual ($ billion real)
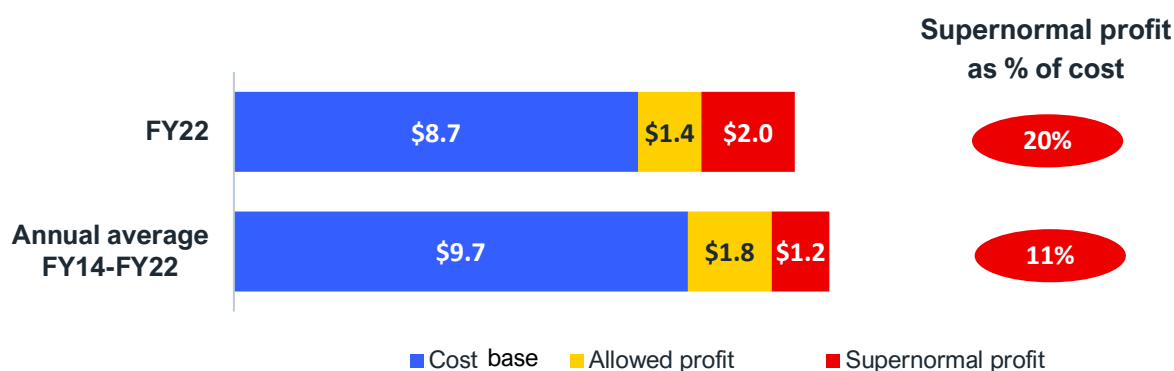
Source: IEEFA analysis based on AER data. Note: Supernormal profit as % of cost is calculated as supernormal profit over the cost base plus the allowed profit.

From FY14-FY22, $11 billion in supernormal profits were extracted in total across all networks, on top of the allowed profit of $16 billion.[2] This means wealth from NEM electricity customers has been

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[1] Australian Energy Regulator. Electricity network performance report 2023. 7 July 2023.
[2] This estimate includes incentives schemes, but excludes returns from RAB indexation and from pass-through schemes.

transferred to network shareholders: private domestic shareholders, private offshore shareholders and the Queensland, NSW and Tasmanian state governments. The supernormal profit means network prices have been higher than necessary, harming power affordability. It has also diverted up to $11 billion of revenue away from necessary expenditure required to support reliability, including investment in new transmission and storage capacity.

" **The bill impact of structural excessive supernormal profits is substantial and ongoing.**

The bill impact of structural excessive supernormal profits is substantial and ongoing. Regulated network charges represent the second-largest component of retail power bills, after wholesale energy costs.[3] Figure 2 shows estimated supernormal profits per customer by distribution area – combining supernormal profits from both distribution and transmission networks. With a few exceptions, supernormal profits ranged from about $80 to $400 per customer in FY22. In that period, there appear to be no supernormal profits in the ACT or areas served by Ausnet in Victoria.

Figure 2: Network* supernormal profits per customer by distribution network area
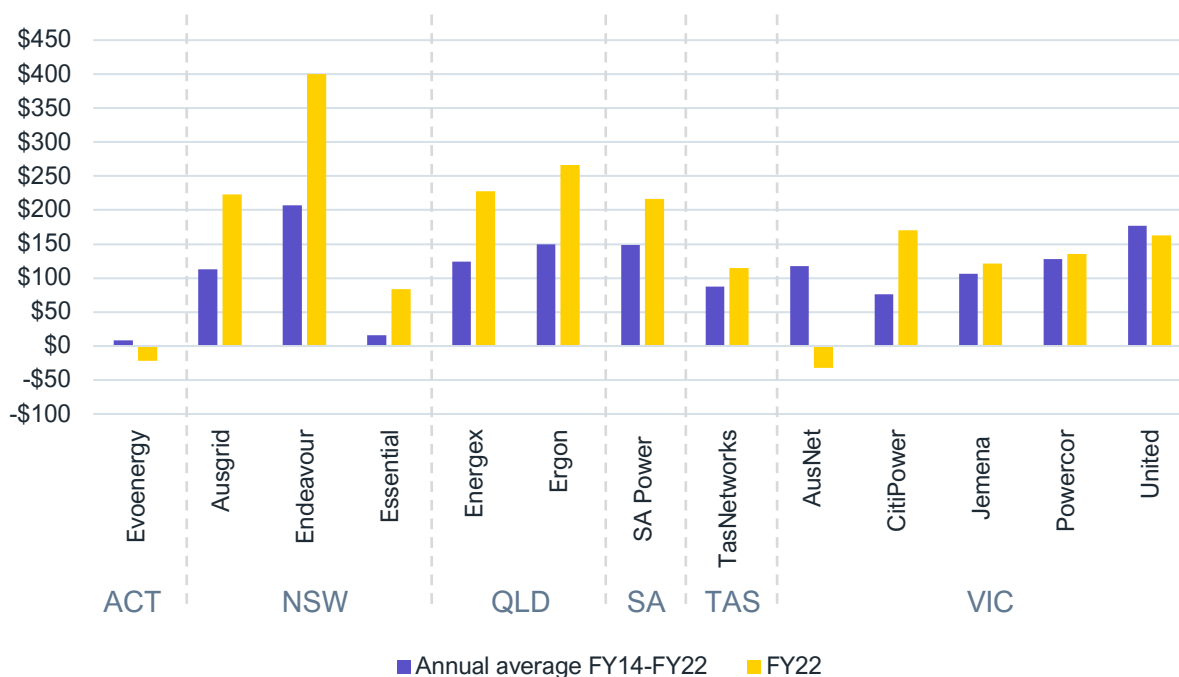
Source: IEEFA analysis based on AER data.
Note: *Includes transmission and distribution networks. Results are subject to variation to the extent that individual NSP gearing ratios diverge from the aggregate weighted averages provided by the AER.

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[3] See for example, AER. Default market offer prices 2023-24 Final determination. May 2023.

If the same supernormal profit trends from FY22 are assumed to continue, between 14% and 69% of retail price increases this financial year – from 1 July 2023 – could have been avoided if profits were no more than sufficient to compensate shareholders for commercial and regulatory risk. Families and businesses are already experiencing power price shocks, and supernormal profits are a significant contributor. This is an example of price rises driven by increased company profits rather than increased costs.

The problem

Historically, there has been insufficient transparency over the existence, size, and bill and efficiency impacts of network supernormal profits. The AER has not disclosed the total dollar or per-customer bill impacts of network supernormal profits in its regular reporting of network performance. It does not refer to persistent supernormal profits, despite these being relevant to its recent reviews such as its reviews of incentive schemes[4] and the rate of return.[5] IEEFA has undertaken extensive research and analysis to attempt to fill this information gap.

The AER refers to a variety of factors causing actual returns on equity to be consistently higher than the allowed level in its network performance report.[6] IEEFA accepts the AER's analysis of the various cost buckets that have led to higher-than-expected network returns on equity. However, IEEFA believes that the AER's explanation does not demonstrate that these actual return outcomes are consistent with effective incentive regulation and the National Electricity Law (NEL) revenue and pricing principle that returns to shareholders should be "commensurate with the regulatory and commercial risks involved in providing" regulated network services.[7]

The allowed return on equity, and therefore the allowed profit, is set by the AER to compensate shareholders fully for regulatory and commercial risks. Returns consistently well above the allowed return therefore appear inconsistent with the NEL pricing principle.

Networks have an opportunity to earn higher returns on equity by increasing productivity. However, this does not appear to be the reason for the observed supernormal profits. Comparing AER productivity data with profitability data shows that supernormal profits are unrelated to productivity. Total productivity has improved only marginally since 2014 and remains well below the levels estimated in 2006 when productivity analysis was first undertaken on an NEM-wide basis.[8]

Defining excessive supernormal profits

Some level of profit above the allowed level – i.e. supernormal profit – is reasonable. However, the profit outcomes observed by IEEFA appear unreasonable. IEEFA has drawn from expert advice

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[4] AER. Review of incentives schemes for networks. Final decision. April 2023.
[5] AER. Rate of return instrument 2022. Final decision. 24 February 2023.
[6] AER. Electricity network performance report 2023. 7 July 2023.
[7] For example, NSW Government. National Electricity Law (NSW). Section 7A (5) and Appendix 2. 21 September 2023.
[8] AER. 2022 Annual Benchmarking Report – Electricity distribution network service providers. Figure 5. November 2022.

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on the acceptable level of supernormal profits under effective incentive regulation to understand whether the supernormal profits observed are reasonable.[9] This expert advice found that the regulator would have less information than the networks surrounding their cost data, and therefore networks would be able to extract some level of additional profit referred to as "information rents". The "information rent" concept has previously been relied upon by the AER to explain supernormal profits.[10]

IEEFA has applied the concept of information rents to suggest that actual profits could be up to 30% (1.3 times) above allowed profits, where these are earned by higher-than-average levels of productivity.[11] If actual profits are more than 1.3 times allowed profits, the supernormal profit exceeds reasonable information rents under effective incentive regulation.

> **Most supernormal profits are excessive compared with reasonable expectations under effective incentive regulation.**

Most supernormal profit outcomes exceed the information rents threshold. Of the 162 individual profit outcomes over the past nine years:

- 64% are *above* the upper boundary of the expected range under effective incentive regulation (actual profits up to a multiple of 1.3 times allowed profits);
- 20% are *within* the acceptable range (0.9-1.3x); and
- 16% are *below* the lower boundary of the expected range (0.9x).

This means the supernormal profits are excessive. The excessive, sector-wide supernormal profits are structural and persistent, and not the result of timing and short-term factors. Excessive supernormal profits over nine years cannot be explained by "outside factors" such as innovation or productivity improvements, changes in financing costs, a higher tolerance for financing risk, or changes in the level of inflation.[12] Supernormal profits do not reflect "gold plating" or over-investment, as they are calculated after all investments in new or replacement assets.

IEEFA's interpretation of network profitability and other relevant AER data over 162 reporting periods and entities is that the combined institutions that govern network regulation in Australia are not adequately protecting electricity consumers from the monopoly pricing power of networks. IEEFA has considered alternative explanations for supernormal profits, and they do not withstand critical

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[9] Darryl Biggar. Understanding the role of RAB multiples in regulatory processes. 20 February 2018.

[10] AER. Electricity network performance report 2022: Financial performance data 2022 – Electricity networks. 15 July 2022.

[11] The concept has been applied to the ratio of actual to allowed (efficient) profits. This reflects the fact profits are returned to shareholders, not debt holders.

[12] See for example, IEEFA. Regulated electricity network prices are higher than necessary. Section 5.1. October 2022.

scrutiny. The AER has so far not provided any evidence or considerations to defend the proportion of outcomes that are well in excess of an actual-to-allowed profits multiple of 1.3.

Substantial new regulated network investment is required to support the energy transformation to allow the timely replacement of high-emissions power stations with renewable energy and storage. Excessive regulated network profits are inefficiently raising consumer bills and impeding this transformation.

What can be done?

The Energy and Climate Change Ministerial Council in its July 2023 communique emphasised energy reliability and affordability measures and collaboration on climate change.[13] The analysis in this report identifies a tractable opportunity for the Ministerial Council to promote more affordable and reliable electricity network supplies in the long-term interests of electricity consumers and the economy more broadly.

A draft of this report was shared with the AER and all Energy Ministers of NEM jurisdictions, seeking their comments and suggestions for improvements. Responses were received from a number of jurisdictions. These responses indicate Ministers are yet to decide whether to take action on network profits.

NEM Ministers should obtain independent expert advice to test the IEEFA analysis and identify suitable remedies to bring network profits to reasonable levels. Potential remedies include changes to the laws and rules governing the economic regulation of monopoly networks, alongside the introduction of greater transparency and independent monitoring of network profits by the Australian government.

These changes could be made in time to come into effect from mid-2024. Without these changes, excessive supernormal network profits and less affordable power bills will likely continue for the foreseeable future.

Substantial new regulated network investment is required to support the energy transformation to allow the timely replacement of high-emissions power stations with renewable energy and storage. Excessive network profits are inefficiently raising consumer bills and impeding this transformation.[14]

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[13] Australian Government Energy and Climate Change Ministerial Council. Meeting Communique. 7 July 2023.
[14] The AER's extensive consultation over the 2022 rate of return instrument did not reveal evidence that allowed returns were insufficient to support the necessary new regulated investment for the energy transformation.

Introduction

Electricity transmission and distribution networks in Australia are statutory monopolies. There are 18 regulated electricity distribution and transmission entities across the National Electricity Market (NEM).[15] These are regulated by the Australian Energy Regulator (AER), which directly controls the amount each network service provider can charge consumers.

Regulated network charges are passed on to customers via retailers, and are typically one of the largest single components of power bills. Default retail electricity prices increased substantially from 1 July 2023, as discussed in a previous IEEFA report.[16] In a high cost of living environment, it is crucial to ensure the regulated network component of electricity prices is efficient, to keep overall power bills down.

The AER tracks the performance of the electricity networks it regulates. In July 2023, it released its *Electricity network performance report*,[17] collating network financial and performance data for the 2022 financial year, including data on forecast/allowed and actual network returns. This data shows that, historically, the actual return on equity for network businesses has been well above the allowed return on equity.

In October 2022, IEEFA compared the actual return on equity with the allowed return on equity (provided by the AER) to determine the amount of additional returns network business shareholders have received, and IEEFA estimated the dollar value of these returns.[18]

This new IEEFA report updates and refines the estimates of network profits set out in its October 2022 report. Additional data from FY22 has been included. Further, IEEFA sought and received additional information from the AER on network leverage, and this reduced the estimates of supernormal profits slightly. The detailed methodology is summarised in Appendix 1.

A draft of this report was shared with the AER and all NEM jurisdictions, seeking their comments and suggestions for improvements. Responses were received from a number of jurisdictions, with the substantive part of the response of the Hon Tom Koutsantonis, Minister for Energy and Mining for the Government of South Australia, copied below (with permission).

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[15] It does not include data on networks in the Northern Territory or Western Australia, or regulated gas networks.
[16] IEEFA. No relief from electricity network supernormal profits. 30 March 2023.
[17] AER. Electricity network performance report 2023. 7 July 2023.
[18] IEEFA. Regulated Electricity Network Prices Are Higher than Necessary. 4 October 2022.

Figure 3: Extract from letter from the Hon Tom Koutsantonis, Minister for Energy and Mining for the Government of South Australia

I appreciate you sharing with me the draft research report "Persistent supernormal electricity network profits reduce power affordability" and for inviting my feedback on this material.

I welcome your respectful challenging of the existing frameworks and implementation of electricity network regulation in Australia. I support the Australian Energy Regulator assessing and improving the performance of the regulatory regime in delivering outcomes that are in the long-term interest of consumers.

While our regulatory framework is based on enabling networks to earn an adequate rate of return if they produce efficiently, as a member of the Energy and Climate Change Ministerial Council I will continue to monitor regulatory outcomes and advocate, when necessary, to ensure consumers interests are met.

Yours sincerely

Hon Tom Koutsantonis MP
Minister for Energy and Mining

2 /11 / 2023

The Energy and Climate Change Ministerial Council, in its July 2023 communique, emphasised energy reliability and affordability measures and collaboration on climate change.[19] The analysis in this report identifies a tractable opportunity for the Ministerial Council to promote more affordable and reliable electricity network supplies in the long-term interests of electricity consumers and the economy more broadly.

AER reporting of profitability data

Electricity network reported actual, inflation-adjusted net profit after tax data provides the best publicly available indicator of whether economic regulation is effective in constraining the monopoly pricing power of electricity networks. The network profitability data for the nine years from FY14-FY22 are provided to the AER by each of the 18 network businesses complying with AER information gathering powers under the National Electricity Law (NEL).[20]

Regulated entities are obliged under regulatory information notices (RIN) issued by the AER to provide RIN responses accompanied by statutory declarations by authorised company officers

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[19] Australian Government Energy and Climate Change Ministerial Council. Meeting Communique. 7 July 2023.
[20] NSW Government. National Electricity Law (NSW). Section 28. 21 September 2023.

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and by audit reports.[21] The AER then reviews, collates and summarises this profitability information for publication in its annual electricity network performance reports.

Profitability measurement uncertainties relate mainly to cost allocation between regulated and non-regulated activities sharing the same assets, systems and staff. The AER has in place cost-allocation guidance and RIN disclosure requirements to ensure the network performance data collected is accurate.

In its 2023 performance report, the AER published information on both the allowed real return on equity – targeted by the AER through the regulatory regime – and the actual real return on equity that networks received.[22]

Figure 4, from the AER report, shows that actual returns received by electricity networks (real return on regulated equity or RROE) are consistently greater than the allowed real returns on equity targeted by the AER in its regulatory regime. This gap widened substantially in FY2022.[23]

Figure 4: Real returns on regulated equity vs allowed returns on equity[24]
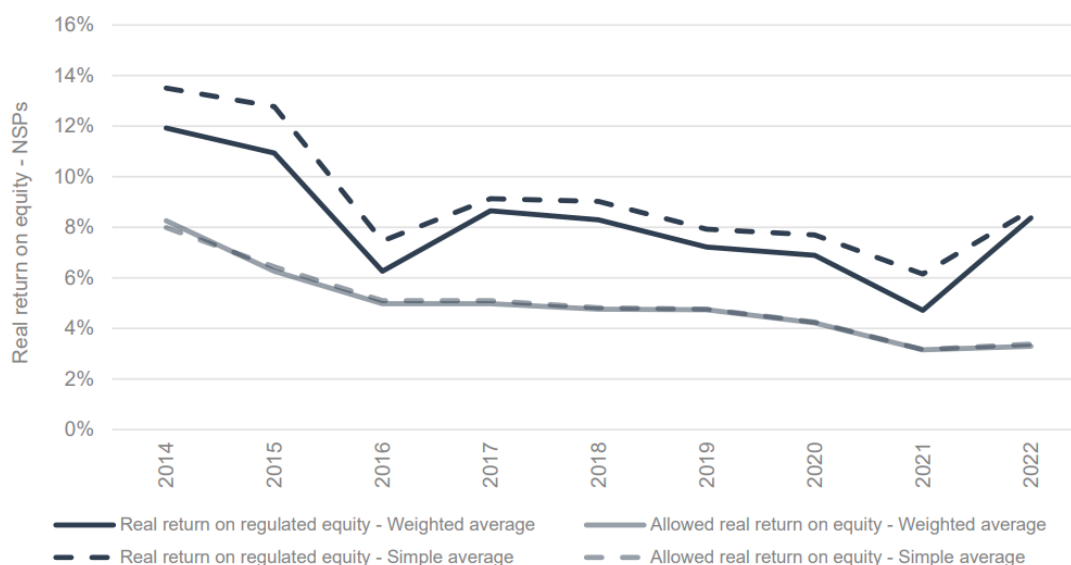
Source: AER Financial performance model

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[21] For example, AER. Regulatory Information Notice – Compliance Checklist. 13 July 2022.
[22] The AER finds the return on equity by dividing the dollar net profit after tax (NPAT) by the Regulated Asset Base (RAB) minus the value of regulatory debt, adjusted for differences between actual and forecast inflation within the reporting period.
[23] The AER reports that actual weighted average RROE outcomes are lower than the simple average. This suggests that entities with larger equity values may have various combinations of higher leverage and lower performance than the sector averages.
[24] AER. Electricity network performance report 2023. Page 37. 7 July 2023.

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The return on assets metric, which is also reported by the AER, is considered by IEEFA to be less useful as a measure of the financial performance of network businesses. This is because shareholders, not debt holders, receive the financial benefits of all differences between forecast and actual costs.[25]

Limits of AER reporting

The *Electricity network performance report 2023* provides actual and allowed network return on equity data in percentage terms, but not the dollar value of these returns – i.e. the network net profit after tax (NPAT). The withholding of network reported profitability data substantially reduces the transparency of electricity networks' performance and the economic and financial impacts of network reported excessive profits.

In this report, IEEFA calculates network profits (NPAT) in dollar figures, using the available data accompanying the AER's *Electricity network performance report 2023*.[26] IEEFA calculates the allowed and actual electricity network net profits after tax and compares the allowed and actual, to understand the profit that network shareholders have gained above the allowed level – the "supernormal profit."

IEEFA seeks to assess whether the outcomes are consistent with the AER's objective to "ensure consumers pay no more than necessary for safe and reliable electricity",[27] and compensate shareholders for commercial and regulatory risk. IEEFA's calculations are estimates, as we had access to most but not all the relevant data (see Appendix 1 for further detail on methodology).
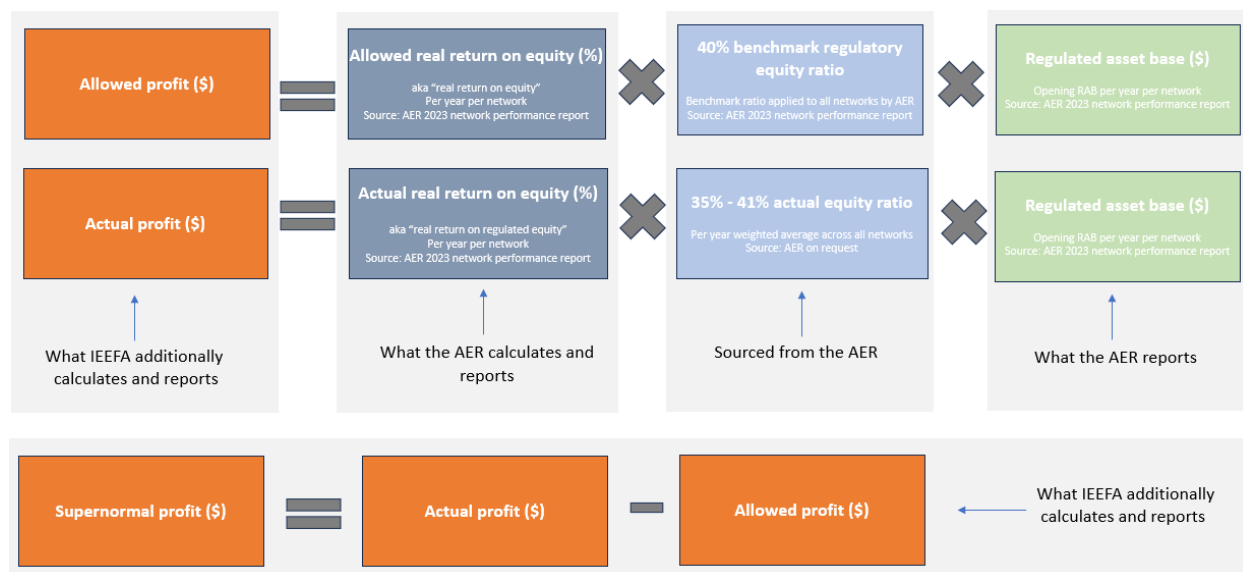
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[25] See Appendix 2 on the reasons for excluding debt from the denominator when measuring supernormal profits. Note that about half the supernormal profits are excluded from the return on assets metric.
[26] AER. Electricity network performance report 2023. 7 July 2023.
[27] AER. Strategic Plan 2020-2025. Page 16. 2020.

Figure 5: IEEFA Methodology

Source: IEEFA

The IEEFA analysis uses the AER network financial performance data but takes additional steps (identified in Figure 6) to calculate the network net profit after tax (NPAT). Through this report IEEFA also interprets the network profit outcomes to determine if they appear reasonable or excessive.

Supernormal profits are growing

$2 billion excess profit in FY22 alone

Actual electricity network profits significantly exceeded allowed profits in FY22, resulting in supernormal profits[28] of $2 billion on top of the allowed profit of $1.4 billion, according to IEEFA's analysis of new data for FY14-FY22, released by the AER in July 2023.[29]

> **Actual network profits exceeded the allowed profits in FY2022, resulting in supernormal profits of $2 billion.**

[28] Supernormal profits (losses) refer to any significant differences between efficient and actual profits. Where excessive, widespread and sustained, supernormal profits strongly indicate a failure of regulation or competition to constrain any monopoly pricing power in the relevant markets.
[29] AER. Electricity network performance report 2023. 7 July 2023.

Figure 6 shows that estimated supernormal profits substantially exceed the allowed profits necessary to compensate network shareholders for the risk-adjusted opportunity cost of equity.

Figure 6: Network cost and profit outcomes FY22 ($billion real)
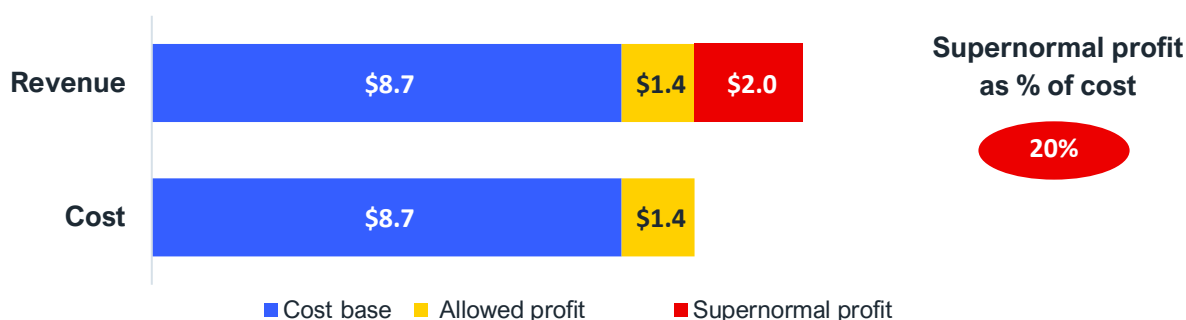
Source: IEEFA analysis based on AER data

Supernormal profits over the nine-year period from FY14-FY22 are summarized in Table 1.[30] The supernormal profit over the whole nine-year period was estimated by IEEFA to be $11 billion, on top of the allowed profit required to compensate shareholders fully for commercial and regulatory risks of $16 billion.

Table 1: Overview of IEEFA network cost and supernormal profit estimates ($2022m real, including incentive schemes)

Parameter	FY14-FY22	FY22
Network revenue (cost base plus actual profit)	$114,836m	$12,019m
Network cost (cost base plus allowed profit)	$103,753m	$10,015m
Actual profit	$27,342m	$3,358m
Allowed profit	$16,259m	$1,353m
Total supernormal profit (difference between actual and allowed profit)	$11,083m	$2,004m
Supernormal profit as a percent of network cost	11%	20%
Actual profit as multiple of normal profit	1.7x	2.5x

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[30] Unless stated otherwise, all estimates in this report are real (inflation-adjusted), with incentive scheme revenues included and pass-through revenues and returns from the indexation of RABs excluded.

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FY22 supernormal profits by jurisdiction

Figure 7 provides estimated real supernormal profits by jurisdiction for FY22. The outcomes for Victoria have been moderated by a lag in the inflation adjustment to actual RROE.[31] There were no supernormal profits in ACT distribution networks in FY22.

Figure 7: Supernormal profit by jurisdiction FY22 ($m real)

Source: IEEFA analysis based on AER data. Note: Entire Transgrid supernormal profit is included in NSW & ACT transmission (Tx). Dx in the above refers to distribution, Tx refers to transmission.

Customer bills significantly higher

Network bill impacts

Figure 8 shows estimated supernormal profits per customer by jurisdiction for FY22 combined for both distribution and transmission. In FY22, there appear to be no supernormal profits in the ACT for distribution.[32]

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[31] See Appendix 3. Figure 19.

[32] No Supernormal profits (defined as a multiple of actual to allowed profit of more than 1.3 times excluding incentives) were evident for FY22 for Evoenergy Distribution, AusNet distribution or ElectraNet. ACT may contribute toward TransGrid supernormal profits, but these are included in NSW and ACT transmission in this chart.

Figure 8: Network supernormal profits per customer by jurisdiction FY22
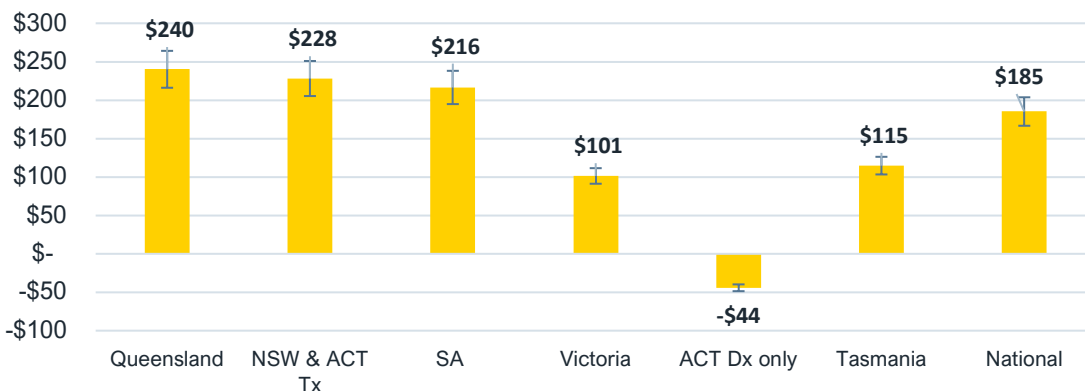
It should be noted that these figures are average per customer supernormal profits – including very large commercial and industrial as well as small business and residential customers.

Figure 9 summarises estimated supernormal profits and losses per customer by network area, combining supernormal profits from transmission and distribution networks. Supernormal profits ranged from about $80 to $400 per customer in FY22. In FY22, there appeared to be no supernormal profits in the ACT or areas served by Ausnet in Victoria.

Figure 9: Estimated supernormal profits per customer transmission and distribution combined, by distribution network area FY22
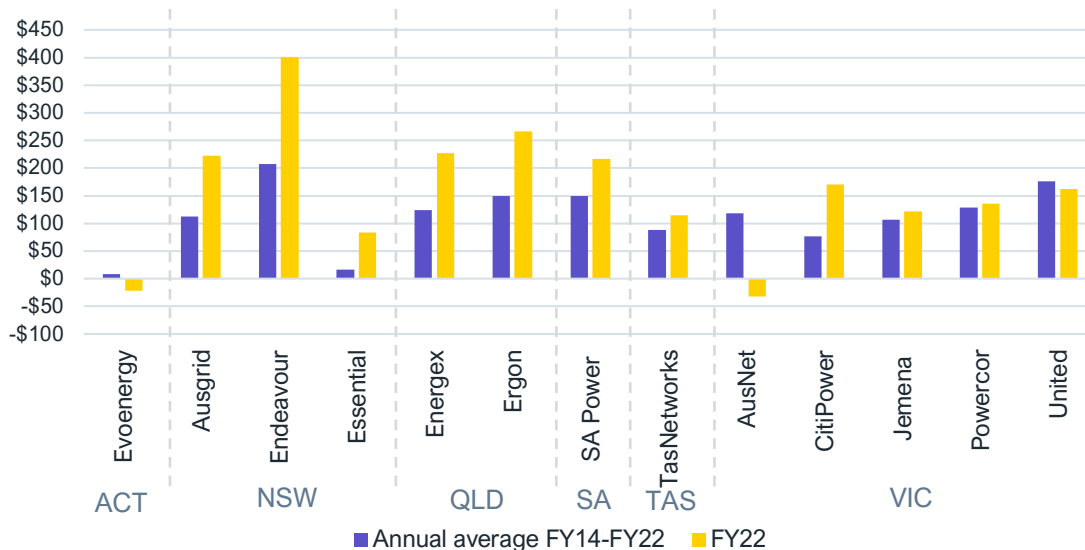
Retail bill impacts

Network supernormal profits continue to have material impacts on consumer bills. A substantial portion of default and competitive electricity retail price increases from 1 July 2023 could have been avoided if networks were no longer permitted to extract supernormal profits.

> **A substantial portion of default and competitive market retail price increases from 1 July 2023 could be avoided if networks were no longer able to extract supernormal profits.**

Families and businesses are experiencing power price shocks after the Default Market Offer and Victorian Default Offer prices rose on 1 July 2023. If the IEEFA analysis of the AER data for FY22 is rolled forward to this financial year, FY24, then indicatively, 14%-69% of the default residential retail annual bill increases (about $65-$412 per customer), appear to be funding monopoly profits for networks in South-East Queensland, NSW, South Australia and Victoria.

The upper end of the range is for customers in Endeavour, serving Western Sydney, Illawarra and northern South Coast, and Blue Mountains. The impact at the upper end of the range is significantly higher than estimated in IEEFA's March 2022 report[33] on retail price rises effective from 1 July 2023, reflecting the substantial increase in supernormal profits in FY22 and likely ongoing supernormal profits in FY23. The lower end of the range relates to Essential Energy where limited supernormal profits have historically been observed. However, there was a slight uptick this year.

Causes of supernormal profits

In this report so far, IEEFA has estimated and reported on the dollar value of the additional shareholder return on equity above the allowed level – the "supernormal profit". In this section, we review the AER's explanation of the causes. We agree with the regulator's explanation of the proximate causes of supernormal profits. We do not agree with the regulator's implicit conclusion that the high levels of network returns on equity are compatible with effective incentive regulation and the objectives of the NEM regulatory framework.

The regulator's explanation

The AER acknowledges that "all but one NSP has achieved returns at or above their forecast returns in most if not all years" in the *Electricity network performance report 2023*.[34] The AER explores the drivers of these differences in actual and allowed returns on equity, or "outperformance". The AER

[33] IEEFA. No relief from electricity network supernormal profits. 30 March 2023.
[34] AER. Electricity network performance report 2023. Page 38. 7 July 2023.

notes that whether the results are evidence that the regulatory framework is operating effectively depends on the drivers and materiality of the results, including whether they are caused by:

- *"Temporary revenue over-collections arising from the normal operation of other features of the regulatory framework – such as the operation of approved revenue cap arrangements, which will be passed back to consumers in the short-term";*
- *"Departures from our benchmark financing structures – for example, in cases where some NSPs have taken on higher risk to achieve higher returns".* [The assumed 60% leverage adopted in the AER's 2023 final report for the 2022 rate of return review.];
- *"NSPs spending less than forecast revenue building blocks due to efficiency gains"; and*
- *"NSPs spending less than forecast revenue building blocks due to shortcomings in our approach to estimating network revenue requirements, or to forecasting errors that, if unbiased, might be expected to even out over time."*[35]

The *Electricity network performance report 2023* offers no conclusions as to the overall balance of these factors, including whether higher than expected actual returns are consistent with the AER's aim to "ensure consumers pay no more than necessary for safe and reliable electricity".[36] The report does not close off the possibility that regulatory frameworks are not operating effectively. At the same time, it does not propose any further exploration or action to address persistent actual returns on equity above the allowed level.

The 2023 report does not explain network "outperformance" in terms of information asymmetries (i.e. the fact that the regulator has less information than the network businesses), as was the case in the 2022[37] and 2021[38]. The factors causing returns to be higher than expected are explored by the AER in the *Electricity network performance report 2023* in a key chart (Figure 10).

[35] AER. Electricity network performance report 2023. Page 38. 7 July 2023.
[36] AER. Strategic Plan 2020-2025. Page 16. 2020.
[37] AER. Electricity network performance report 2021. Page 28. 22 September 2021.
[38] AER. Electricity network performance report 2022. Page 27. 15 July 2022.

Figure 10: Contributions to real returns on regulated equity (NSP simple average) [39]
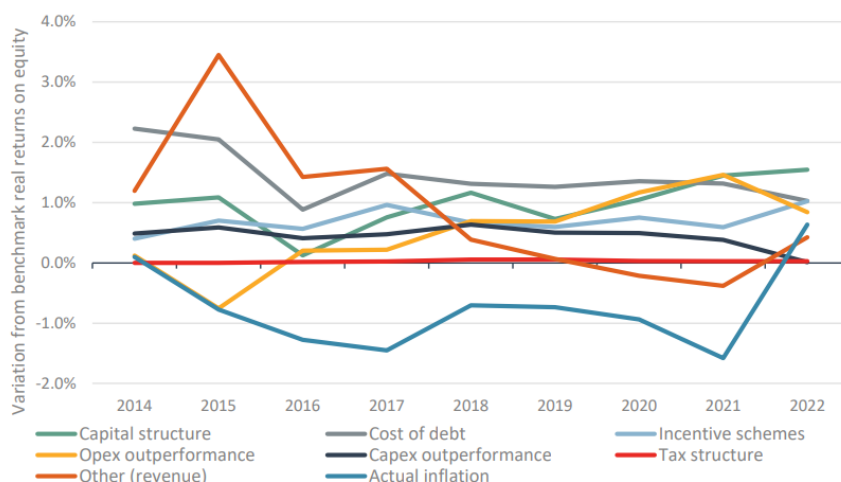
Source: AER Chart from Electricity network performance report 2023. Original source: AER PTRM and financial model (confidential version).

Are actual profit outcomes consistent with incentive regulation?

IEEFA agrees with the AER's explanation of the differences between actual and allowed returns on equity in the 2023 network performance report, summarised in the Figure 10. [40] In IEEFA's view, the AER's explanation, while accurate, has not demonstrated that actual profit outcomes are consistent with effective incentive regulation.

The factors that historically contributed to actual returns on equity exceeding the allowed returns are listed below. This explanation draws from the AER network performance report chart (Figure 10).

1. **Capital structure.** Since about 2017, total debt (leverage) has been higher than the benchmark leverage AER uses to set allowed network revenues. Higher leverage is the largest contributor to network outperformance in 2022 (Figure 10).

2. **Cost of debt.** This is driven by a difference between the benchmark the AER uses to set debt financing cost allowances, and actual debt financing costs. [41] In February 2023, with network financial data for the period to 30 June 2022 likely available, the AER made no significant change to the rate of return framework. [42] The 2022 rate of return instrument is due to apply until 2027, and decisions made under that framework to 2027 could apply well into the early 2030s.

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[39] AER. Electricity network performance report 2023. Page 39. 7 July 2023.
[40] Ibid. Page 38.
[41] IEEFA. Regulated Electricity Prices are Higher than Necessary. 4 October 2022.
[42] AER. Rate of Return Instrument: Explanatory Statement. Table 0.1. Page 10. 24 February 2023.

3. **Incentive schemes.** Networks receive incentive scheme rewards (or penalties) for performance over a range of operational and financial metrics. Incentives and penalties are not applied symmetrically and appear to overlap with "outperformance". As a result, incentive schemes are significant net contributors to supernormal profits.

4. **Operating expenditure (opex) outperformance.** Opex outperformance occurs when the actual opex is lower than the AER's estimates of forecast efficient opex.

5. **Capital expenditure (capex) outperformance.** This occurs when the network capex spend is lower than the AER expected.

6. **Other (revenue effects).** Various factors affect revenue, but they do not appear to contribute to significant return on equity above allowed levels observed recently.

7. **Inflation rate variation.** This is the net impact of the difference between the forecast inflation index used to set the allowed real profit and the actual inflation index used to estimate the actual real profit. The modest positive contribution in FY22 is substantially exceeded by the negative contributions throughout the entire period.

The following sections explore some of the above factors in further detail.

Capital structure – impact of higher gearing

Since about 2017, networks have on average held more debt (leverage) than the benchmark used by the AER to set the weighted average cost of capital. This has led to higher returns on equity.

The AER *Electricity network performance report 2023* notes that the impact of variances between actual and allowed equity returns due to leverage was the highest in FY22.[43] The report does not, however, disclose the extent leverage exceeds regulatory benchmarks.

On request, on 15 August 2023, the AER provided aggregated weighted average network leverage ratio data to IEEFA. This showed that network debt levels were on average higher than the 60% benchmark AER assumption used in setting revenue allowances, and correspondingly equity levels were lower. This new leverage ratio data has been used in place of the 60% leverage assumption applied in the 2022 IEEFA analysis.[44]

Figure 11 shows the impact of the new leverage data provided by the AER on actual equity. The AER's recently provided equity ratio data reduced the equity networks held over FY14-FY22 by $4.9 billion compared with using the AER benchmark gearing ratio of 60:40.[45]

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[43] AER. Electricity network performance report 2023. Page 37. July 2023.
[44] IEEFA. Regulated electricity prices are higher than necessary. 4 October 2022.
[45] Note that higher leverage reduces the IEEFA dollar-estimated supernormal profits for FY22 compared with applying the benchmark gearing ratio of 60:40. This is because IEEFA uses the return on equity multiplied by the estimated equity portion of the RAB to calculate the net profit after tax (Appendix 1).

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Figure 11: Benchmark/notional equity vs actual equity FY14-FY22
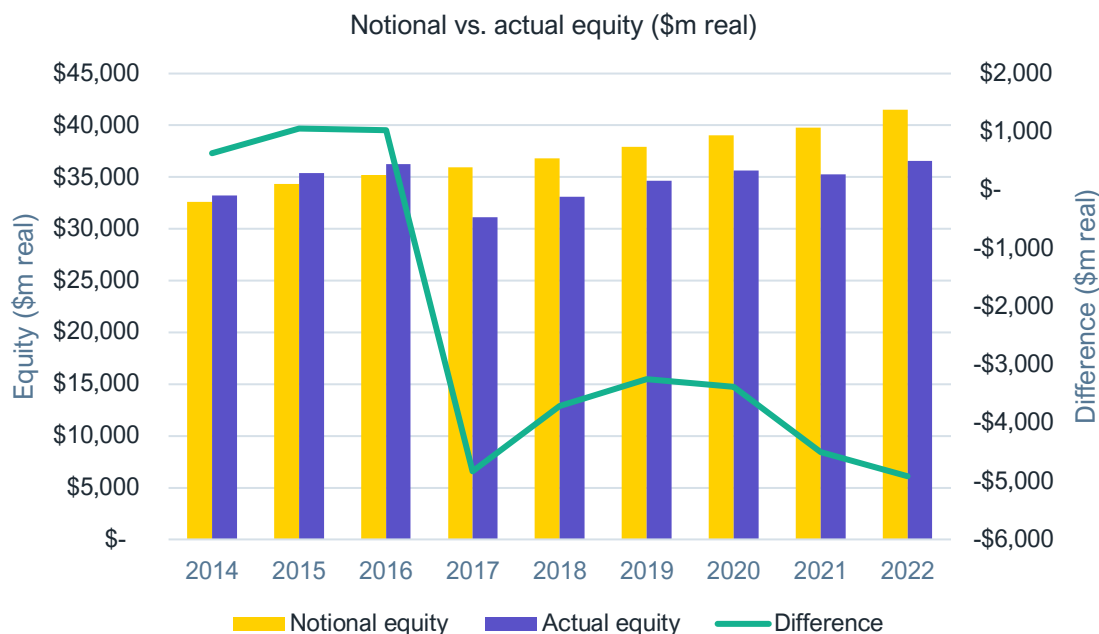
Source: IEEFA analysis based on AER data

The AER suggests that higher debt levels, which have driven returns on equity higher, have been associated with higher risk for the network businesses. The AER explains actual return on equity exceeding allowed returns could be due to *"departures from our benchmark financing structures – for example, in cases where some NSPs have taken on higher risk to achieve higher returns"*.[46]

If regulatory asset base (RAB) financing risk increased due to higher leverage, as suggested by the AER, then this would be reflected in debt financing costs. The higher leverage does not appear to have increased unit debt financing costs, which remain significantly below AER benchmarks (see *Cost of debt*). This suggests that lenders do not consider the higher leverage materially increases total RAB financing risk.

The contribution to supernormal profits from higher leverage does not appear to have been offset by an increase in financial risk borne by network shareholders. The increase in leverage appears to increase risk-adjusted returns, including the early return of equity of $4.9 billion, rather than leaving networks in a neutral position, as seems to be suggested by the AER.

[46] AER. Electricity network performance report 2023. Page 38. July 2023.

Cost of debt

While new debt servicing costs are increasing, in response to higher inflation, networks continue to benefit from long-term financing arrangements at lower prevailing legacy interest rates. For example, networks are likely to continue to benefit from long-term financing contracts entered over the past 10 years when Australian government bond yields were significantly lower than in 2023. Figure 12 shows bond yield trends which indicate trends in network financing costs with additional adjustments for market and systematic risk.[47]

Figure 12: Ten-year Australian government bond yield

Sources: RBA, Yieldbroker

Incentive schemes

Incentive schemes continue to contribute significantly toward actual equity returns above the AER's target level. The 2023 performance report acknowledges that incentive schemes added 100 basis points to the average return on regulated equity, which is the highest contribution since 2014.[48] Incentive schemes contributed just under a quarter of the total supernormal profit for FY22.

Figure 13 shows the estimated net impact (green bars) of incentive schemes on IEEFA estimated supernormal profits each year over the nine-year period. The yellow and purple lines show the impact on supernormal profits of including or excluding incentive schemes, respectively. Over the

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[47] RBA. Interest Rates Chart Pack. 4 October 2023.
[48] AER. Electricity network performance report 2023. Page 39. 7 July 2023. Note: In dollar terms, incentive schemes appeared to contribute more in FY21.

entire period, incentive schemes increased network profits by $2.7 billion, including $491 million in FY22.

Figure 13: Impact of incentive schemes FY14-FY22 (real)

It is clear incentive schemes are a significant contributor to actual returns being above allowed returns on an ongoing basis, and thus network supernormal profits. For this reason, IEEFA has included incentive schemes in all headline figures of supernormal profits in this report.

Figure 14 shows the incentive schemes' impact as a percentage of total network revenue. Incentive scheme revenue, both in dollar terms and as a percentage of network revenue, is higher in the final two years of the series than the average over the entire series.

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Figure 14: Incentive scheme net revenue as percentage of network revenue FY14-22 (real)[49]
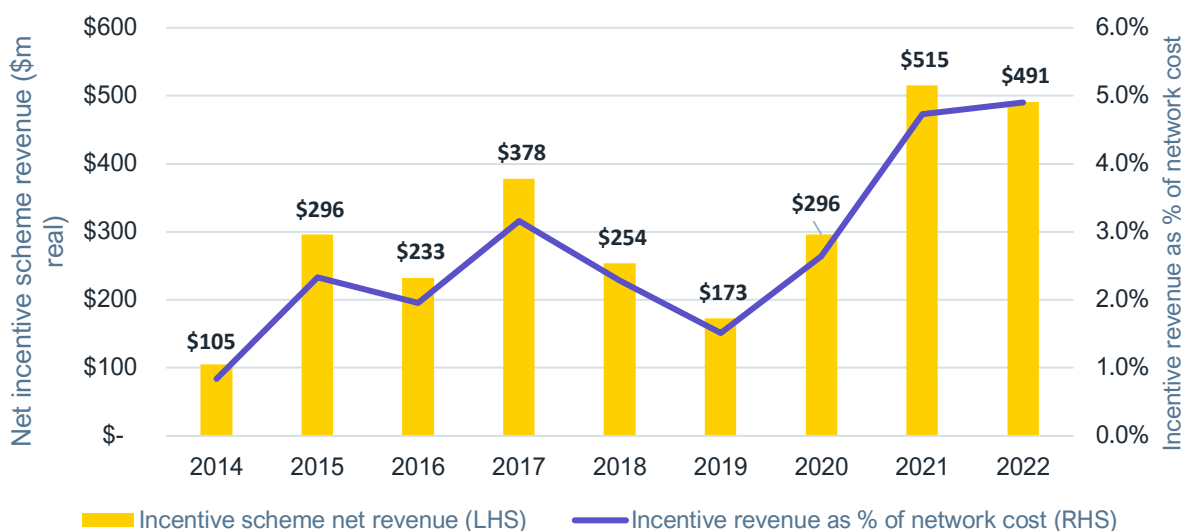
Source: IEEFA analysis based on AER data

In April 2023, the AER released its final report on its review of incentive schemes for networks.[50] The report broadly concluded that the incentive schemes had driven significant improvements in performance through efficiency gains and reducing outages.[51] This reflects its judgment, based on "the reducing gap between AER forecasts and outturn expenditure over time, that consumers are significantly better off overall with the schemes than without them".[52] The report suggests some limited changes to the design and operation of incentive schemes, and proposes some improvements in transparency around differences between forecast and actual expenditure.

The findings of the April 2023 review appear to be unsupported by the available evidence on supernormal profits. While asserting that gaps between forecast and actual expenditure are reducing, the report makes no reference to the substantial and persistent supernormal profits caused by accumulated errors between forecast and actual costs such as opex and debt costs.

More fundamentally, the AER review does not demonstrate that incentive schemes are necessary for networks to optimise their expenditure. Even without incentives schemes, the opportunity

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[49] IEEFA has calculated the incentive scheme net revenue using the AER's financial performance data spreadsheet accompanying the 2023 *Electricity network performance report*. This uses the standard methodology detailed in Appendix 1 by capturing the difference in actual profits with and without incentive scheme revenues.
[50] AER. Final decision: Review of incentive schemes for networks. April 2023.
[51] Ibid. Page 4.
[52] Ibid. Page 6.

to outperform regulatory benchmarks mean that networks have strong financial incentives to optimise their expenditure.

Accordingly, the benefit-sharing discussion in the AER's incentive scheme review does not appear to recognise that, for example, opex allowances have exceeded actual opex by substantial and persistent margins that appear substantially greater than might be expected under the Efficiency Benefits Sharing Scheme. The AER April 2023 review conclusions do not acknowledge or appear consistent with the existence of persistent, excessive supernormal profits. Moreover, the review conclusions do not demonstrate that the level of combined financial rewards from incentive schemes and other sources of supernormal profit are "necessary" components of consumer bills.

Higher productivity not the cause of supernormal profits

Networks have an opportunity to earn supernormal profits by increasing productivity. Comparing AER productivity data with profitability data shows that supernormal profits are unrelated to productivity.[53] Each dot in Figure 15 represents a combined network profitability and productivity outcome for a given reporting period. The purple line represents the relationship between productivity and profitability under effective incentive regulation.

Figure 15: Network profitability vs productivity
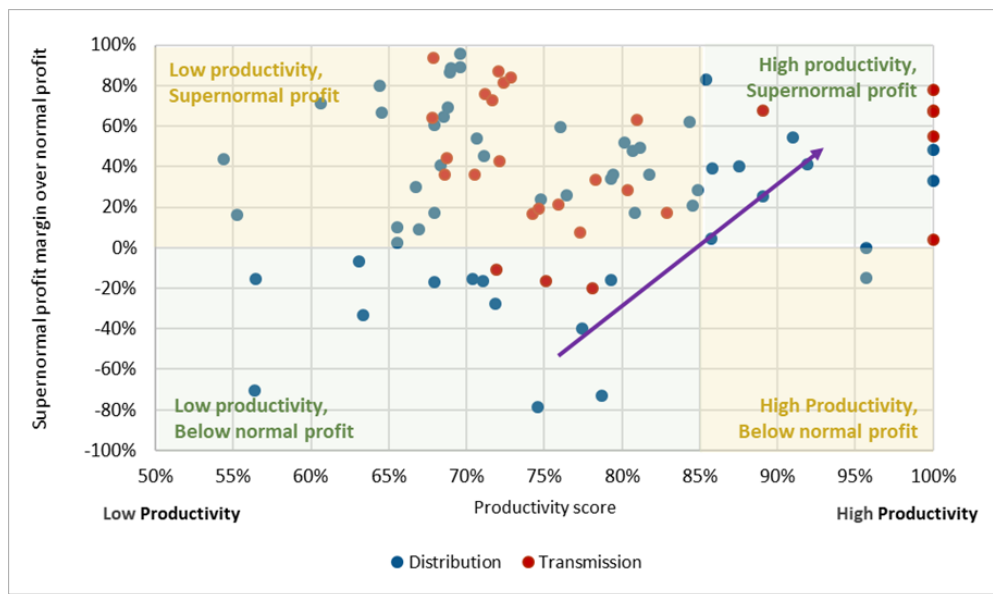
Source: IEEFA[54]

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[53] IEEFA. Regulated electricity network prices are higher than necessary. Section 5.1. 4 October 2022. Note: Combines AER productivity benchmarking and NSW reported profitability data.
[54] IEEFA. Regulated electricity network prices are higher than necessary. 4 October 2022. The data is for the period 2014-20 as more recent productivity data was not available at the time of publication in 2022.

If supernormal profits reflected productivity, there would be few if any outcomes above zero on the *y* axis below the 85th percentile on the *x* axis. The AER's own data shows that networks with average and even below-average productivity have been getting very substantial supernormal profits. As supernormal profits are unrelated to productivity, this indicates that these supernormal profits are not earned.

While referring to incentives in explaining supernormal profits,[55] the AER has not yet attempted to explain why networks with relatively low productivity have been extracting excessive supernormal profits. Total sector-wide productivity has improved only marginally since 2014. Productivity remains well below the levels estimated in 2006 when productivity analysis was first undertaken on an NEM-wide basis.[56]

In IEEFA's view, excessive supernormal profits have therefore not been caused by network productivity, but rather have been caused by consistent and substantial overestimation of actual network costs. This occurs when cost estimation errors are not corrected as required under effective incentive regulation.

Higher inflation not the cause of supernormal profits in FY22

A relatively small increase in inflation to December 2021, for some networks, compared with the inflation parameters used to set allowed returns, is the largest driver of the *change* in supernormal profits in FY22 from the previous year. The inflation difference is, however, a relatively small contributor to the very large FY22 profit.

The bulk of the supernormal profit in FY22 reflects structural and persistent differences between allowed and actual costs, which remain even if the inflation adjustment is zero. Over the nine-year period, differences between actual and forecast inflation substantially *reduced* real supernormal profits.

Supernormal profits are persistent and structural

Trends over nine-year period

Excessive supernormal profits are ongoing. They are not a new development, and do not merely reflect timing differences or the one-off impact of higher inflation in a single year. Over the entire nine-year period FY14-FY22, estimated supernormal profits were $11 billion, on top of allowed profits of $16 billion (Figure 15).[57]

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[56] AER. 2022 Annual Benchmarking Report – Electricity distribution network service providers. Figure 5. November 2022.
[57] Supernormal profits are exclusive of returns on equity from RAB indexation.

Figure 15: Network cost and profit outcomes FY14-FY22 ($m real)

Supernormal profit as % of cost
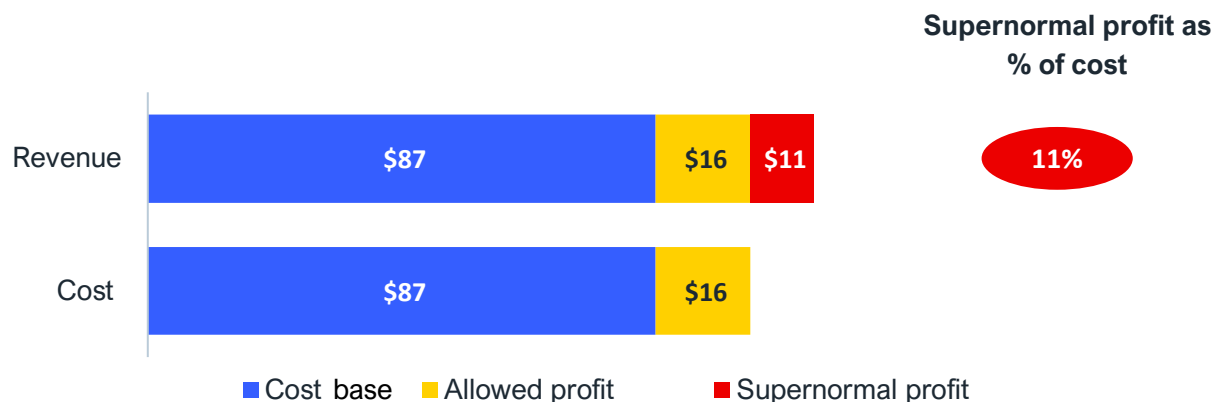
Source: IEEFA analysis based on AER data

As shown in Figure 16, total supernormal profits in dollar terms (left-hand scale), and supernormal profit as a percentage of total network revenue (right-hand scale), were substantially positive over the entire period, with one exception in 2016. There was a sharp uptick in supernormal profit in FY22.

Figure 16: Supernormal profit by year and by subsector ($m real)

Source: IEEFA analysis based on AER data

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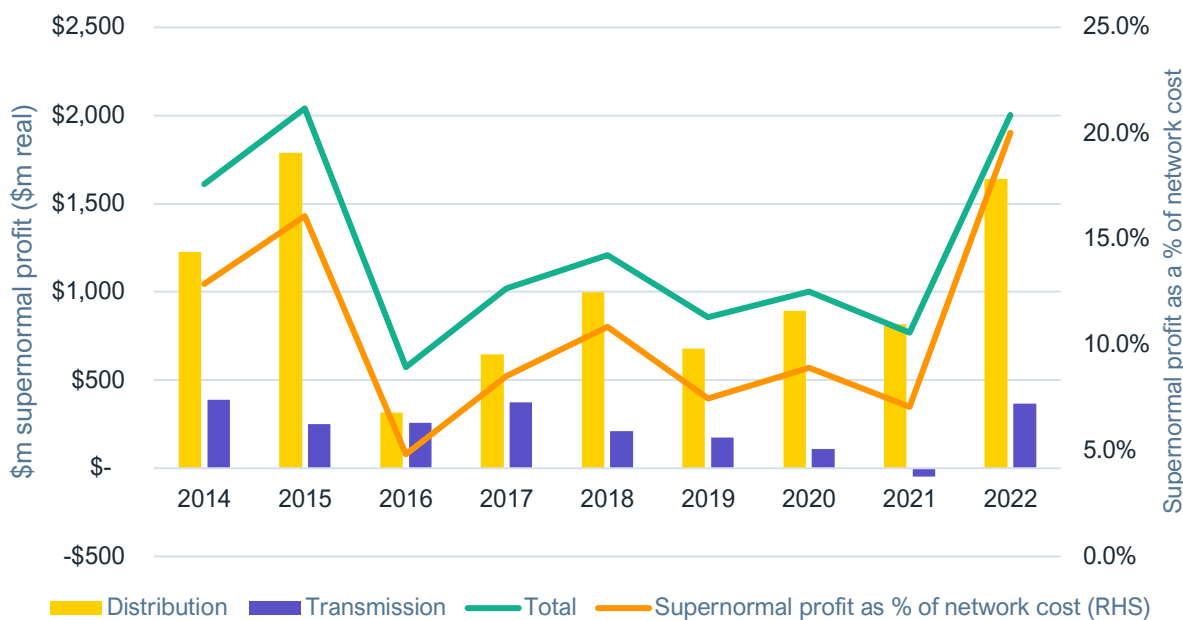
Except for FY21, transmission network supernormal profits and actual allowed profit multiples were typically similar to those for distribution. In FY21, transmission networks as a group did not achieve their allowed returns. This may have reflected TransGrid's accelerated investments in new and upgraded transmission capacity running ahead of formal AER approval but underwritten by governments.[58] Average transmission profit multiples in FY22 are similar to those for distribution.

Most supernormal profits are excessive

Some level of network supernormal profit can be expected under incentive regulation, as the regulator does not have perfect and timely information on changing network costs – i.e. there is an "information asymmetry" between the regulator and the network businesses. Drawing on previous Australian Competition and Consumer Commission (ACCC) and AER analysis, for reasons explained in Appendix 2, IEEFA proposes that actual profit (allowed profit plus supernormal profit) as a multiple of allowed profit over a sustained period and multiple instances, is the best indicator for assessing whether a regulatory regime is effective in constraining monopoly network pricing power while harnessing the productive and dynamic efficiency benefits under incentive regulation.

Indicators that refer to the entire RAB, discussed in previous AER and ACCC papers, are not relevant. This is because debt holders do not benefit from higher than allowed equity returns.

Allowing for "information rents"[59] under incentive regulation, profit multiples should fall within a range of 0.9x to 1.3x.[60] While there may be outliers, sustained outcomes above this range indicate that outcomes are inconsistent with effective incentive regulation.

This proposed test for distinguishing between supernormal profits and excessive supernormal profits is more tolerant of supernormal profits compared with the principle that cumulative supernormal profits should be zero over a five-year regulatory term. This principle is sometimes referred to as NPV=0, and was endorsed by the AER in its most recent review of the regulatory treatment of inflation.[61]

Figure 17 shows the distribution of actual profit to allowed profit multiples for each of the 162 observations. It highlights that outcomes so far have been highly asymmetrical in favour of the monopoly networks.

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[58] Transgrid. Queensland-NSW Interconnector.
[59] "Information rent" is the extra return attributed to information asymmetry between the regulator and the regulated firm.
[60] Darryl Biggar. Understanding the role of RAB multiples in regulatory processes. 20 February 2018.
[61] AER. Final position paper – Regulatory treatment of inflation. Page 45. December 2020.

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Figure 17: Distribution of estimated actual profit as multiple of allowed profit FY14-FY22
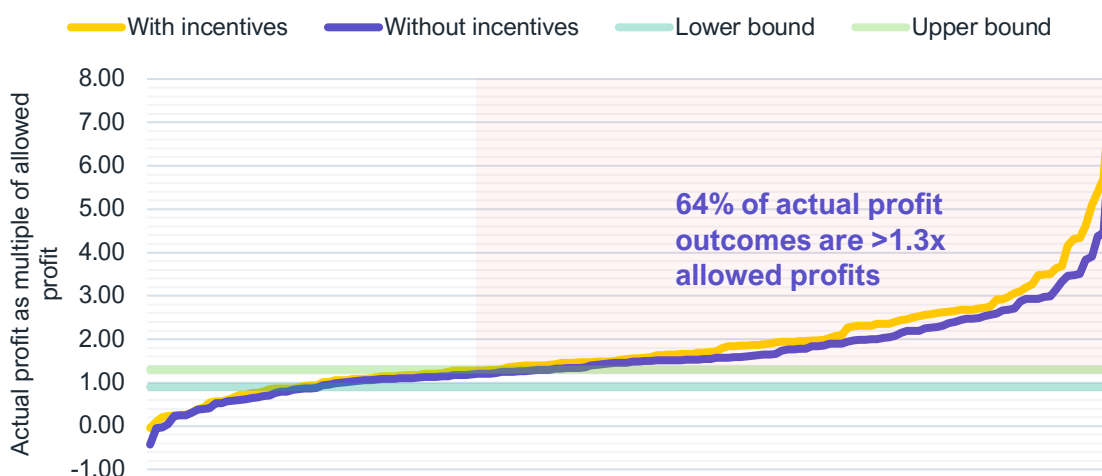
Source: IEEFA analysis based on AER data

Of the 162 profit multiples:

- 64% are above the upper boundary of the expected range under effective incentive regulation (actual profits being up to 1.3 times allowed profits);
- 20% are within the acceptable range (0.9x-1.3x ratio); and
- 16% are below the lower boundary of the expected range (0.9 ratio).

These results relate to a period over which inflation adjustments to the portion of RAB financed by debt substantially decreased cumulative supernormal profits. This highlights that the excessive supernormal profits are structural and not an artifact of secondary inflation adjustments.

The exclusion of additional revenues from incentive schemes reduces outcomes above the upper-profit multiples boundary from 64%-58%. This demonstrates that the exclusion of incentive schemes from estimated supernormal profits does not affect the finding that supernormal profits are vastly in excess of reasonable benchmarks for effective incentive regulation.

It could be suggested that allowed profits are too low, and hence supernormal profits are lower than indicated by the network profitability data. However, the AER's extensive consultation over the 2022 rate of return instrument did not reveal evidence that allowed returns were insufficient to support the necessary new regulated investment for the energy transformation. Further, this position is not considered plausible given the extent to which systemic risk has been transferred to consumers. This includes demand risk and asset-stranding risk among many others. See Appendix 1 in IEEFA's previous report – *Regulated electricity network prices are higher than necessary*[62] – for more detail on this point.

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[62] IEEFA. Regulated electricity network prices are higher than necessary. 4 October 2022.

Excessive supernormal profits likely to persist

Looking ahead, between 1 January 2022 to 30 June 2023, the inflation parameters used by the AER to calculate actual profits substantially exceed the forecast inflation parameters it used to set allowed profits. Very high supernormal profits in FY22 are therefore not "an unusual spike", as suggested by the Energy Networks Association.[63]

Actual compared with forecast inflation, and the lag before actual inflation is reflected in allowed profits, is summarised in Figure 18. The orange line is an approximation of the varying CPI forecasts for each network for each five-year regulatory period (Appendix 3, Figure 19). The purple line (specifically data points for December years) represents the secondary inflation adjustment applied to the debt-financed portion of the RAB to estimate actual NPAT. The green line represents the actual inflation adjustment applied to set regulated prices in the following period.

Figure 18: Forecast vs actual vs lagged CPI to 30 June 2024 (% annual)
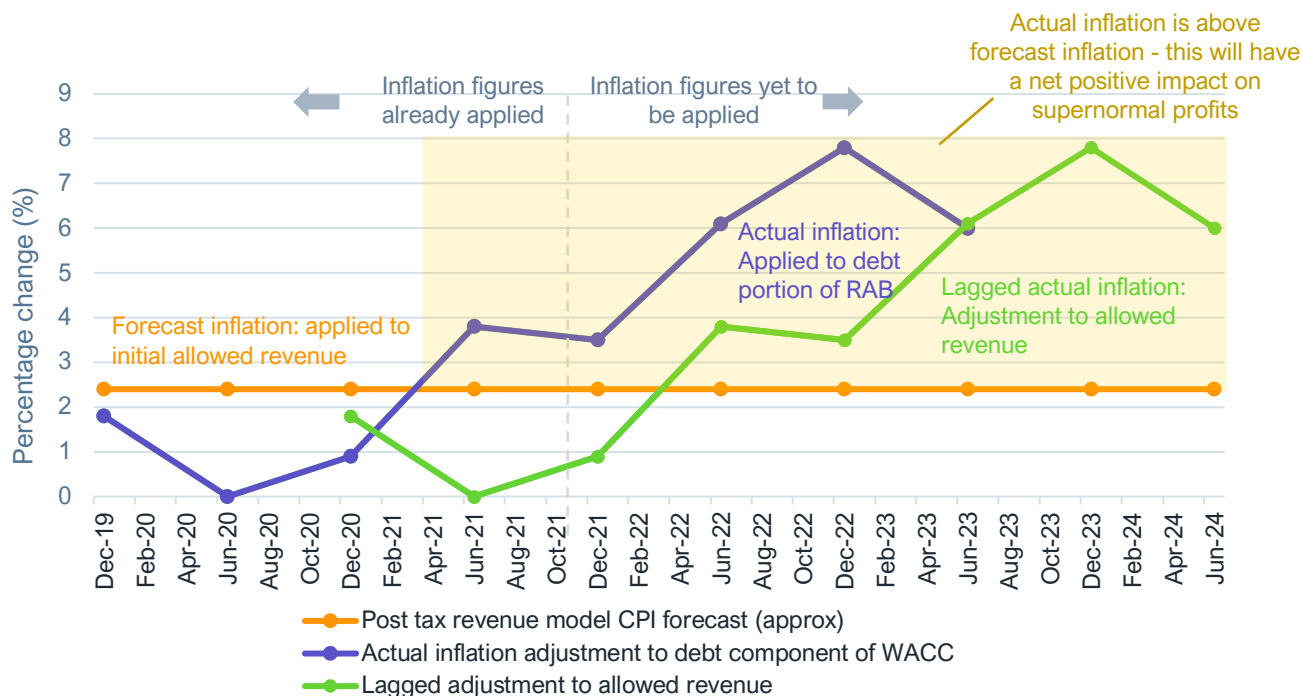
Source: Australian Bureau of Statistics Cat No 6401.0 to the end of June 2023[64]

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[63] Energy Networks Association. Energy Insider. 13 July 2022.
[64] AER. Electricity network performance report 2023. Figure 24. Page 41. 7 July 2023. Note: The applied lag is 12 months using calendar years, with December inflation results applied in around May to the following financial year. Given the significant variances between allowed and actual financing costs, RAB multiples are not a relevant metric for assessing the effectiveness of the regulatory system year with a one-year lag to the mid-point of that financial year.

The impact of inflation on the revenue cap lags by one year. This means that higher than forecast inflation to December 2021 did not impact regulated prices in FY22 but instead in FY23.

Considering the lagged CPI data line, it appears that even though higher than forecast inflation to December 2021 will increase allowed profits from 1 July 2022 and thereafter, supernormal profits are likely to continue to be revealed by actual inflation being equal to or greater than forecast inflation. This suggests supernormal profits of 20% or more of total network revenue could eventuate in FY23 and possibly FY24. This would reflect structural supernormal profits rather than being an artifact of higher than forecast inflation.

Government-led action needed

Inefficient monopoly network prices matter

The evidence continues to grow that monopoly electricity networks are obtaining excessive supernormal profits. This means network prices are higher than necessary and economically inefficient. Ineffective monopoly regulation damages energy affordability for Australian families and businesses. Excessive regulated network prices are also worsening economy-wide inflation, and reducing Australia's international competitiveness.

> **Ineffective monopoly regulation damages energy affordability for Australian families and businesses.**

Up to mid- 2022, $11 billion of revenues from NEM electricity customers has been diverted to network shareholders, private domestic, private offshore and Australian state governments. This is $11 billion that is not available to support reliability-related expenditure, including investment in new transmission and storage capacity and upgrades. That $11 billion is also distorting retail electricity pricing, and inefficiently influencing consumption decisions.

Network supernormal profits cannot be explained by high levels of sector-wide innovation and productivity improvement. Nor can they be explained by changes in inflation or economy-wide financing costs over the nine-year period for which network profitability data is available.

Supernormal profits are measured after all reinvestment in new or replacement assets. Therefore, they do not reflect "gold plating", and there are no reliability benefits associated with supernormal profits.

Substantial new regulated network investment is required to support the energy transformation to allow the timely replacement of high-emissions power stations with renewable energy and storage.

Excessive regulated network returns are inefficiently raising consumer bills and impeding this transformation.

No compelling evidence has been provided by the AER or regulated networks that excessive supernormal profits are necessary to sustain the required levels of investment in new network capacity. The AER completed its 2022 Rate of Return Review at the start of 2023 and left settings mainly as they were in the previous Rate of Return Instrument.

A failure of governance

The AER's decisions not to acknowledge or tackle supernormal profits demonstrate that excessive supernormal profits can only be fixed by government leadership via the Energy National Cabinet Reform Committee and associated institutions. The federal government should work with NEM jurisdictions to tackle excessive supernormal network profits.

Changes are required to the laws and rules governing the economic regulation of monopoly networks, alongside the introduction of greater transparency and independent monitoring of regulator performance by the Australian government. These changes could be made in time to come into effect from mid-2024.

Actual, inflation-adjusted net profit after tax (NPAT) – the profit outcome calculations throughout this report – provides the best indicator of whether economic regulation is effective in constraining the monopoly pricing power of electricity networks. This is because NPAT estimates enable comparisons between total network revenues including supernormal profits, and total costs excluding supernormal profits.[65] These comparisons enable an assessment of outcomes compared with:

1. The Revenue and Pricing Principles under the National Electricity Law (NEL);[66]
2. The AER's stated corporate objective of ensuring that consumers pay no more than necessary for the safe and reliable supply of electricity network services; and[67]
3. The National Energy Law objective, including the introduction of an emissions-reduction component to the objective.[68]

In IEEFA's view the AER has not explained how profit outcomes can be reconciled with these requirements, it has merely asserted this.

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[65] Unlike for airports, the ex-ante estimation of regulated electricity network allowed returns provide a benchmark for assessing whether a company is making excessive profits on a persistent basis. See for example, ACCC. *Airport Monitoring Report 2021-22*, August 2021.
[66] NSW Government. National Electricity (NSW) Law. Section 7A. Clauses 5 to 7.
[67] AER. Strategic Plan 2020-2025. Page 16. 2020.
[68] Department of Climate Change, Energy, the Environment and Water. Incorporating an emissions reduction objective into the national energy objectives. 6 June 2023.

There should be greater transparency and monitoring of monopoly electricity network performance, and the size and persistence of supernormal network profits. This is necessary to ensure that network regulation is effective and consistent with the relevant laws and rules.

There appears to be no sound reason for networks and the AER to withhold disclosure of dollar profits and leverage levels for each monopoly network. Networks hold statutory monopolies, and are therefore protected from competition. There is more transparency over the competitive than the regulated side of the energy sector, given market disclosures by the major competitive market participants as listed entities in Australia and overseas.

While outside the scope of this report, monopoly gas networks have obtained sustained and excessive supernormal profits, with actual percentage returns being well above allowed returns, according to AER reporting.[69] The flawed AER rate of return instrument methodologies and parameter decisions also apply to regulated gas networks.

Governance changes to network regulation necessary

A draft of this report was shared with the AER Board and all NEM jurisdictions seeking their comments and suggestions for improvements. Responses were received from a number of jurisdictions. These responses indicate Ministers are yet to decide whether to take actions to rein in network supernormal profits.

At or following their November 2023 meeting, Ministers should agree to obtain independent expert advice to test the IEEFA analysis and identify suitable remedies. We expect that any decisions would be preceded by an independent inquiry by parties outside the ACCC/AER to test the interpretation of network profitability data set out in this report and the IEEFA October 2022 report.[70]

Potential remedies to bring network profits down to reasonable levels include changes to the laws and rules governing the economic regulation of monopoly networks, alongside the introduction of greater transparency and independent monitoring of network profits by the Australian government. IEEFA recommends consideration by NEM Ministers of the following changes shown in Table 2 to the governance of monopoly network regulation. Similar changes should also be considered to improve governance of the regulation of regulated gas networks.

These changes could be made in time to come into effect from mid-2024. Without these changes, excessive supernormal network profits will likely continue for the foreseeable future.

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[69] AER. Gas network performance report 2022. Page 80. December 2022.
[70] IEEFA. Regulated electricity network prices are higher than necessary. 4 October 2022.

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Table 2: Summary of network regulation problems, solutions and required action

Problems	Solutions	Action required
Lack of transparency over the effectiveness of monopoly regulation including absence of data on leverage and net profit after tax	Full regulated network **disclosure of actual network net profit after tax** and leverage, and timely consolidated **reporting** on this by AER	NEM jurisdictions change Chapter 6 and 6A of the National Electricity Rules (NER) and possibly the NEL to require networks to **publish** full economic profit and loss accounts (allowed vs actual dollar profit), in response to regulatory information notices, and for AER to consolidate and publish this information.
Inadequate governance of AER performance in constraining monopoly network pricing power	Establish **outcomes performance evaluation framework for monopoly network regulation** by the AER. Amend revenue and pricing principles in the NEL to: • Clarify that <u>actual</u> not forecast return on equity is the relevant performance metric for assessing regulatory outcomes and the AER's performance. • Define a clear benchmark for defining when supernormal profits are excessive – any outcome is compatible with "commensurate".	Commonwealth develops and applies **performance evaluation framework** to AER for electricity and gas, especially in relation to reporting on, and evaluating, regulated price outcomes relative to Objective 3 of the AER Strategic Plan. NEM jurisdictions amend the NEL revenue and pricing principles to set clear and testable benchmarks for testing whether AER performance is effective in constraining network monopoly pricing power.
Flawed rate of return instrument	**Amend** the 2018 and 2022 rate of return instruments to ensure consistency with the revised revenue and pricing principles, effective in the following annual price adjustment – not delayed to following revenue reset.	**NEM jurisdictions amend the NEL/NER** relating to the Rate of Return Instrument (RORI), and overwrite current errors in 2022 and 2018 RORI, using their reserve decision-making powers.
Lack of transparency over interaction between incentive schemes and supernormal profits, meaning networks may be over-compensated	**Improve transparency** regarding overlaps between incentive schemes and "outperformance" and consider rebasing thresholds for incentive scheme revenues, taking into account supernormal profits data, to avoid duplicating payoffs.	NEM jurisdictions **amend** the NER to require incentive scheme outcome reporting and baseline parameter settings within the wider profitability performance transparency package.
No safeguard mechanism to address persistent and excessive supernormal profits	Introduce **a safeguard mechanism** so that excessive, structural supernormal profits inconsistent with effective incentive regulation can be returned to consumers.	NEM jurisdictions change the NEL and NER (and AER guidelines and models are updated) to formalise a threshold for returning excessive and persistent supernormal profits to consumers.

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Glossary

ACCC	Australian Competition and Consumer Commission
Actual profit	Actual net profit after tax – based on the actual real return on equity and the actual equity of the networks
Allowed profit	Allowed net profit after tax targeted by the AER – based on the allowed real return on equity and the benchmark equity of the networks (40% equity ratio)
AEMC	Australian Energy Market Commission
AER	Australian Energy Regulator
DNSP	Distribution network service provider
EBIT	Earnings before interest and tax – the common numerator used for deriving allowed and actual percentage returns on RABs.
Equity	Non-indexed RAB minus regulatory value of debt including forecast and actual inflation.
Excess supernormal profit	Used to refer to % or $ supernormal profits where actual profit is greater than 1.3 times allowed profit.
Incentive regulation	A form of economic regulation where firms may outperform or underperform efficient cost and performance benchmarks across all major cost building blocks.
Inflation	Changes in consumer price indices used in network price setting and allowed and actual profit estimates to maintain real (inflation-adjusted) returns.
ISP	Integrated System Plan
NEL	National Electricity Law
NEM	National Electricity Market
NER	National Electricity Rules or "Rules"
Network cost	Total actual network revenue minus the supernormal profit. Network cost is inclusive of the allowed profit.
Network revenue	Total actual network revenue. Network revenue is inclusive of the supernormal profit.
NPAT	Net profit after tax used by the AER to estimate allowed and actual RROE. Sometimes shortened to "profit".
NSP	Network service provider
Opex	Operating and maintenance expenditure
Profit multiple	Actual real profit as a multiple of allowed real profit. A metric used to differentiate between supernormal profits (losses) and excessive supernormal profits (losses).
RAB	Regulatory Asset Base at a given point in time, including indexation.
RAB multiple	Economic value in transactions or enterprise valuation estimates as a multiple of the RAB at a point in time.
RORE	Return on regulated entity before indexation for forecast or actual inflation
RROE (allowed)	Allowed real return on equity using the relevant long-term inflation forecast to index returns on equity.
RROE (actual)	Actual real return on equity incorporating variances between actual and forecast costs, and updated indexation of the cost of financing the debt-funded portion of the RAB, resulting in a higher or lower RROE.
Supernormal profit (loss)	The difference between the actual real profit and the allowed real profit, expressed in dollar terms. If systematic, material and persistent, supernormal profits reflect a failure of regulation to constrain monopoly pricing power.
TNSP	Transmission network service provider
WACC	Weighted average cost of capital

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Appendix 1: Calculation data and methodology

IEEFA methodology

Regulated network profitability data is not publicly available. Among other reasons, this is because regulated networks typically operate as part of larger financial reporting entities encompassing both regulated and non-regulated revenues and expenditure.

The *Electricity network performance report 2023* provides actual and allowed network return on equity data in percentage terms, but not the network net profit after tax (NPAT) from which the equity return data is derived. This substantially reduces the transparency of electricity networks' performance and the economic and financial impacts of higher profits.

In this report, IEEFA calculates network profits (NPAT) in dollar figures, using the available data accompanying the 2023 performance report, and assesses whether the outcomes are consistent with the AER's objective to "ensure consumers pay no more than necessary for safe and reliable electricity".[71] The IEEFA calculation is an estimation, as IEEFA has most but not all the relevant data.

IEEFA calculated NPAT by taking the AER return on regulated equity values from the 2023 *Electricity network performance report*, and multiplying these by the estimated equity portion of the regulated asset base (RAB). A brief explanation is provided below:

Figure 19: AER explanation of return on regulated equity calculation[72]

$$RORE = \frac{Regulatory\ NPAT}{Regulated\ Equity}$$

Where:

- Regulatory NPAT is regulatory net profit after tax
- Regulated equity is the implied value of equity in the regulatory asset base (RAB)

Source: IEEFA analysis based on AER data

To find the allowed profit – the profit level the AER was targeting – IEEFA has used the AER allowed real return on equity (RROE) multiplied by the equity ratio assumed by the AER (40% equity ratio multiplied by the RAB). To find the actual profit the networks received, IEEFA used the AER actual

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[71] AER. Strategic Plan 2020-2025. Page 16. 2020.
[72] AER. Explanatory note – Return on regulated equity. 2023.

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return on regulated equity (real RORE) multiplied by the actual equity (actual weighted average equity ratios for each year provided by the AER and are divided by the RAB).

Using this IEEFA methodology, a supernormal profit (loss) is evident if the actual profit received by networks is greater (lower) than the allowed profit targeted by the AER. This IEEFA methodology is summarised in Figure 20.

Figure 20: IEEFA Methodology
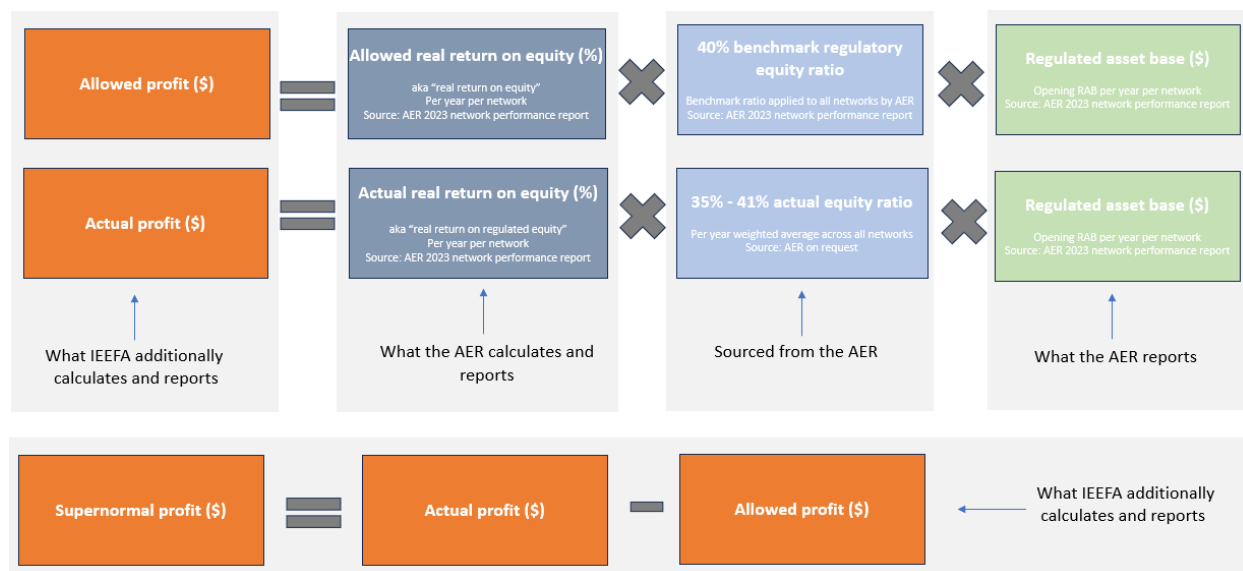
Source: IEEFA

The detailed steps in the data and methodology used to generate the results in this report are summarised below:

1. In the summary results tables for distribution and transmission in the AER published spreadsheet: Financial performance data 2023 – Electricity networks – Public. Set pull-down tabs for real returns. Exclude transmission and jurisdictional scheme pass-through gains and losses. Include incremental revenue from performance incentive schemes. For each group of networks, this automatically generates actual and allowed RROE. Data for Power and Water is excluded from the present analysis as data are only available for the latter part of the period. Data previously missing for most Victorian distribution networks for 2020-21 is now available and included in the analysis.

2. Consolidate network data. NPAT data are not reported directly in the public version of the AER dataset. Consolidate dollar revenue, RAB and customer number data.

3. Derive an estimate of the equity-funded value of the indexed RAB, using the weighted average leverage provided by the AER on request. For the allowed RROE estimate continue to use the 40% equity assumption.

4. Multiply the percentage RROE and RROE (allowed) to the inferred dollar equity values for each network to derive actual and normal net profit after tax (NPAT) in real dollar terms for each of the 162 available observations.

5. Deduct estimated allowed NPAT from actual indexed NPAT to identify supernormal profits and losses.

6. Add up all the supernormal profits and losses across the entire period to estimate net outcomes per year, per network, and in total over the entire period. This allows trends in dollar profit outcomes (positive and negative) over the period to be identified.

7. Disaggregate supernormal profit data by jurisdiction. Derive dollar net supernormal profit values for each jurisdiction.

8. Combine net dollar supernormal profit outcomes for each distribution network area, by adding the relevant regulated transmission supernormal profit to the distribution network area. Using the AER's average customer number data, estimate the supernormal profit per customer for each year for each network and in aggregate over the period.

9. For each data point, derive actual profit as a multiple of normal profit. Apply the Biggar range for information rents to the resulting multiples. Order the data from lowest to highest. Measure the proportion of outcomes that fall within and outside the 0.9-1.3 multiple range and the symmetry (asymmetry) around these outcomes. This approach means that the net impact of incentive schemes is accounted for correctly. It provides for the application of a decision rule as to whether estimated supernormal profits are excessive or consistent with reasonable information rents under incentive regulation.

10. Use the AER's final cost assessment model used for its default market offer prices 2023-24 to estimate the contribution of excess network returns (both transmission and network) for retail bills for each network area.

The AER has calculated Regulatory NPAT according to Figure 21. The present analysis has reversed the final step below, using the same RAB values, with the addition of the weighted average gearing inputs for each year provided by the AER on request.

Figure 21: Relationships between RORE and NPAT
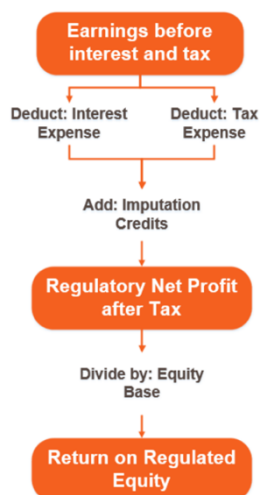
Source: AER[73]

Supernormal profit estimation errors

Per-network profit and leverage data is not disclosed by the AER in its monopoly network performance reporting. This data limitation means it is not possible for stakeholders, possibly including NEM Ministers, to make fully informed assessments as to whether regulatory outcomes are consistent with the revenue and pricing principles and effective incentive regulation. This also means AER performance under its Strategic Plan Objectives cannot readily be evaluated.

IEEFA acknowledges that the supernormal profit figures provided in this report are estimations based on limited AER data. Accordingly, all the dollar estimates in this report are subject to error because a weighted average equity value has been applied, whereas leverage (and hence equity) for each individual entity varies from the weighted average value. For example, the four networks with the largest RABs – Ausgrid, Energex, Ergon and Essential – represent nearly half the estimated total equity value. They may, however, have lower performance than the weighted average for the sector and/or higher leverage than the weighted average for the sector advised by the AER. Its reporting notes that the weighted average return on equity is typically significantly lower than the simple average return on equity.

Any estimation inaccuracies are likely small compared with the proportion of outcomes where actual profits exceed 1.3 times allowed profits, which is 64% of 162 outcomes (Figure 17). Accordingly, IEEFA holds a high degree of confidence in the overall finding that supernormal profits are excessive compared with reasonable benchmarks under effective incentive regulation.

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[73] AER. Electricity network performance report 2022: Explanatory note – Return on regulated equity. September 2022.

Table 3 compares weighted average real return on equity data given by the AER in August 2023 with IEEFA estimates. This shows clearly, that from 2016, IEEFA estimates have been lower than the values given the AER. This demonstrates that the IEEFA methodology understates dollar network profits over the entire nine-year period 2014-22.

Table 3: Testing IEEFA model against AER advice on weighted average returns

	2014	2015	2016	2017	2018	2019	2020	2021	2022
AER August 2023 weighted average actual equity returns	11.93%	10.94%	6.26%	8.66%	8.30%	7.22%	6.89%	4.71%	8.37%
AER allowed equity returns	8.28%	6.32%	5.01%	5.01%	4.77%	4.75%	4.26%	3.14%	3.26%
IEEFA estimated weighted average actual equity returns	12.7%	11.1%	5.8%	7.8%	8.2%	7.2%	6.6%	4.3%	7.8%
AER actual vs allowed	144.1%	173.1%	125.0%	173.0%	174.1%	151.9%	161.6%	149.9%	256.5%
IEEFA Estimated actual vs AER actual	106.1%	101.1%	92.7%	90.6%	98.6%	99.3%	96.5%	90.5%	93.7%

Note: All above values exclude incentives.

Appendix 2: Proposed test for distinguishing excessive supernormal profits under incentive regulation

In previous network performance reports, the AER appears to have endorsed the idea that information rents could be expected to result in a distribution of outcomes favouring networks, with a range of 0.9x-1.3x allowed returns.[74] While the range appears reasonable, enterprise value to RAB (EV/RAB) multiples (or EBIT/RAB margins) are not considered appropriate metrics for assessing regulatory system outcomes, given:

- Any increases or decreases in actual returns on assets, relative to allowed returns, are retained exclusively by shareholders, and not distributed to debt holders.

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[74] AER. Electricity network performance report 2022. Page 27. 15 July 2022.

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- The significant variances between allowed and actual financing costs, and between the benchmark and actual leverage, together typically drive about half of total supernormal profits.

- The impact of indexation of interest-bearing liabilities does not affect returns on assets, since this adjustment is made to convert nominal to real returns on equity.[75]

- Comparing supernormal profits with the entire RAB makes no sense, and the inclusion of debt in the denominator dilutes the true scale of supernormal returns to shareholders.

- Enterprise value (EV) excludes the market value of debt, and requires transaction value data or forecasts of future cash flows. Transaction value data is limited including because no regulated entities are transacted or traded.[76] Forecasts of future cashflows will turn on an assumption as to whether the AER will continue to permit structural and excessive supernormal profits for the forecast period.

Box 1: Supernormal profits and losses under effective incentive regulation

Incentive regulation rewards or penalises shareholders relative to efficient cost and performance benchmarks. Because networks have information advantages regarding costs and how these costs change over time, an inherent feature of the system may be a positive margin – supernormal profits. This reflects a typical delay between the change in cost and the change in the regulator's estimates of cost – advantages known as "information rents".[77]

Even if structural and persistent, this type of supernormal profit should benefit consumers because it reveals efficient costs, any errors in regulator estimates, and how actual costs change over time relative to estimated costs.

Provided actual RROE and any associated supernormal profits are transparent and monitored, actual performance data can then be taken into account in subsequent regulator decisions for setting new efficient cost benchmarks for the following regulatory price control period. The information feedback under effective incentive regulation limits information rents and avoids excessive and persistent supernormal profits.

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[75] AER. Electricity network performance report 2023. Page 42. 7 July 2023.
[76] IEEFA. Regulated electricity network prices are higher than necessary. Section 5.2. October 2022
[77] Darryl Biggar. Understanding the role of RAB multiples in regulatory processes. 20 February 2018.

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When the range of outcomes is converted from a return on assets to a return on equity metric, it follows that long-term average actual profits should represent about 1.1 times allowed profits, with a range of outcomes including a small number of outliers outside the 0.9x-1.3x range.

Appendix 3: How inflation adjustments work in the regulatory regime

Inflation has multiple impacts on regulated network price setting and profitability reporting. Table 4 unpacks the different aspects of inflation adjustments on network prices and profits.

Table 4: Unpacking inflation adjustments

Inflation adjustment	Application	CPI data for	Applied to
Forecast annual inflation adjustment used to set allowed NPAT	Long-term forecast inflation adjustment included in each regulatory price reset	N/A CPI forecast	Each year of the relevant five-year regulatory control period for each network
Secondary adjustment to indexation of debt financed RAB, net of the long-term inflation forecast	Ex-post estimation of actual inflation adjusted NPAT for a given reporting period, net of the long-term inflation forecast	Year to December 2021 of the reporting period (FY22)	Year to December 2021 of the reporting period (FY22)[78]
Inflation adjustment to the allowed nominal WACC for ex-ante price setting	True-up for inflation used for annual ex-ante price setting	Year to December of the year before the price control period (2021)	Price control period (FY23)
Inflation adjustment to entire RAB for ex-ante price setting	True-up for inflation used for annual ex-ante price setting	Year to December of the year before the price control period (2021)	Price control period (FY23)
Adjustment to depreciation in RAB roll-forward model	Adjustment to remove double counting of inflation	NA	Estimation of opening RAB to set capital charge and depreciation building blocks
Inflation parameter in the side constraint rule	Side constraint rule limits increases in inflation-adjusted revenues/prices between regulatory years	NA	NA

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[78] Except for Victoria where CPI for the year to 31 December 2020 is applied.

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In estimating actual RROE, the AER retrospectively applies an inflation adjustment to the share of the RAB that is financed by interest-bearing liabilities – debt.[79] The allowed and actual RROE therefore use different inflation adjustments to derive the weighted average cost of capital (WACC).

The inflation adjustment used to derive actual RROE represents the difference between the ex-ante inflation forecast applicable for a five-year regulatory period and actual inflation for any given year, applied to the portion of the RAB financed by debt. These differences are summarised in Figure 21.

Figure 20: Actual inflation as percentage of forecast inflation FY14-FY22

Actual RROE inflation as percent of forecast RROE inflation
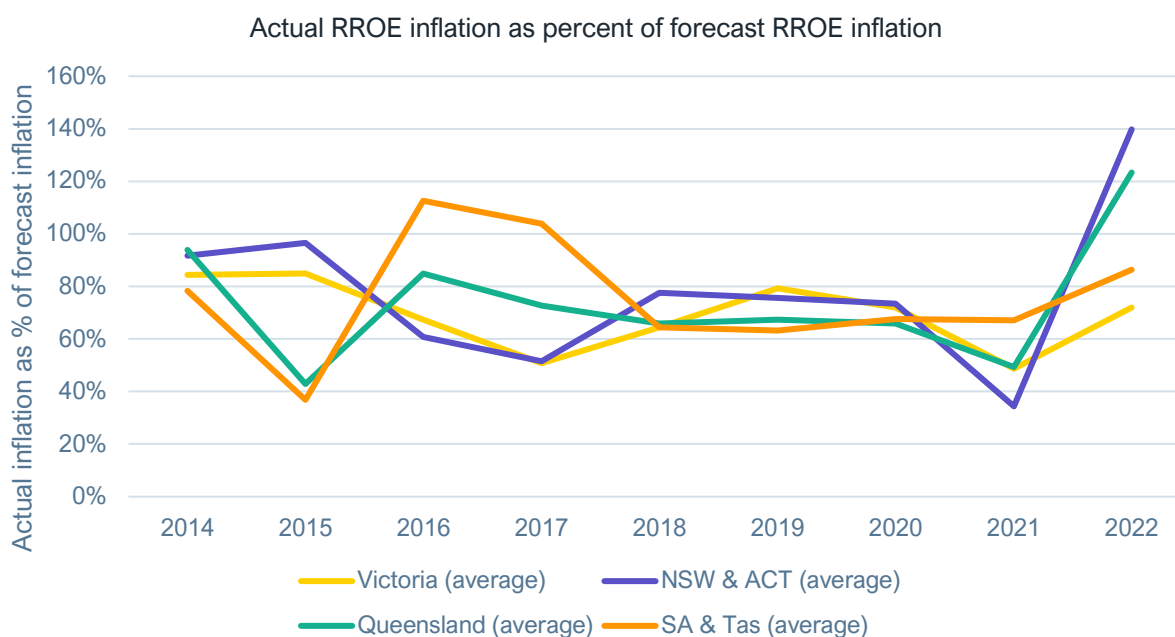
Source: IEEFA analysis based on AER data.

Where the difference between actual and forecast inflation is negative (less than 100%), the effect is to reduce actual RROE – because the corrected WACC is reduced. Where the difference is positive (more than 100%), the reported actual RROE is increased – because the corrected WACC is increased. Over the entire period, the inflation adjustment mechanism has substantially reduced actual profits and supernormal profits.

There is a separate mechanism within the regulatory regime that adjusts the maximum regulated prices and revenues the networks can pass through to consumers by inflation each year.[80] The

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[79] AER. Electricity network performance report 2023. Page 42. 7 July 2023.
[80] AEMC. National Electricity Rules. Clause 6.18.6. Side constraints on tariffs to control networks. Note: The correction to inflation in the formula used to estimate RROE is distinct from the application of inflation in the adjustment used to set the change in maximum regulated prices between years within each five-year price control period.

impact of inflation on the revenue/price caps lags by one year, meaning higher than forecast inflation to December 2021 did not impact regulated prices in FY22 but instead in FY23.

The supernormal profits associated with higher-than-forecast inflation are not realised (in cashflow terms) in the year in which the inflation adjustment is made to actual RROE (FY22), but rather in the following year (FY23) – and all subsequent years. This is because the opening RAB for FY23 is adjusted, and allowed revenues and network profits are increased.[81] The nominal WACC is similarly adjusted to reflect actual inflation to the end of December 2021. Other things being equal, supernormal profits in FY23 are reduced because the allowed RROE would increase to reflect higher actual inflation to December 2021.

To avoid double counting of inflation in both the WACC and the RAB roll-forward, there is a negative revenue adjustment through the depreciation line in the RAB roll-forward model used to set the total return on capital and depreciation cost building blocks. This negative adjustment is not applied to the RROE. As noted, the impact of inflation on the RROE is applied in the preceding year.

The revenue/price cap limits real network price increases at 2%. The caps do not apply to inflation. X factor smoothing in the price-setting model may nevertheless moderate increases in inflation in any given year while extending the impact for a longer period.

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[81] This is consistent with economic value reporting, international financial performance reporting standards and remuneration systems (bonuses) for senior executives, where movements in the value of assets over a period (in this case the RAB used to set regulated prices in the following year) are reported in the year in which those value changes (profits) occurred, even though changes in cashflows may occur in the following year.

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