Economic Regulation Authority

Western Power AA5

First annual progress report

5 July 2024

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Acknowledgement of Country

At the ERA we value our cultural diversity and respect the traditional custodians of the land and waters on which we live and work.

We acknowledge their continuing connection to culture and community, their traditions and stories. We commit to listening, continuously improving our performance and building a brighter future together.

Economic Regulation Authority

Level 4, Albert Facey House

469 Wellington Street, Perth WA 6000

Telephone 08 6557 7900

Email info@erawa.com.au

Website www.erawa.com.au

This document can also be made available in alternative formats on request.

National Relay Service TTY: 13 36 77

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Executive summary

The ERA published its final decision on Western Power's fifth access arrangement (AA5) on 31 March 2023.

As the AA5 review was undertaken during a period of significant change and uncertainty in the energy sector, the ERA's decision differed from previous decisions. It included actions for Western Power to progress and increased reporting requirements during the access arrangement period.

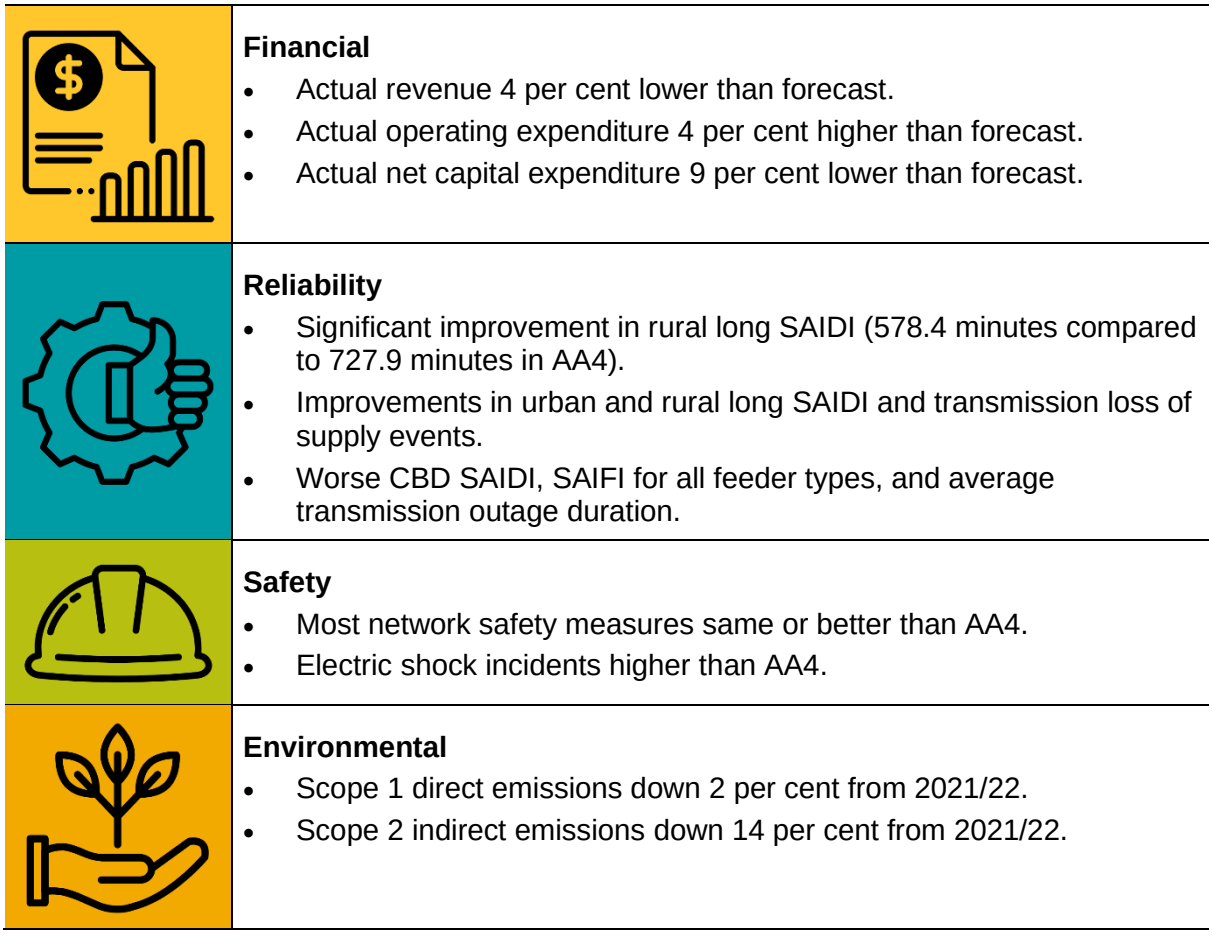
These changes focus on Western Power better engaging with its customers and being more innovative in delivering the service levels customers are seeking.

The ERA is closely monitoring Western Power's progress against the requirements of the access arrangement. This monitoring will help to inform preparations for the next access arrangement review (AA6). This first annual progress report is the result of that monitoring.

The report covers the 2022/23 results and the current state of the actions identified in the ERA's final decision. Western Power has assisted with the development of this report.

Financial year 2022/23 is the first year of the AA5 access arrangement period. The final decision was published part way through 2022/23 and most changes did not come into effect until 1 July 2023. As it is too early to draw any conclusions on progress to date, the focus of this first report has been on status and to identify the areas that will be monitored for future years.

Figure 1: 2022/23 highlights



Key actions

Connecting large customers

- New connection process starts 1 July 2024.
- New customer prioritisation process also being implemented.
- No reduction in queuing times yet.

Regional reliability

- 2022/23 outage data published by individual feeder and local government region.
- Rural long reliability plan in progress with community engagement underway for pilot project in Lancelin.

Streetlighting services

- Report summarising consultation with local government published 26 June 2024.
- Version 1 of the public lighting strategy to be published first quarter of 2024/25.

1. Introduction

Western Power's network business is a natural monopoly, with economies of scale and scope meaning it makes sense for one entity to provide distribution and transmission services across the South West of Western Australia.

The State Government established regulation of Western Power's network to ensure that monopoly power is not abused and to create both incentives and tension for Western Power to achieve acceptable standards of service for electricity consumers and efficiency in investment and operating costs.

The Electricity Networks Access Code 2004 sets out the overarching objective, rules and policies that the ERA applies to regulate the network. The main instrument of regulation is the access arrangement, which governs the terms and conditions, including prices, for third parties to access the network.

Every five years, Western Power is required to submit a revised access arrangement to the ERA for approval. The most recent revision (AA5) was approved in March 2023 and covers the five years to 30 June 2027.

The access arrangement review process is intended to ensure that Western Power invests in and operates the network as efficiently as possible for the long-term benefit of electricity consumers. Western Power must also maintain security, reliability and safety and take account of the environmental consequences of energy supply and consumption.

1.1 AA5 final decision

As the AA5 review was undertaken during a period of significant change and uncertainty in the energy sector, the ERA's decision included actions for Western Power to progress and increased Western Power's reporting requirements during the access arrangement period. These actions included:

- Reducing connection times for generators, large businesses, industrial and mining customers.
- Addressing longstanding streetlighting issues.
- Developing and implementing a strategy to address regional reliability.

In addition, the ERA required some capital expenditure categories to be included in the Investment Adjustment Mechanism, to manage the uncertainty of program delivery in a time of such rapid change. The Investment Adjustment Mechanism quarantines the forecast expenditure for a specific program. If Western Power spends less than the forecast, the difference will be returned to customers at the next review, including an adjustment for the return on investment that was included in target revenue. If Western Power spends more than forecast, providing the expenditure is demonstrated to be efficient, the additional costs will be recovered at the next review.

The investment categories included in the Investment Adjustment Mechanism are:

- Programs to replace network connections with standalone power systems.
- Programs to underground existing overhead network.

- The transmission network expansion projects identified by Government prior to the final decision to support the announced closures of coal fired generation (upgrades to maximise use of the 220kV transmission line to the Eastern Goldfields and scoping and planning of potential network augmentations for the North Region).
- An allowance for developing and implementing an overall plan to address regional reliability.

1.2 Monitoring Western Power's progress against the AA5 decision

The inclusion of the specific actions above and the enhanced reporting requirements in the access arrangement are intended to ensure Western Power better engages with its customers and is more innovative in delivering the service levels customers are seeking.

The investment adjustment mechanism provides Western Power with the flexibility to increase activity and expenditure if needed to meet the challenges of energy transformation, while protecting customers from incurring costs if these programs are reduced below the forecasts assumed in the final decision.

The ERA will closely monitor Western Power's progress against the requirements of the access arrangement over the AA5 period. The intent of the monitoring process is to:

- Improve Western Power's accountability for delivering the outcomes that were set in the AA5 decision and for operating/investing efficiently.
- Increase the ERA's and stakeholders' understanding of Western Power's performance and the issues it is facing during the access arrangement period, rather than waiting until the next access arrangement review process.
- Better inform consumer engagement by bringing together information and increasing understanding of how that information is relevant to regulatory decisions/processes for Western Power.
- Improve transparency and understanding of how effectively the current access arrangement is enabling Western Power to deal with the energy transition and identify changes that may be required at the next review – or earlier if needed.

As part of this process, the ERA will publish annual reports on Western Power's progress.

This first annual progress report covers the 2022/23 results and the current state of the actions identified in the final decision.

Although 2022/23 is the first year of the AA5 access arrangement period, as the final decision was published on 31 March 2023, most changes did not come into effect until 1 July 2023. Consequently, it is too early to draw any conclusions from the 2022/23 results. The focus of this first report has been to establish the areas that will be monitored.

Figure 2: Access arrangement timeline

2. Financial

Summary

Actual revenue 4 per cent lower than forecast.

Actual operating expenditure 4 per cent higher than forecast.

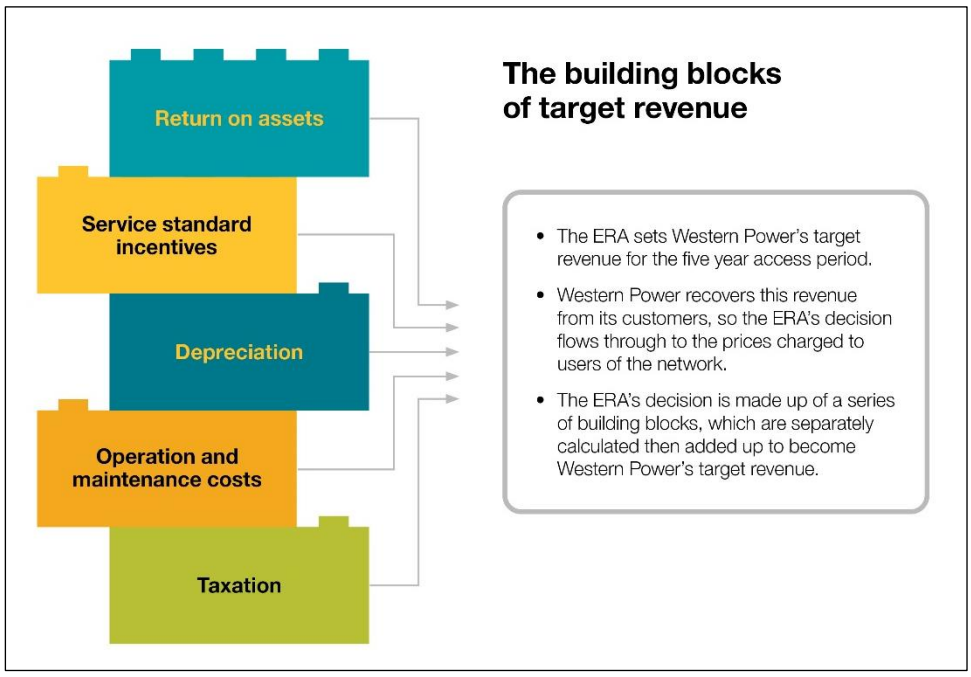
Actual net capital expenditure 9 per cent lower than forecast.

2.1 Background

The access arrangement includes a "price control" that determines the revenue Western Power can earn during the access arrangement period. The price control must give Western Power the opportunity to earn sufficient revenue ("target revenue") to meet the efficient costs of providing regulated services, including a return on investment commensurate with the commercial risks involved.

The AA5 target revenue was determined using a building block approach, with the primary components being forecast operating expenditure, depreciation and a return on the regulated asset base.

Figure 3: How the ERA determines Western Power's target revenue



The target revenue determined in the final decision is updated each year to account for actual inflation and changes in the cost of debt and the tariff equalisation contribution.[1] Total target revenue is then turned into network tariffs, which are approved by the ERA each year.[2]

1 Western Australia has a uniform tariff policy so that small use Synergy and Horizon Power customers are all charged the same rate. This includes customers in remote regions where the costs to supply electricity are considerably higher. The extra costs of supplying electricity to these areas is partially funded by the Tariff Equalisation Contribution (TEC) which is recovered from users of the Western Power network.

2 Annual price list determinations can be found here.

Network tariffs are generally not directly charged to end users, other than generators and some very large customers. Network tariffs are paid by retailers. The retailers decide how those charges will be passed on to end users along with wholesale electricity and other related costs. Most households and small businesses are supplied by Synergy. The State Government sets Synergy's retail tariffs as part of the State Budget.

Although the target revenue is determined based on forecast expenditure, the regulatory framework regulates total revenue not expenditure. This means Western Power is generally able to spend the revenue it collects in whatever way it determines to be the most efficient in terms of providing a safe and reliable supply of electricity.

Regulating target revenue in this way is intended to incentivise Western Power to manage its costs and seek additional efficiencies because it will retain the benefit of out-performance during the access arrangement period or will need to separately fund any under-performance during the access arrangement period. This helps to ensure that only efficient costs are incurred during the access arrangement period and reveals additional efficiencies that can be passed through to consumers in future access arrangement periods.

The access arrangement includes other mechanisms that are intended to incentivise efficient expenditure while maintaining (or improving) service standard performance. These mechanisms are described further in the sections below.

For this progress report we have focussed on comparing actuals with forecasts for:

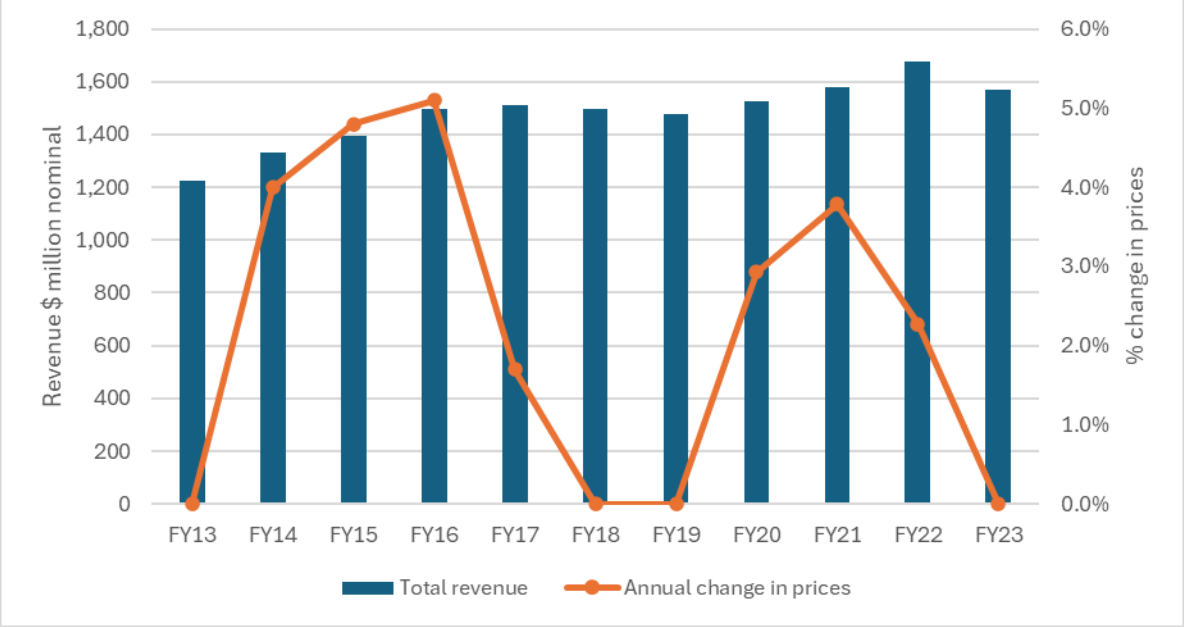
- revenue and pricing
- operating expenditure
- capital expenditure.

2.2 Revenue and pricing

Figure 4 shows total actual revenue since 2012/13 in nominal dollars. The annual change in network tariffs is also shown for information as it contributes to the change in revenue between years.

As the AA5 decision was made partway through 2022/23, there was no change to network tariffs in 2022/23. This was also the case in 2012/13 (first year of the AA3 period) and 2017/18 and 2018/19 (first two years of the AA4 period) due to the timing of the final decisions on the access arrangements for those periods.

Figure 4: Total actual revenue and annual change in network tariffs



Source: Western Power annual regulatory accounts and price lists, ERA analysis

In 2022/23, Western Power's actual revenue of $1,570.5 million (nominal) was $70 million (4.2 per cent) lower than the forecast of $1,640.5 million in the final decision. However, the total customer numbers and energy volumes are in line with the AA5 forecast. Western Power attributes the reduction in revenue to the number of customers and consumption patterns of customers on time of use tariffs being different from the forecast.

The new reference services approved for AA5 came into effect on 1 July 2023.[3] Changes to network tariffs and the new AA5 reference services will be included in the next annual progress report.

[3] The new reference services for AA5 included:

- New reference services for transmission connected storage, distribution connected storage and grid connected electric vehicle charging stations.
- Amended time of use periods to reflect forecast demand patterns for AA5 as follows:
  - Super off-peak – 9am to 3pm
  - Peak – 3pm to 9pm
  - Shoulder – 6am to 9am and 9pm to 11pm
  - Off-peak – 11pm to 6am

Regulatory framework insight - revenue

The form of the price control is a modified revenue cap. This means that when Western Power updates its tariffs each year, it must ensure that the forecast revenue from those tariffs is equal to the target revenue determined in the final decision (after adjusting for actual inflation and changes in the cost of debt and tariff equalisation contribution).

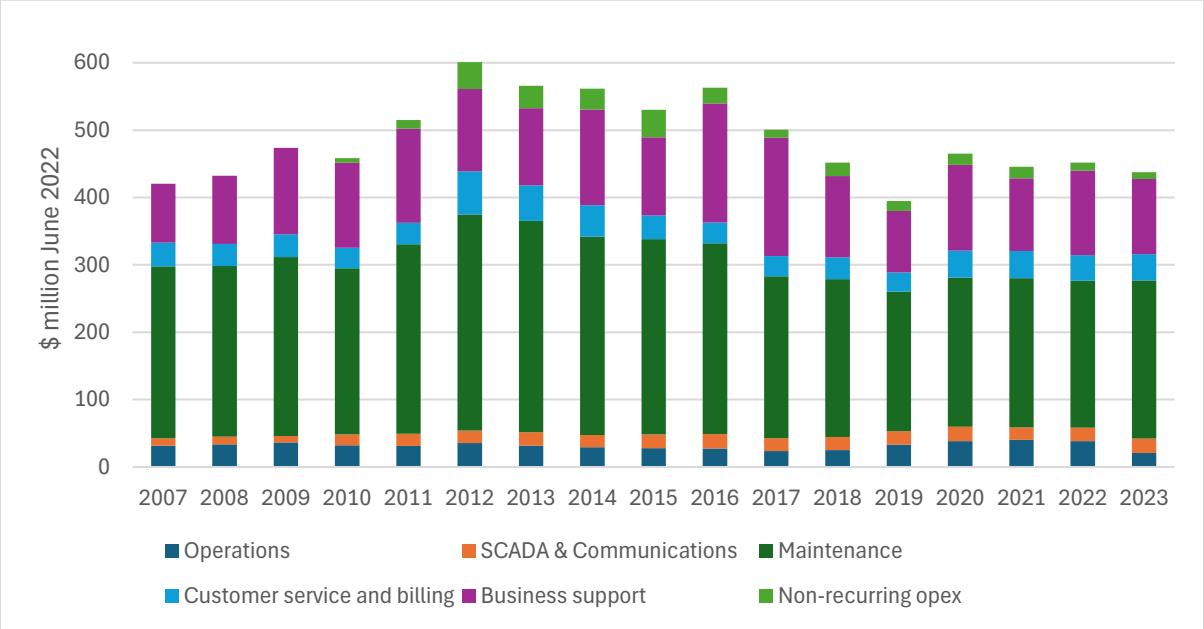
There is no adjustment for any under-recovery or over-recovery of actual revenue compared with forecast revenue from previous years. In addition, the forecast customer numbers and energy volumes must be consistent with the demand forecast used for the access arrangement.

This form of price control ensures Western Power is exposed to demand risk rather than guaranteeing it a fixed level of revenue and passing on the costs (or returning revenue) to users. This provides incentives for Western Power to develop more efficient tariffs, encourage the connection of new customers and offer services that meet user requirements and benefit Western Power through increased revenue, reduced costs or a combination of both.

2.3 Operating expenditure

Figure 5 shows Western Power's actual operating expenditure since the first access arrangement.

Figure 5: Actual operating expenditure ($ million June 2022)



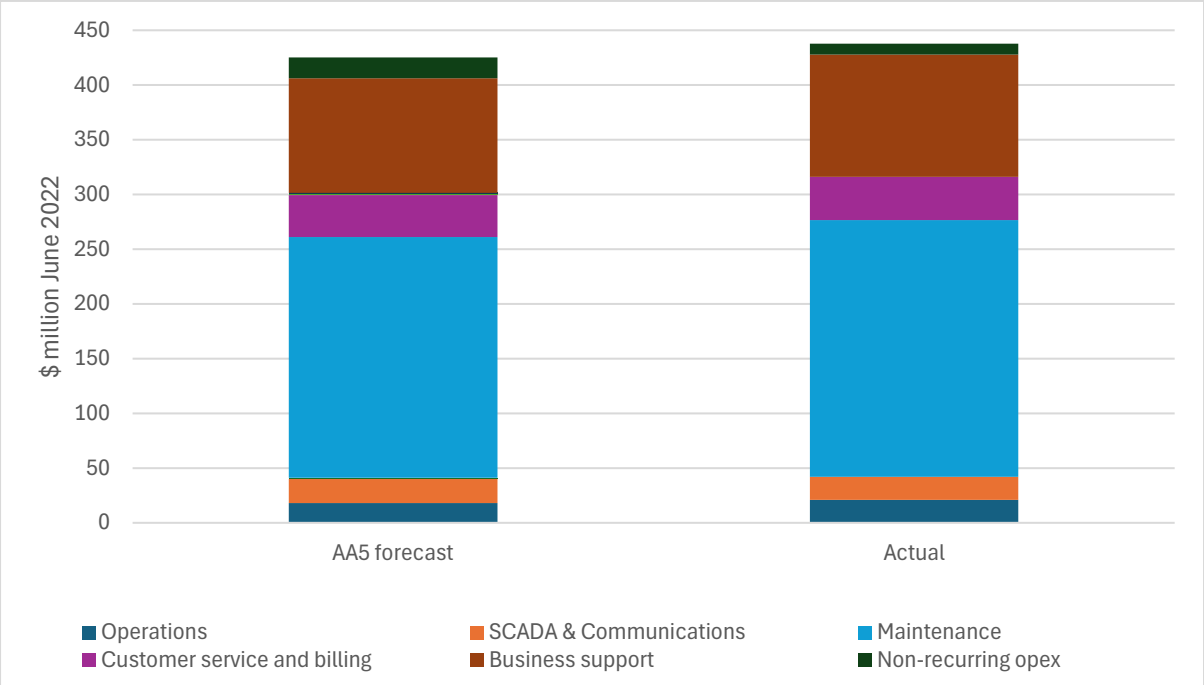
Source: Western Power annual regulatory accounts, ERA analysis

As can be seen in Figure 6, actual operating expenditure is $15.5 million (3.7 per cent) higher than forecast in the AA5 final decision.

The reported operating expenditure includes $3.5 million relating to Project Symphony which Western Power is seeking to claim under the Demand Management Innovation Allowance. If

these costs are excluded, total operating expenditure is $12 million (2.8 per cent) higher than forecast.

Figure 6: Comparison of AA5 forecast and actual operating expenditure for 2022/23 ($ million June 2022)



Source: Final decision target revenue model and Western Power annual regulatory accounts, ERA analysis

The higher than forecast expenditure is mainly spread across maintenance and business support, offset by lower than forecast non-recurring operating expenditure.

The access arrangement also includes the "D-factor" mechanism that provides for the recovery, in the next access arrangement period, of:

- operating expenditure incurred as a result of deferring a capital expenditure proposal
- network control services
- demand-management initiatives.

Western Power's 2022/23 regulatory financial statements indicate it has incurred $5.78 million for network control service costs. Providing these costs are demonstrated to be efficient, they will be added to target revenue for AA6. These costs were not included in the AA5 target revenue forecasts as the level of cost is dependent on the extent to which the network control services are called on by Western Power.

Regulatory framework insight – operating expenditure

During the access arrangement period, Western Power is incentivised to minimise operating costs as it keeps the benefits of any out-performance of operating cost forecasts and incurs the costs of any under-performance during the access arrangement period.

In addition, the "gain sharing mechanism" included in the access arrangement increases the incentive for Western Power to achieve operating cost efficiencies as it allows Western Power to retain the out-performance or under-performance for the same period of time, regardless of which year during the access arrangement period the out-performance or under-performance was made.

Without this mechanism, out-performance or under-performance in year one would be retained for five years but out-performance or under-performance in year five would be retained for only one year. Consequently, there would be less incentive to minimise operating costs in the latter years of an access arrangement period.

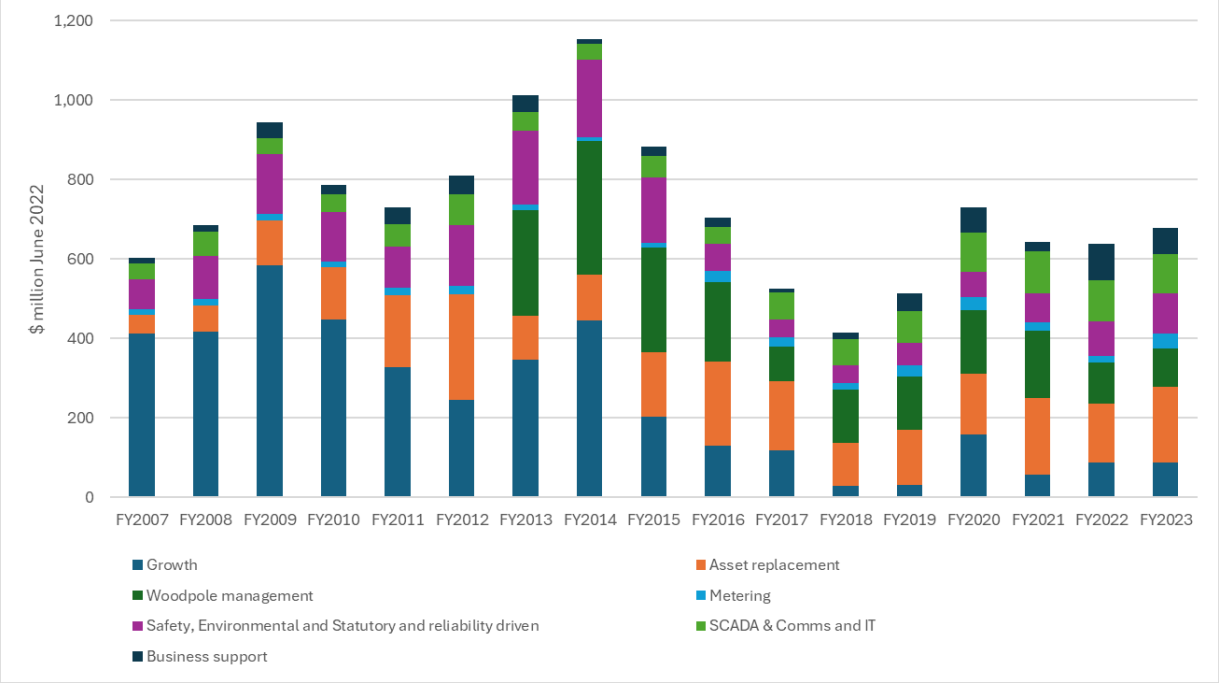
The Access Code does not include a mechanism for the retrospective recovery of non-capital costs. In contrast, all efficient capital costs incurred during the period are added to the opening regulatory asset base for the next access arrangement period. This could result in Western Power choosing a solution that requires capital costs even when a solution that includes non-capital costs would be the overall least cost option. The D-factor was introduced to remove this disincentive. It provides for the recovery, in the next access arrangement period, of operating expenditure incurred as a result of deferring a capital expenditure proposal or for network control services or demand-management initiatives.

The Access Code also provides for a Demand Management Innovation Allowance that Western Power can use to fund innovative research and development in demand projects that have the potential to reduce long term network costs. Costs that are determined to be eligible under the Demand Management Innovation Allowance are excluded from operating costs for the purposes of the gain sharing mechanism.

2.4 Capital expenditure

Figure 7 shows actual operating expenditure since the first access arrangement. Expenditure in 2012/13 and 2013/14 was significantly higher than other years due to a large uplift in wood pole expenditure to address safety issues and the Mid-West Energy Project, which is the largest transmission growth project Western Power has undertaken to date.

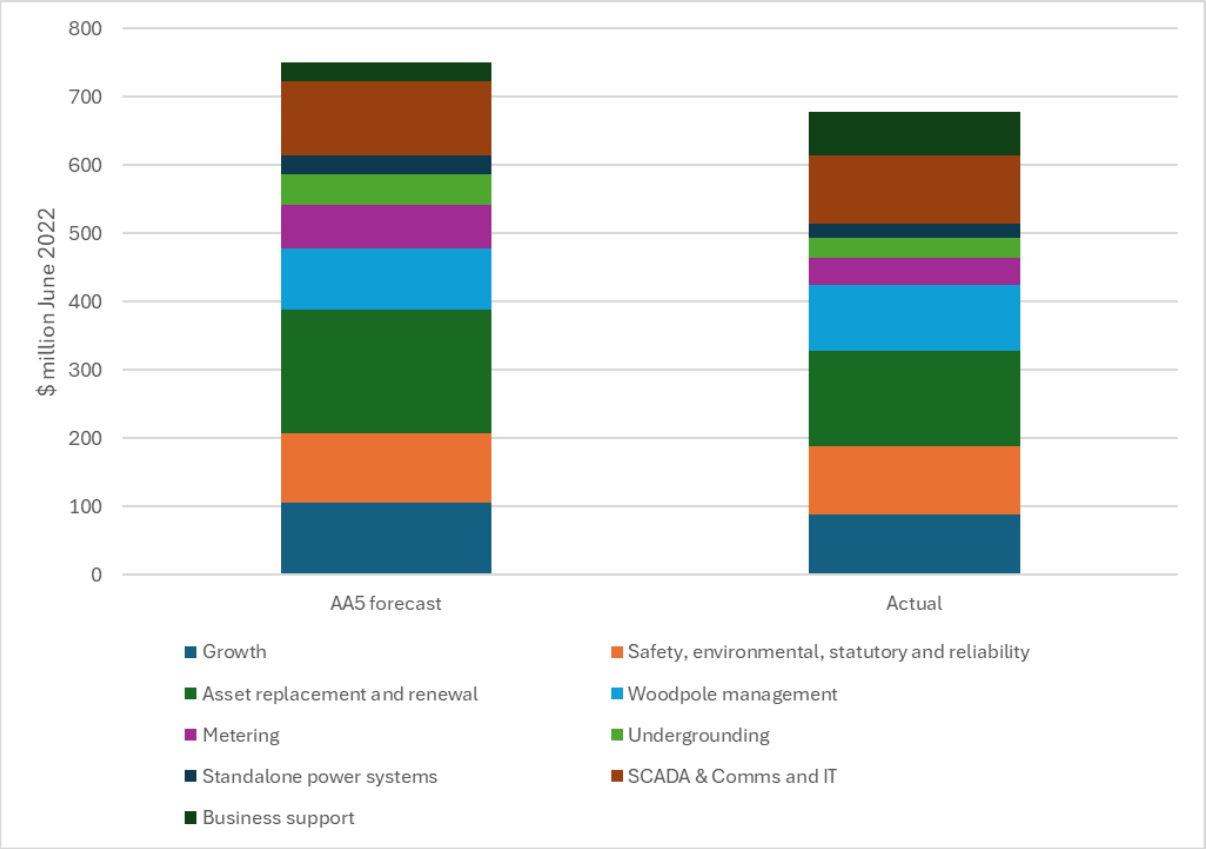
Figure 7: Actual net capital expenditure ($ million June 2022)



Source: Western Power annual regulatory accounts, ERA analysis

As can be seen in Figure 8, actual net capital expenditure in 2022/23 is $71 million (9 per cent) lower than forecast in the AA5 final decision.

Figure 8: Comparison of AA forecast and actual net capital expenditure for 2022/23 ($ million June 2022)



Source: Western Power

All net capital expenditure categories are lower than forecast, except business support, wood pole management, and distribution reliability and compliance. Reasons for these categories being higher than forecast provided by Western Power included:

- Completion of projects originally planned to be completed in AA4 but were delayed due to COVID and supply constraints.
- Bringing forward expenditure to mitigate emerging risks and new functionality to meet business requirements.

Based on information provided by Western Power, key points to note on the expenditure categories where expenditure has been less than forecast:

- **Distribution asset replacement expenditure** is less than forecast due to a combination of reduction in volumes due to lower failure rates than forecast for some assets and design and delivery challenges for some programs that has delayed those programs.
- **Metering expenditure** is less than forecast due to delays in upskilling a new workforce. 106,894 advanced meters were installed in 2022/23 bringing the total number of advanced meters installed to about 600,000 as at 30 June 2023 – approximately 50 per cent of residential and small business customers. The AA5 forecast is based on installing advanced meters in nearly all properties by 2027.

- **Transmission business as usual capacity expansion** is lower than forecast due to various changes and re-timings of a mix of projects.
- For the three programs that are subject to the Investment Adjustment Mechanism:[4]
  - **Standalone power systems** – Western Power delivered 56 units in 2022/23 compared with the AA5 forecast of approximately 100 units. The reduction in units was to enable issues with noise compliance and PV integration to be resolved. The cost has not reduced proportional to the number of units as unit costs are higher than forecast due to increases in the average unit sizing and higher market costs.

    The total number of active standalone power systems as at 30 June 2023 was 167. Western Power's 2022/23 annual report indicated it was targeting 200 installations for the 2023/24 year. If achieved, this would bring the cumulative actual installations for 2022/23 and 2023/24 in line with the cumulative number forecast for that period in the final decision.

    Western Power advised that it removed 434 km of lines during 2022/23. This related to standalone power systems installed in earlier years as well as 2022/23.
  - **Undergrounding existing overhead assets** – The program has not progressed as quickly as forecast during 2022/23 due to work needed to establish the Targeted Underground Power Program with the State Government, engagement with local government to agree details of specific projects and constraints in the external market capability to deliver the program.
  - **Transmission network projects identified by the State Government** prior to the final decision to support the announced closures of coal fired generation - Actual expenditure was $1.7 million compared to the forecast of $3.7 million. The projects progressed more slowly than forecast during 2022/23 due to their complexity and interaction with other planning processes.

[4] The allowance for developing a plan to address rural long reliability is subject to the Investment Adjustment Mechanism. However the forecast capital allowance commences from 1 July 2023 so there is nothing to report for the 2022/23 year.

Regulatory framework insight – capital expenditure

Capital costs are included in target revenue via depreciation and a return on the regulated asset base.

The regulated asset base represents the capital investment in regulated assets and is calculated by adding capital expenditure to and deducting depreciation from the opening regulated asset base.

The target revenue is set based on a forecast of the efficient capital expenditure required. During the access arrangement period, Western Power can reallocate expenditure as needed or spend more or less than forecast.

For expenditure that is not subject to the Investment Adjustment Mechanism, Western Power is incentivised to minimise its costs or find additional efficiencies during the access arrangement period because it can retain outperformance on the forecast return on investment or must fund any underperformance on the forecast return on investment.

For expenditure that is subject to the Investment Adjustment Mechanism, target revenue will be adjusted at the next review to adjust the return on investment to reflect the actual expenditure incurred.

Actual capital expenditure (whether it was subject to the Investment Adjustment Mechanism or not) is reviewed at the next access arrangement review and only efficient capital expenditure is added to the opening capital base for the next period.

3. Reliability.

Summary

Significant improvement in rural long SAIDI from AA4 average (578.4 minutes compared to 727.9 minutes in AA4).[5]

Improvements in urban and rural long SAIDI, and transmission loss of supply events.

Worse CBD SAIDI, SAIFI for all feeder types, and average transmission outage duration.[6]

As the final access decision was made part way through the year, the service standard definitions and requirements for 2022/23 were unchanged from the AA4 period. The revised definitions and requirements for AA5 apply from 1 July 2023.

Table 1 compares the 2022/23 service standard performance with the average performance during the AA4 period.

Table 1: 2022/23 service standard performance compared to AA4 average

Reliability performance measure	Measurement	2022/23 performance	AA4 average performance	% change (worse) /better
System Average Interruption Duration Index (SAIDI)				
CBD	Minutes	18.5	11.7	(58)
Urban	Minutes	117.0	118.3	1
Rural short	Minutes	188.5	192.9	2
Rural long	Minutes	578.4	727.9	21
System Average Interruption Frequency Index (SAIFI)				
CBD	Interruptions	0.24	0.14	(74)
Urban	Interruptions	1.18	1.11	(6)
Rural short	Interruptions	2.40	1.91	(26)
Rural long	Interruptions	4.34	4.08	(6)
Other measures				
Call centre – fault calls responded to in 30 seconds	% of calls	87.9	91.7	(4)
Circuit availability (transmission)	% of hours	98.5	98.8	0

5 The System Average Interruption Duration Index (SAIDI) is the average total duration of unplanned outages (in minutes) experienced by customers in the year.

6 The System Average Interruption Frequency Index (SAIFI) is the average number of unplanned interruptions experienced by customers in the year. SAIDI and SAIFI are reported by feeder category (CBD, urban, rural short, rural long).

Reliability performance measure	Measurement	2022/23 performance	AA4 average performance	% change (worse) /better
Loss of supply events (transmission):				
>0.1 and <1.0 system minutes interrupted	Events	11.0	11.6	5
>1.0 system minutes interrupted	Events	0.0	4.0	-
Average outage duration (transmission)	Minutes	947	680	(39)

Source: Western Power Service Standard Performance report for the year ended 30 June 2023, ERA analysis

The most significant improvement in performance was the rural long SAIDI, which improved by 21 per cent. This was the best performance for over a decade. Western Power attributes this to increased maintenance work and redesigned restoration practices during the fire season.

The most significant declines in performance compared with the average performance during AA4 were:

- CBD SAIDI and SAIFI, which worsened by 58 per cent and 74 per cent respectively. This was mainly due to equipment failure on the underground network - particularly three faults on a section of underground cable in June 2023.
- Rural short SAIFI, which worsened by 26 per cent. Western Power advised there was an increase in interruptions attributed to unknown causes, equipment failures and vehicles.
- Transmission outage duration, which worsened by 39 per cent. Western Power attributed this to reactive equipment maintenance and inclement weather and nearby fires impacting transmission equipment.

Two days during 2022/23 were designated as “Major Event Days”, and so were excluded from the reported SAIDI and SAIFI:

- 2 August 2022 – 61,500 customers were interrupted across the network due to wet and stormy weather conditions, for an average of nearly six hours, peaking at over 35,000 customers at around 8:30 am.[7] Over 90 per cent of the affected customers were in the Perth Metropolitan, South-West and Peel regions.
- 16 March 2023 – More than 43,000 customers were interrupted across the network for an average of over four hours, peaking at over 18,000 customers at around 5:15pm. There was significant pole top fire activity during the day. Most of the affected customers were in the Perth Metropolitan, South-West and Wheatbelt regions.

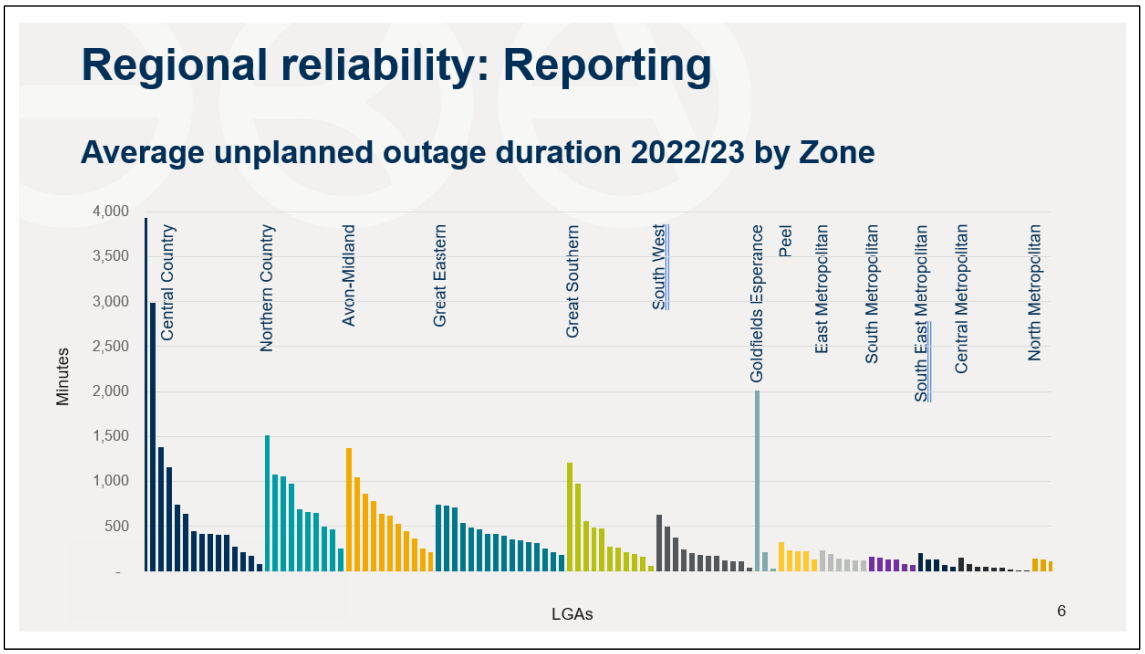
For the first time, as now required by the ERA, Western Power has provided disaggregated SAIDI and SAIFI data by feeder and local government authority (LGA).[8] This enables a better understanding of how performance varies across the network.

7 It was the wettest August for 30 years for the South West Land Division as a whole. The first four days of August brought up to 100 mm of rain to the south-west of the State.

8 This data can be found in appendix B of Western Power’s Service Standard Performance Report for the year ended 30 June 2023.

The chart below shows the SAIDI for each LGA grouped by geographic zone. Regional zones are on the left of the chart and metropolitan zones are on the right. The LGAs within each zone have been ordered from least reliable to most reliable supply.

Figure 9: SAIDI 2022/23 by Local Government Authority



Source: Western Power data Service Standard Performance report for the year ended 30 June 2023, ERA analysis.

Regional performance was worst in the Shire of Quairading in the Central Country zone (594 customers with a SAIDI of 3,931 and SAIFI of 13.3) and best in the Shire of Collie in the South West zone (4,497 customers with a SAIDI of 39.1 and SAIFI of 0.61).

Metropolitan performance was worst in the Shire of Mundaring in the East Metropolitan zone (15,975 customers with a SAIDI of 234.7 and SAIFI of 2.48) and best in the Town of Claremont in the Central Metropolitan zone (5,182 customers with a SAIDI of 6.4 and SAIFI of 0.01).

Regional reliability is discussed further in section 6.2.

4. Safety

Summary

Most network safety measures same or better than AA4.

Electric shock incidents higher than AA4.

The network must be safe as well as reliable. Unsafe infrastructure and practices can also impact system reliability. It is Western Power's responsibility to plan and manage its expenditure programs to ensure the network is safe.

The safety performance of Western Power's network is overseen by the safety regulator – the Building and Energy division of the Department of Energy, Mines, Industry Regulation and Safety. Western Power reports network safety performance on 27 different measures set out in the *Electricity (Network Safety) Regulations*.

Performance during 2022/23 for 23 of these measures has improved or stayed at similar levels compared to the AA4 average.

Measures that reported worse performance in 2022/23 compared with the AA4 average are shown in the table below.

Although it appears unassisted distribution underground cable failures have increased, the numbers are actually not comparable over time due to a change in reporting. Starting in the 2021/22 year, the measure includes all cable failures. Prior to 2021/22, only failures that resulted in an electric shock were reported.

Table 2: 2022/23 safety measures lower than AA4 average

Safety performance measure	2022/23 performance	AA4 average performance
Electric shocks – human injury	6	1.8
Electric shocks – no injury	200	155
Unassisted transmission hardwood pole failure	13	8.6
Unassisted distribution underground cable failures	354	76

Source: Western Power quarterly Network Safety Performance Outcomes, ERA analysis

In its State of the Infrastructure 2022/23 report, Western Power reported on the increase in electric shock incidents noting:

- Of the six reported human injuries, one was caused by an asset failure, while the remaining five did not involve asset failures.
- The increase in electric shocks with no injuries were mainly due to:
  - An increase in power-quality related electric shocks with low potential for harm.
  - Higher levels of reporting by the public due to greater awareness from Western Power's media campaigns.

The ERA has discussed the reported performance with Building and Energy. Building and Energy confirmed it has been investigating the increases in incidents with Western Power and is following up on mitigation strategies.

5. Environmental

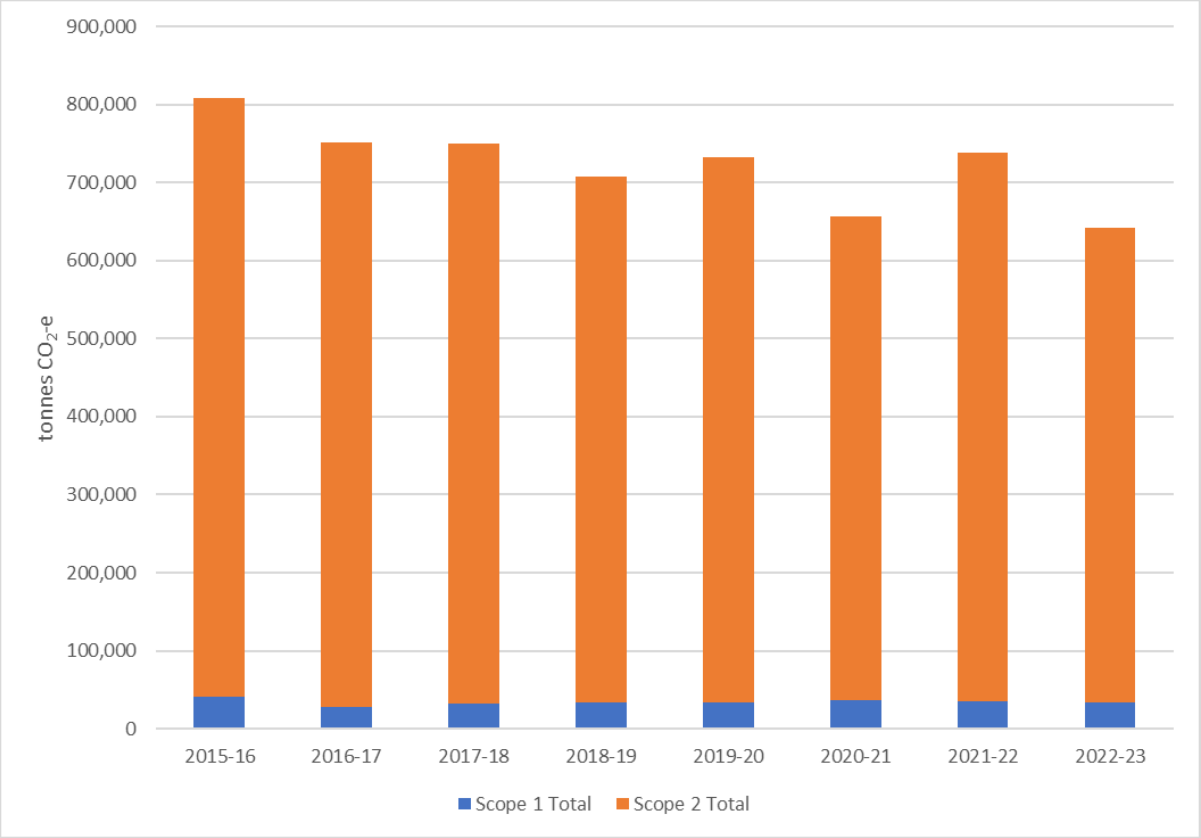
Summary

Scope 1 direct emissions down 2 per cent on 2021/22.

Scope 2 indirect emissions down 14 per cent.

Following changes made to the Access Code in 2020 there is now a requirement to consider the environmental consequences of electricity supply and consumption, including reducing greenhouse gas emissions. As part of the ERA's consideration of this requirement, this report includes the annual emissions data Western Power reports to the Clean Energy Regulator.

Figure 10: Greenhouse gas emissions



Source: Western Power data, ERA analysis

The majority (95 per cent) of Western Power emissions are "scope 2" indirect emissions. Scope 2 emissions include:

- Energy lost when transported through the network due to electrical resistance and the heating of conductors (line losses). Around 4 per cent to 5 per cent of electricity injected into the network is lost in this way. Emissions from line losses are approximately 88 per cent of total scope 2 emissions.
- Electricity used by streetlights and unmetered supplies owned by Western Power. These emissions are approximately 12 per cent of total scope 2 emissions.

Scope 2 emissions in 2022/23 were 14 per cent lower than 2021/22. The quantity of network losses and electricity used by streetlights and unmetered supplies was higher in 2022/23 than in 2021/22, but emissions were lower due to a reduction in emissions intensity in the wholesale electricity market.[9]

Five per cent of Western Power's emissions are "scope 1" emissions, from sources that are owned or controlled by Western Power:

- Transportation fuels (72 per cent of scope 1 emissions).
- Fugitive emissions from sulphur hexafluoride (SF6) gas used in some protection equipment (22 per cent).
- Fuel used by stationary generation, including operations, standalone power systems, the Ravensthorpe power station and emergency response generators (6 per cent).

Scope 1 emissions in 2022/23 were 2 per cent lower than 2021/22. Emissions from transportation fuels reduced by 3 per cent, fugitive emissions increased by 3 per cent and emissions from stationary generation reduced by 15 per cent.

[9] Emissions intensity is the amount of carbon dioxide (CO_2) emitted per unit of electricity. As the electricity generated in the WEM comes from a mix of fossil fuel and renewable sources, the emissions intensity is affected by the proportion of fossil fuels versus renewable generation dispatched. For the purposes of calculating Scope 2 emissions, Western Power must use the WEM emissions intensity factor calculated by the Clean Energy Regulator.

6. Key actions

Connecting large customers

New connection process starts 1 July 2024.

New customer prioritisation process also being implemented.

No reduction in queuing times yet.

Regional reliability

2022/23 outage data published by individual feeder and local government region.

Rural long reliability plan in progress with community engagement underway for pilot project in Lancelin.

Streetlighting services

Report summarizing consultation with local government published 26 June 2024.

Version 1 of the public lighting strategy to be published first quarter of 2024/25.

6.1 Connecting large customers

Stakeholder feedback and data collected during the access arrangement review indicated that generators, large businesses, industrial and mining customers were experiencing extended waiting periods for applications to connect to the network. Prior to the final decision, Western Power advised that it had completed a major review of its connection process and had identified initiatives that it considered should reduce connection times. At the time of the final decision, Western Power was in the process of developing an implementation plan to deliver those changes.

The final decision acknowledged the improvements Western Power was seeking to make to its processes and that implementing the changes would take time. However, timely connections are essential to decarbonisation and power system reliability.

The ERA's final decision included some required changes to the applications and queuing policy contained in the access arrangement and additional reporting requirements that would allow progress to be monitored.

Final decision – connecting large customers

The applications and queuing policy was required to be amended as follows:

- The enquiry stage should be optional so that applicants ready to proceed can go straight to the application stage.
- The enquiry process is to be streamlined to reduce the time spent undertaking studies.
- Western Power must specify and publish a default process and study requirements while also having the option for an alternative process to be agreed by the applicant and Western Power.
- Ensure it is clear that the studies required for generation applications are more limited in the new constrained access framework.
- Western Power must publish a list of approved third-party consultants to undertake studies (for all types of studies).
- Allow potential applicants to access Western Power models and data prior to submitting an application.
- Tighter requirements for progress reporting to applicants. This includes providing a schedule at the commencement of the process with expected dates for each stage of the process. Any changes to the expected dates must be provided to the applicant in a timely manner with reasons for the change.

To ensure Western Power is held accountable for reducing connection times, the final decision also required quarterly reporting on current queuing times to be published. This will increase transparency and allow Western Power's progress towards reducing connection times to be monitored.

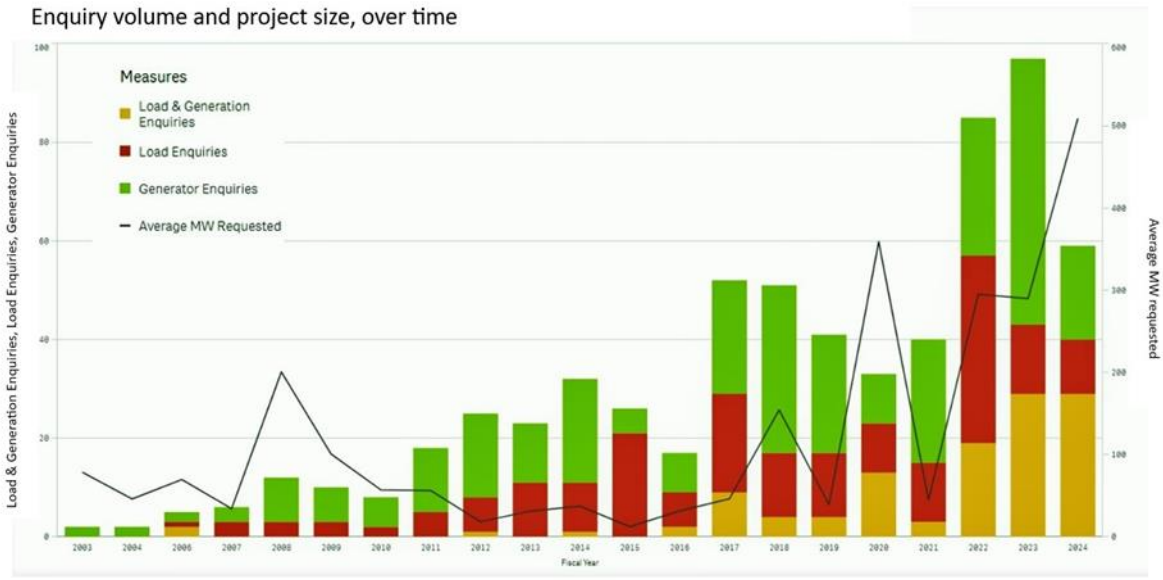
Since the final decision, Western Power has been developing and implementing changes to its connection processes. The fully revised connection process came into effect on 1 July 2024.

Western Power has also announced it is implementing a Critical Project Framework that it considers will ensure customers who are not ready to proceed do not hold up the connection of other customers.

As required by the final decision, Western Power has reported queuing data for each quarter since 30 June 2023. As can be seen in Figure 11, there has been a significant increase in the number of applications received and average capacity requested since 2022.[10]

[10] 2024 is based on enquiries for nine months to 31 March 2024.

Figure 11: Queuing enquiries over time



Source: Western Power quarterly Major Customer Connections Insight reports, ERA analysis

A summary of the projects in the queue as at 31 March 2024 by connection type and stage in the queueing process is shown in Figure 12 below. The table includes the megawatts (MW) of capacity sought.[11] As can be seen, the largest component of the queue is enquiries for generator projects followed by enquiries for battery storage projects.

[11] Capacity is expressed as Declared Sent Out Capacity (DSOC) for generation and Contract Maximum Demand (CMD) for load.

Figure 12: Projects in the queue as at 31 March 2024 by connection type and stage in queuing process

	# of projects	Total DSOC MW	Total CMD MW	# of projects	Total DSOC MW	Total CMD MW
	Generator projects			**Bidirectional projects**		
Enquiries	68	45,843	5,352	5	1,850	500
Initiation - lodgement of application	15	2,491	161	4	102	139
Scoping - identification of options	6	1,328	205	1	10	10
Planning - finalisation of option and issue of offer	8	786	0	2	145	44
Construction and commissioning	4	2	12	0	0	0
Close out	0	0	0	0	0	0
Total applications	33	4,607	378	7	257	193
Total enquiries and applications	101	50,450	5,730	12	2,107	693
	Load projects			**Battery storage projects**		
Enquiries	13	0	486	18	3,328	3,326
Initiation - lodgement of application	10	84	1,597	7	990	990
Scoping - identification of options	11	0	508	1	100	100
Planning - finalisation of option and issue of offer	2	0	39	4	1,472	1,142
Construction and commissioning	4	0	82	2	300	300
Close out	0	0	0	1	2	0
Total applications	27	84	2,226	15	2,864	2,532
Total enquiries and applications	40	84	2,712	33	6,192	5,858

Source: Western Power quarterly Major Customer Connections Insight reports, ERA analysis

To illustrate how the queue has changed over time since the quarterly monitoring commenced, Figure 13 below shows the total number of projects in the queue at the end of each quarter since 30 June 2023.

Figure 13: Total projects in the queue by project stage (June 2023 – March 2024)

	30-Jun-23			30-Sep-23		
	# of projects	Total DSOC MW	Total CMD MW	# of projects	Total DSOC	Total CMD
Project stage						
Enquiries	108	26,514	4,281	90	31,960	5,021
Initiation - lodgement of application	33	3,988	2,071	45	4,617	2,263
Scoping - identification of options	26	1,246	318	19	1,562	1,067
Planning - finalisation of option and issue of offer	12	967	259	8	592	72
Construction and commissioning	5	102	148	10	377	383
Close out	1	392	0	1	2	0
Total applications	77	6,695	2,796	83	7,150	3,785
Grand total	185	33,209	7,077	173	39,110	8,806

	31-Dec-23			31-Mar-24		
	# of projects	Total DSOC MW	Total CMD MW	# of projects	Total DSOC MW	Total CMD MW
Project stage						
Enquiries	120	53,537	9,313	104	51,021	9,664
Initiation - lodgement of application	37	3,890	3,492	36	3,667	2,887
Scoping - identification of options	21	1,957	1,022	19	1,438	823
Planning - finalisation of option and issue of offer	14	1,486	772	16	2,403	1,225
Construction and commissioning	10	376	383	10	302	394
Close out	1	2	0	1	2	0
Total applications	83	7,711	5,669	82	7,812	5,329
Grand total	203	61,248	14,982	186	58,833	14,993

Source: Western Power quarterly Major Customer Connections Insight reports, ERA analysis

The largest movements have been in the enquiries stage with the numbers fluctuating each quarter. The total number of enquiries at the end of March 2024 (104) are slightly below the number at the end of June 2023 (108) but the level of capacity being sought for both generation and load has nearly doubled (from 26,514 MW to 51,021 MW and from 4,281 MW to 9,664 MW respectively).

The total number of applications and generation capacity sought have been relatively flat over the period. The capacity sought for load (14,993 MW) has nearly doubled since June 2023 (7,077 MW).

Figure 14 below sets out the average queuing time (number of months) for each project stage for each quarter since 30 June 2023.

Figure 14: Average queuing time (number of months)

	Jul-23	Oct-23	Dec-23	Mar-24
Generator projects				
Enquiry	9.1	10.1	10.5	14.2
Initiation - lodgement of application	6.2	10.8	8.5	11.2
Scoping - identification of options	10.8	14.0	9.2	14.3
Planning - finalisation of option and issue of offer	20.8	19.8	17.2	20.8
Construction and commissioning	13.3	8.7	9.0	13.0
Load projects				
Enquiry	12.0	9.2	11.6	14.7
Initiation - lodgement of application	16.9	27.2	13.4	12.2
Scoping - identification of options	17.8	6.4	4.2	10.6
Planning - finalisation of option and issue of offer	20.2	10.8	4.8	15.8
Construction and commissioning	21.5	16.7	19.3	22.7
Bidirectional projects				
Enquiry	14.3	7.7	8.8	8.9
Initiation - lodgement of application	4.1	9.4	5.7	10.1
Scoping - identification of options	4.5	6.5	3.1	7.3
Planning - finalisation of option and issue of offer	12.0	21.2	2.7	16.7
Construction and commissioning	21.4	14.5	27.3	0.0
Battery storage projects				
Enquiry	n/a	n/a	n/a	10.3
Initiation - lodgement of application	n/a	n/a	n/a	6.6
Scoping - identification of options	n/a	n/a	n/a	2.9
Planning - finalisation of option and issue of offer	n/a	n/a	n/a	6.4
Construction and commissioning	n/a	n/a	n/a	14.7

Source: Western Power quarterly Major Customer Connections Insight reports, ERA analysis

The data in the figure above does not yet show any improvement in queuing times between 30 June 2023 and 31 March 2024. With the fully revised connections process coming into effect on 1 July 2024, the ERA will be closely monitoring future quarterly reports to assess whether the changes have been effective in reducing queuing times, or whether further action is needed.

6.2 Regional reliability

The Independent Review of Christmas 2021 Power Outages highlighted that some customers, particularly in regional areas, are receiving a poor level of service. This was also evident from the network performance data provided to the ERA by Western Power during the access arrangement review.

The ERA's Chair Steve Edwell spoke directly with regional customers experiencing poor service and what this means to them. This engagement showed that the service standard incentive mechanism in the Access Code was difficult for customers to understand and was a blunt tool to address pockets of poor service.

The ERA's final decision required changes to the service standard framework and required Western Power to develop an overall plan to address rural long reliability.

Final decision – regional reliability

The ERA simplified the reliability benchmarks and raising the benchmark for rural long feeders to align with the standard prescribed in the Electricity Industry (Network Quality and Reliability of Supply) Code 2005.

Usually, if Western Power does not meet a service standard benchmark it is subject to a financial penalty at the next access arrangement review.

To provide an incentive for Western Power to develop a plan to properly address rural long reliability, a capital allowance equal to the estimated penalty ($88 million) was included in forecast expenditure for AA5. And, providing Western Power invests the allowance effectively to develop and implement an overall plan to address regional reliability, including implementing solutions that improve reliability in pilot areas, the financial penalty will be waived.

The final decision set out requirements in relation to the allowance:

- It must be used to develop and implement an overall plan to address regional reliability, including implementing solutions that improve reliability in some pilot areas.
- Western Power must consult with customers to identify specific rural long areas for expenditure designation under this measure and then work with the relevant local community to develop the lowest cost option to seek to improve reliability for that community.
- Regular reports on progress must be provided, including an update in the annual service standard performance report.

The allowance will be subject to the investment adjustment mechanism, so if Western Power does not invest the money as intended the allowance will be returned to all customers at the next review.

The final decision also noted that the ERA will increase Western Power's annual reporting requirements to focus on specific areas of the network where performance is below average. This includes most of the rural long feeders and some of the rural short and urban feeders. The first step would be for Western Power to establish and publish the performance of each individual feeder and requiring Western Power to explain the reasons for any under-performance and any measures it is taking, or planning to take, to address the under-performance.

As discussed in section 3, Western Power provided disaggregated SAIDI and SAIFI data by feeder and LGA in the 2022/23 service standard performance report. The ERA will continue to work with Western Power to develop the disaggregated reporting to include explanations for under-performance and any measures Western Power is taking, or planning to take, to address the under-performance.

Western Power has provided information to the ERA about its plan to address rural long reliability but has not yet made the plan public. Based on the information provided by Western Power, the plan spans over four stages:

- **Stage 1 (Revised Restoration)** – Continue the application of reliability improvements from redesigned practices during the fire season in consultation with the Department of Fire and Emergency Services initiated after the Christmas 2021 power outages. These

improvements contributed to the reduction in the rural long SAIDI for 2022/23 noted in section 3.

- **Stage 2 (Initial Pilot Projects)** – current stage – Western Power states it has selected four locations within the rural long network for reliability improvement projects utilising the expenditure allowance of $88 million provided by the ERA in the AA5 final decision. This follows Western Power considering factors such as customer minutes lost due to unplanned interruptions, local environment, demographics and asset design standards.

  Western Power is currently undertaking options analysis and scoping studies to better understand current asset conditions and potential options for the target areas in the short and long-term. It has segregated the options under the following six categories:

  - Minor asset works and relocation.
  - Major asset replacement and relocation work.
  - Network reconfiguration and operability changes.
  - High Voltage Injection Units and Emergency Response Generators.
  - Non network solutions procured either as Non Co-optimised Essential System Services (NCESS) or as Alternative Option Services (AOS).

  Western Power advises that Lancelin has been identified as the first pilot project area and that engagement with the Lancelin community commenced in May. Western Power states it has already initiated work packages to undertake minor asset works but, in parallel, has established a community engagement framework to help co-design solutions that are best suited to the needs of the community.

  Western Power notes that, once more clarity is gained regarding the other target areas and potential solutions, roadmaps specific to those communities will be developed.

- **Stage 3 (Next Stage Pilot Projects)** – Western Power advises the next stage pilots will be informed by learnings from the initial pilot projects, to address reliability in a further four to six rural long areas.
- **Stage 4 (Handover to BAU)** – Western Power advises that the recommendations from the pilot projects will be consolidated for inclusion into business-as-usual activities for improvements to the remaining rural long network.

The AA5 final decision included an allowance of $88 million to develop and implement an overall plan to address regional reliability, including implementing solutions that improve reliability in some pilot areas. The forecast expenditure was spread over four years starting from 1 July 2023. If Western Power does not invest the money as intended, the allowance will be returned to all customers at the next review.

Although Western Power has provided the ERA with some good data and analysis on the work it has done to date, the ERA has concerns about the current level of progress made against the final decision requirements. A significant ramp up in planning and activity will be required to demonstrate the allowance is being used as intended. This includes providing visibility of the plan to stakeholders and consulting with customers to identify specific rural long areas for pilot projects.

6.3 Streetlighting services

To resolve longstanding issues and provide a more accountable and workable framework for streetlight services the ERA's AA5 decision included required amendments to the streetlighting reference service.

The most significant amendment was to require Western Power to consult on and publish a public lighting strategy.

Final decision – streetlighting

The streetlighting reference service was required to be amended as follows:

- Before introducing any new streetlighting equipment that is likely to affect lighting performance (e.g. globes and luminaires) it must be independently tested against relevant standards and the results published. This will inform whether and how a new asset can be deployed in consultation with customers. This requirement applied to the LED screw-in globe option that Western Power's AA5 proposal was based on.
- Western Power must consult on and publish its Public Lighting Strategy and ensure it complies with the strategy. The strategy must be published at least annually or more frequently if a significant change is required.
- Clarification of Western Power's complaint handling responsibilities. Local Government considered Western Power was not taking sufficient responsibility to deal with complaints and was referring people with streetlight complaints to councils when it should have been dealt with by Western Power.

In addition, the following issues and requirements were identified:

- Western Power did not adequately demonstrate that its proposed screw-in globe replacement strategy had the lowest lifecycle cost. The testing against standards noted above may have implications for the deployment of the screw-in globe. Western Power was required to ensure that its final LED replacement strategy is based on the lowest lifecycle cost and incorporate it in the Public Lighting Strategy.
- There were some issues around the treatment of streetlight outages caused by cable faults for service standard reporting purposes. It appeared they were not being included in the current reporting framework and the ERA planned to follow this up through the ERA's annual service standard reports.
- Local Government stakeholders reported that they were experiencing lengthy time periods and high costs for what they considered to be – simple connections and disconnections of unmetered connections (e.g. streetlights, public space facilities). They reported that Western Power had started undertaking a detailed design process each time and preparing customised costs each time a connection/disconnection application was received. Western Power stated it was not preparing detailed designs and was charging standard fees. The AA5 final decision required it to be made clearer to customers that the unmetered disconnection and reconnection service is a standard service with a fixed fee and that the information should be published on the website.

Since the final decision, Western Power has made progress on the required actions:

- It undertook independent lighting tests on screw-in globes, with results published in August 2023.
- In March 2024, Western Power appointed a consultant to undertake consultation with LGAs on the public lighting strategy, with a two-week online survey and further engagement with councils that asked to be involved.

- On 26 June 2024 Western Power published the report from its consultant setting out the findings of the consultation with local government.[12]
- Western Power has advised it will publish the first version of the Public Lighting Strategy in the first quarter of 2024/25.
- Western Power will be required to report on cable faults in the 2023/24 service standard performance report.

As part of the online survey on streetlighting services, Western Power sought views on a proactive transition to LED luminaires. Western Power's consultant reported there was strong support for this from LGAs but they also expressed the need for more information regarding the costs, timelines, sequencing and the need for further consultation with LGAs during the rollout.

As set out in the consultant's report, the second phase of consultation conducted in May and June provided stakeholders with more of the information they were seeking and sought their feedback on the proposed approach and possible mechanisms to improve transition timelines for local governments. The consultant's report notes the key features and assumptions consulted on included:

- 10-year transition to full LED luminaires (noting this option provided the lowest lifecycle cost).
- Assumes standard LED luminaire replacement.
- Prioritisation done on suburb-by-suburb basis based on oldest average age of the streetlights in each suburb.
- Assessment of requirement would need to be made for locations where there are projects programmed for underground power or other network projects where the streetlights are proposed to be replaced.
- No lighting redesign or pole replacement or relocation.
- Western Power is attempting to ensure there is no cost of the transition to the local governments.

The consultant reported there was consensus from LGAs that the proposed approach was sensible. There were a variety of views on the detail of the transition to LED lighting and LGAs want to continue to engage with Western Power on these matters.

The consultation undertaken with LGAs appears to have been comprehensive, although it would have been better if it had commenced earlier so that the first version of the Public Lighting Strategy could have been completed by 30 June 2024.

The ERA expects Western Power to continue to engage effectively with LGAs to develop the first version of the Public Lighting Strategy in a timely manner. The ERA is hosting a meeting with senior representatives from Western Power and local government in early August 2024.

[12] The consultation report can be found here.