Review of System Operator performance 2024/25

For the year 1 July 2024 to 30 June 2025

12 February 2025

Executive summary

The Authority has completed a review of the System Operator's performance from 1 July 2024 to 30 June 2025, and this report presents our findings and recommendations.

The Authority is satisfied with the System Operator's performance from 1 July 2024 to 30 June 2025. The System Operator operated and responded well to power system events throughout the year, the most notable being the Hawke's Bay under-frequency event on 21 December 2024.

The Authority acknowledges that the System Operator:

- Met its contract deliverables
- Developed a risk register with input from the Authority
- Continued to communicate regularly with stakeholders on its operations.
- Communicated effectively with the Authority and other stakeholders on the Authority's 'Future Security and Resilience' work programme.
- Provided high quality technical advice to the Authority on its delivery of joint work.
- Jointly delivered the 2025 industry exercise with the Authority
- Addressed the recommendations we made in our 2023/24 performance report
- Engaged with stakeholders at a high level - improving and publishing market information more frequently and responding to feedback.

We have ten recommendations for the System Operator for the 2025/26 financial year. We recommend the System Operator:

1. Focus on the evolution of the system operation function through its strategy development. This should include (but not be limited to): information technology strategic roadmap, future planning for systems, control room of the future, workforce development and retention.
2. Provide more detailed information on situations where impartiality issues arise, either in the monthly reporting or otherwise, including the detail of the specific situation, the internal processes applied, and actions taken.
3. Make use of the Service Enhancement Capex project funding option available under the SOSPA to ensure that major tool enhancements can be accommodated in a timely manner with appropriate funding
4. Discuss with the Authority performance metrics proposed by the Authority related to IT systems, with the aim to agree these metrics with the Authority and implement them in the 2026/27 financial year. This will ensure the Authority and market participants have assurance that systems are performing as required.
5. Work with the Authority to clarify roles and responsibilities for planning and running future industry exercises.
6. Continue to encourage the Grid Owner to plan and promote operational discipline to optimise maintenance and reduce development-driven outages on the grid
7. Prepare and publish discussion papers on a wider range of topics.

8. Proactively make suggestions to improve content or reporting where appropriate; in particular, the Authority suggests the following are addressed for improved content:
    - the performance of Ancillary Services to include more than just cost performance
    - system frequency and voltage reporting to include more than the minimum requirements in the Code.
9. Ensure its strategy informs future performance metrics by considering the needs of the System Operator, the Authority, and industry.
10. Provide reporting on actionable insights or lessons learned from international engagements to help the Authority understand what could be implemented in New Zealand.

The System Operator addressed our recommendations from the 2024/25 year. In particular we saw progress in the following:

1. The System Operator and Authority are collaborating to update the Joint Work Planning Team (JWPT) terms of reference to help support line of sight between planning and delivery to the Strategy. This work has continued into the 2025/26 financial year with the aim to complete in February 2026.
2. The System Operator completed an environmental scan with a broad cross-section of the industry to inform its draft strategy.
3. There has been improvement in the System Operator's communication at various levels with the Authority e.g. increased Market Operations Committee attendance, and operational meetings.
4. The refreshed Security of Supply Assessment (SOSA) was published by the System Operator, with good engagement with the Authority throughout the process.
5. The System Operator undertook development and iteration of a widely scoped risk register, for which the Authority was invited to provide input. This was discussed with the Market Operations Committee on two occasions and will continue hereafter regularly.

Contents

1. Annual review requirement

1.1. Transpower, in its appointed role as the System Operator under the Electricity Industry Act 2010 (Act), is the system operator for the electricity system and must provide information and short to medium term forecasting on all aspects of security of supply, as well as managing supply emergencies. Transpower's role as System Operator is separate and distinct from any other role Transpower has under the Electricity Industry Participation Code 2010 (Code).

1.2. In our role as industry regulator, the Electricity Authority Te Mana Hiko (Authority) is responsible for the Code provisions that specify the functions of the System Operator, set how they are to be performed, and define requirements for transparency and performance. As required by the Act, we also hold a contract (the SOSPA) with the System Operator for system operator services. We monitor the System Operator's compliance with the Code, the SOSPA, and the Act, and review the System Operator's performance. We recognise the System Operator's role is broad, complex and critically important to Aotearoa.

2. The System Operator provides a critical service to New Zealand

2.1. Transpower, as the System Operator, is responsible for the secure and efficient operation of New Zealand's electricity system in real time, provision of information and short to medium term forecasting on all aspects of security of supply, and management of supply emergencies.

2.2. New Zealand electricity consumers rely on the System Operator to ensure that electricity will be available when they need it.

2.3. The Authority is responsible for specifying the functions of the System Operator and how those functions are to be performed and reviewing the System Operator's performance.

2.4. The Authority requires Transpower to carry out its obligations as the System Operator with skill, diligence, prudence, foresight, good economic management, and in accordance with recognised international good practice, that considers the:

(a) circumstances in New Zealand

(b) fact that real-time coordination of the power system involves complex judgements and inter-related events.[1]

[1] See Part 7 of the Electricity Industry Participation Code 2010.

3. We review the System Operator's performance

3.1. There are three entities with formal obligations to review the System Operator's performance: Transpower itself, the Authority, and the Security and Reliability Council.[2]

3.2. This report is the Authority's review of the System Operator's performance, for the year 1 July 2024 to 30 June 2025. It has been informed by the System Operator's review for the same period,[3] the Authority's own observations, and the Security and Reliability Council's advice.

3.3. This report assesses the System Operator's performance in the following sections:

(a) long-term planning

(b) medium-to-short-term planning

(c) real-time management

(d) security of supply forecasting and management

(e) System Operator self-review and performance metrics.

4. Long-term planning

Strategic planning underpins the System Operator service

4.1. Over the review period the System Operator and Authority negotiated and executed a revised version of the SOSPA, for the period ending 30 June 2028.

4.2. As a result of the amended contract there was intensive work required from the System Operator and the Authority to deliver the transitional arrangements. The Authority appreciates the collaborative and pragmatic behaviour of the System Operator to achieve delivery of all obligations in the agreed timeframe.

4.3. As part of the revised SOSPA, we are working with System Operator to provide its strategy once per funding period. In June, the System Operator provided the Authority with its proposed approach to its strategy to the Market Operations Committee.

4.4. We are pleased to see the System Operator has taken on our recommendation to widen the process and invite participants to help inform its strategy.

4.5. The statutory objective work plan contained four objectives which were all completed on time. These included:

(a) The Policy Statement review

(b) Publishing an updated Ancillary Services Procurement Plan

[2] An independent advisory group to the Electricity Authority, see https://www.ea.govt.nz/about-us/our-people/our-advisory-and-technical-groups/src/

[3] System Operator annual self-review and assessment 2024-25

(c) Identifying Customer Advice Notices[4] (CANs) as informational or low residual to improve reporting

(d) Review of low residual notices' thresholds and process.

4.6. The System Operator delivered on its education and engagement plan by expanding industry engagement with 11 consultations, launching new educational resources (Energy Security Outlook 101 and Scheduling, Pricing, and Dispatch 101), enhancing its website usability, and increased participation in forums and webinars driving a 31% growth in audience reach. The Authority is pleased to see this increased engagement and improved transparency and focus on stakeholder understanding.

Support on the 'Future security and resilience' work programme

4.7. The 'Future security and resilience' (FSR) work programme began in 2022 and forms part of the Authority's response to the Government's Electricity Price Review, in particular recommendation G2 to examine the security and resilience of electricity supply.

4.8. The System Operator continues to support the Authority's delivery of our FSR work programme. This is the Authority's largest programme of work with the System Operator.

4.9. The System Operator also contributed technical expertise, reviewed submissions, and scoped system studies to inform options. The System Operator supported the Authority's Common Quality Technical Group[5] who reviewed the scopes and provided feedback into the system studies.

4.10. The System Operator works closely with the Authority's FSR team, providing critical technical expertise across our Part 8 review workstream. The System Operator has undertaken complex system studies to support policy development and proposed Code amendments. The System Operator has also played an active role in responding to stakeholder queries, supporting the Authority at Common Quality Technical Group meetings, and ensuring technical feedback is evaluated, discussed and incorporated into proposals where it adds value. This collaboration has strengthened the quality of analysis underpinning the Authority's work and improved confidence in the robustness of our proposals. This work will be ongoing throughout the 2025/26 financial year.

4.11. The System Operator has contributed significantly to the Electricity Networks Aotearoa's future networks forum (FNF), future System Operator workstream in the past year, especially via its submission to the June consultation paper, The future operation of New Zealand power system and its participation in the regular FNF engagements with the Authority on Distribution System Operation DSO models and its evaluation.

[5] The Common Quality Technical Group provides the Authority with independent advice on common quality requirements in Part 8 of the Electricity Industry Participation Code 2010.

International engagement

4.12. The System Operator recognises its operating environment is changing at scale and pace and seeks to learn how others are managing the challenges facing the electricity industry. The System Operator engaged in the following ways:

(a) Global Collaboration and Knowledge Sharing: Active participation in international forums and conferences such as APEX (Chile), GE Vernova (Boston), and Australian Energy Week, plus bilateral engagements with AEMO (Australia), NESO (United Kingdom), and other system operators. These interactions focused on renewable integration, control room innovation, probabilistic modelling, and operational challenges of energy transition.

(b) Strategic Initiatives and Delegations: Hosted delegations from India and Saudi Arabia, joined an Australia–New Zealand delegation to the United Kingdom to explore offshore wind development, and initiated an international exchange programme for study tours. Key learnings included financing models, supply chain strategies, and best practices for managing rapid uptake of renewables and distributed energy resources.

4.13. The Authority supports the System Operator's efforts to increase its knowledge sharing and to build its international relationships. We encourage the System Operator to gain valuable insights from international projects and operations. The Authority welcomes increased discussions on how these engagements have provided actionable insight for the System Operator.

5. Medium to short-term planning

Delivery of joint work

5.1. The System Operator worked collaboratively with the Authority to prioritise project decisions across a programme of projects. We have a Joint Work Planning Team (JWPT) that oversees a Joint Development Plan, which sets out what the System Operator works on.

5.2. During the review period, the System Operator successfully provided technical advisory services (TAS)[6] to the Authority on the following projects:

(a) TAS112 Future Security and Resilience - Part 8 Common quality requirements

(b) TAS108 Extended Reserve implementation

(c) TAS113 Battery Energy Storage Systems

(d) TAS114 Dispatchable Demand Enhancements

(e) TAS117 Scarcity Pricing

(f) TAS116 TAS119 Intermittent Generation Forecasting

(g) TAS 118 Emergency Reserve Scheme initial scoping.

[6] The Authority can request technical advisory services from the System Operator under the SOSPA. These services are at the senior expertise level and can comprise power systems engineering, modelling and analysis, and project management and report writing.

5.3. The System Operator provided (and continues to provide) high quality technical advice to the Authority on its work programme. We recognise there are opportunities for the System Operator and Authority to improve governance and collaboration with project. To enable improvements, we have refreshed our joint TAS guideline and are working towards updating the JWPT terms of reference and associated templates.

Future Security and Resilience

5.4. Refer to section 4.7 - Future Security and Resilience.

Extended Reserve implementation

5.5. Throughout 2024/25, the System Operator continued to work with North Island connected asset owners to transition to a four block extended reserves system by 30 June 2025.

5.6. The Authority acknowledges the significant work by the System Operator and connected asset owners to transition more than 1,500 feeders to the new scheme. By 30 June 2025, most feeders had transitioned to the new scheme with two distributors still to complete the transition.

5.7. The Authority considers this to be a successful transition, in large part due to the significant work by the System Operator to review and accept transition plans, provide monthly security assessments, engage in regular stakeholder forums and provide monthly reporting to the Authority.

5.8. The System Operator must provide the Authority with an annual Automatic Under Frequency Load Shedding (AUFLS) security assessment report each calendar year. For 2023 the report was delivered on time, as agreed, on 31 October 2024. The report included analysis of both worst case under- and over-provision of AUFLS in the North and South islands. The System Operator's analysis showed the system remained secure during 2023.

5.9. The System Operator also provided its 2024 AUFLS security assessment report on time. The final report confirmed that the power system remained secure through 2024 as the North Island distributors transitioned its AUFLS feeders to the 4-block settings. The Authority appreciated the opportunity to review the provisional report and provide feedback before the final report was provided.

Battery Energy Storage Systems enhancements

5.10. In November 2024 the Authority asked the System Operator to provide advice on potential improvements to the wholesale market arrangements to enable more efficient participation by Battery Energy Storage Systems (BESS). This included advice on the operational and security risks and necessary safeguards associated with the potential enhancements.

5.11. The System Operator delivered the report in April 2025. This information will inform the Authority's consultation with industry on potential Code and market system enhancements for BESS. The Authority considers that the System Operator could have more clearly specified in the report the risks to system security from changing gate closure for BESS. This is important when there is tension between market benefits and operational risks so that the Authority can make an informed cost benefit analysis.

Dispatchable Demand Enhancements

5.12. The System Operator delivered the report on dispatchable demand enhancements in May 2025. This information will inform the scale and direction of future enhancements to demand-side participation options in the wholesale market.

Scarcity Pricing

5.13. In March 2025 the Authority engaged the System Operator to update the scarcity pricing settings in the market system.

5.14. The System Operator implemented the new settings and updated the explanatory animations on its website in the agreed timeframes. The System Operator did a good job delivering this work to tight timeframes, though we consider there is room for improvement with the accuracy of its cost estimation.

Intermittent Generation Forecasting

5.15. The System Operator supported the Authority throughout the procurement of DNV Services, the Authority's new provider of centralised wind and solar forecasts.

5.16. The System Operator's involvement included:

(a) Representation on the evaluation panel, reviewing responses to the Request for Proposals and contributing to the panel's recommendation on which providers to shortlist.

(b) After the trial with shortlisted providers, providing advice that informed the Authority's decision to select DNV Services as its preferred provider.

(c) Contributing technical expertise by reviewing the technical specifications of our contract with DNV Services and responding to queries from the Authority and DNV Services as needed.

5.17. There were differing views at times between the System Operator and the Authority on how much of the System Operator's involvement should fall under a TAS arrangement. Despite these differences, the System Operator delivered valuable input and consistently provided prompt responses to the Authority and DNV.

Emergency Reserve Scheme initial scoping

5.18. In June 2025, the Authority engaged the System Operator to validate the Authority's proposed concept for an Emergency Reserve Scheme (ERS). This included advice on whether the proposed concept could be aligned with existing system processes (particularly grid emergency practices) and to identify any key roadblocks or barriers to implementation.

5.19. This work will be ongoing throughout 2025/26 as the Authority determines whether to implement a minimum viable solution in 2026.

Service maintenance

Maintaining tools

5.20. The System Operator maintains a work programme aimed at managing its standard of service. This includes a variety of projects, such as deploying new versions of

third-party software and updating in-house software. The System Operator has autonomy to determine its service maintenance projects.

5.21. The Authority would like more visibility of the System Operator's Strategic IT Roadmap, including key life cycle events for major systems (and any dependent systems) to facilitate planning and funding requests if required.

5.22. During the review period, the System Operator carried out four business assurance audits:

(a) Generation commissioning process requirements

(b) Manage a national SCADA EMA failure

(c) Electricity Risk Curves (ERC) modelling

(d) Managing security constraints

5.23. The Authority's view is that the audits were conducted well.

5.24. During the review period, the System Operator agreed four new business assurance audits for financial year 2025/26 with the Authority and provided a list of potential topics for the next two years.

5.25. We appreciated the System Operator's well-developed plan for audits and the System Operator's increased level of engagement with us during the process. We look forward to receiving and discussing the outputs from the agreed audits for 2025/26.

5.26. The System Operator:

(a) maintained a formal mechanism to report all tool and cybersecurity issues through correct channels, ensuring transparency and timely updates to the Authority.

(b) provided regular reviews by conducting critical control risk reviews and shared results with the Authority, improving visibility of tool reliability and operational resilience.

(c) initiated optimisation projects for ancillary services and generator commissioning tools to reduce inefficiencies and enhance scalability.

(d) increased automation in residual sensitivity processes and enhanced dashboards for forecasting and operational risk monitoring to maintain tool accuracy and performance.

Maintaining risk assessments

5.27. The System Operator has provided a quarterly deep dive paper to the Market Operations Committee for presentation and discussion on current risks and mitigations. This is in line with the Authority's request for more visibility. Topics have so far included a wider scoped risk register and cybersecurity.

5.28. As requested by the Authority, the System Operator developed a System Operator risk framework (as opposed to Transpower-wide, corporate, or Grid Owner framework) during the period.

5.29. We are pleased that the System Operator has completed deep dive papers on several risks over the year and presented at each of the Market Operations

Committee meetings. These presentations have been informative and allowed for pragmatic discussions about risks, its impacts and mitigations.

Maintaining procedures

5.30. The *System Operator policy statement* sets out the requirements for the System Operator on topics such as power system security and conflicts of interest. The System Operator proposed some relatively uncontroversial changes to the policy statement in late 2024 as part of its two-yearly review requirements. The Authority approved the changes as we consider they help ensure smooth management of system events and help ensure electricity supply is maintained to those consumers most in need during a grid emergency. The amended policy statement came into effect on 14 March 2025.

5.31. The *Ancillary services procurement plan* sets out how the System Operator will procure ancillary services from the market. In April 2025, the System Operator consulted on proposed changes to the procurement plan. Submitters raised concerns that some of the proposals could result in higher compliance costs and could be a barrier to entering ancillary service contracts. Consequently, the System Operator decided to defer some of the more controversial changes to allow time for further engagement on the issues. The Authority approved the final amendment as the changes were mostly minor, non-controversial and unlikely to increase costs for participants. The amended procurement plan came into effect on 7 August 2025. The Authority appreciates the way the System Operator engaged with us on this work to ensure a shared understanding of the issues and a quick turnaround.

5.32. The System Operator is required to test the effectiveness of its business continuity plan each year. In this period System Operator conducted a scenario-based exercise simulating a cyber-attack on both datacentres to validate the Business Continuity Plan, the exercise identified improvement areas in role clarity, communication protocols, and Business Continuity Plan kit usability to strengthen operational resilience. The Authority was not a participant in this exercise but would be interested in attending future lessons learned sessions.

Assisting prospective market participants

5.33. During the review period, the System Operator saw a high level of commissioning activity (300MW capacity added) and further growth expected (900MW expected next year). The System Operator continues to engage with new generators. The System Operator provides high quality guidance on a range of activities, from planning through to how to comply with electricity industry regulations to participate in the electricity system.

5.34. We appreciate the System Operator's time and effort providing regulatory and technical expertise to prospective market participants (and current participants). The Authority welcomes engagement with the System Operator on how it can support delivery of this increasing volume of activity and reiterates its expectation for the System Operator to act efficiently in respect of new connections.

Stakeholder engagement

5.35. A large component of the System Operator's role involves engaging with a range of stakeholders, from market participants to regulatory bodies. The System Operator achieves this through a variety of media, such as forums, industry exercises,

committee and board meetings, one-on-one meetings, information on its website and social media posts.

5.36. The System Operator met the education and engagement requirements agreed with the Authority for the review period. Overall, we consider the System Operator provided several high-quality engagements that were well received by stakeholders. We encourage the System Operator to improve its collaboration with us, particularly in advance of CE forums, industry meetings, and workshops, by sharing its material and providing the Authority with reasonable notice to provide feedback and ensure a single and clear approach for the industry.

Involvement in industry exercises

Pan-industry exercise

5.37. During the review period, the System Operator and Authority jointly planned and delivered the 2025 Industry Exercise.

5.38. The 2025 Industry Exercise consisted of two preparation webinars (March) and a practical simulation exercise (April) that tested industry preparedness for an extended electricity supply shortfall that resulted in rolling outages.

5.39. The exercise was well attended by distributors, retailers, generators and direct connects from 56 organisations. Seven organisations attended in an observer role, including the National Emergency Management Agency and Utilities Disputes.

5.40. Overall, the System Operator worked well with the Authority to deliver a successful, professional, and collaborative event with active participation and high levels of engagement from participants throughout all stages of the simulation.

5.41. The exercise was an important opportunity to improve incident response, as well enhance the annual exercise itself. There were a number of lessons learned for the System Operator and the Authority. For the System Operator, there were nine recommendations and five joint recommendations (Authority and System Operator) to implement.

5.42. The Authority looks forward to working with the System Operator on the 2026 Industry Exercise. We are keen to ensure objectives for both organisations are met, there are clear roles and responsibilities from the outset, and the exercise continues to be a useful test for industry participants to rehearse and reinforce its roles when the electricity system comes under pressure.

South Island black start simulation

5.43. The System Operator hosted an industry simulation exercise for a South Island black start. The Authority did not attend this exercise; however, we are pleased the System Operator ran a regional exercise and rehearsed an event which tested participant preparedness.

Industry forums

5.44. The System Operator's fortnightly forums continued to be a key source of engagement for participants and provided an opportunity for attendees to request topics to be covered.

5.45. The Authority is pleased with the System Operator's engagement with participants and welcomes the opportunity to further engage with the System Operator on areas related to the Authority's policy work.

5.46. The Authority appreciated the opportunity to collaborate with the System Operator on the 6 May 2025 difference bid refresher winter 2025 webinar. This allowed us to provide a comprehensive package of information to distributors to prepare for potential low residual situations ahead of winter.

5.47. We have noticed an improvement in System Operator engagement with the Authority on 'no surprises' content. We continue to encourage the System Operator to engage with us early on any issues, and in advance of publications or media releases which may raise any concerns with the public or Minister for Energy.

Engagement with Authority Board and Committees

5.48. During the review period, the System Operator met with our Market Operations Committee four times and our Compliance Committee once.[7] The System Operator generated and contributed to robust conversations.

5.49. We encourage the System Operator to provide papers in line with the Committee's deadlines to ensure adequate time for the Authority to review and frame for discussion.

6. Real-time management

Power system events

6.1. The System Operator managed three notable power system events in the period:

(a) Hawke's Bay under-frequency event (21 December)

(b) Severe G4 geomagnetic storm (2 January)

(c) Low Southland generation risk (February)

Hawke's Bay under-frequency event

6.2. On 21 December 2024, two faults, most likely caused by lightning strikes, occurred on the network between Wairakei and Redclyffe causing both a loss of supply to the Hawke's Bay region and disconnecting generation in the region. The resulting reduction in generation led to a North Island under frequency event with the frequency dropping to 49.2 Hz.

6.3. The System Operator performed well during the event, restoring supply promptly despite issues with closing circuit breakers. An investigation report (April 2025) was thorough, providing a root cause analysis of what was a complex event with several important key findings and recommendations for the Grid Owner. A further causation report (May 2025) assisted the Authority in determining the party that caused the under-frequency event.

[7] The objective of the Committee is to promote high levels of compliance with the Electricity Industry Act 2010 (Act), the regulations made under the Act (regulations), and the Electricity Industry Participation Code 2010 (Code) by industry participants and specified persons.

G4 geomagnetic storm

6.4. The System Operator performed well during the geomagnetic storm and maintained operational security. The System Operator was well prepared. It put contingency plans in place and kept stakeholders up to date with industry briefings and a series of notifications.

6.5. Overall, we consider the System Operator is required and incentivised to plan appropriately for these events and minimise its impact on both the electricity system and consumers. It was pleasing no consumer supply was required to be disconnected as a result of the event or how it was managed.

Northland tower collapse

6.6. The collapse of a transmission tower near Glorit on 20 June 2024 left 88,000 customers in Northland without electricity and cost the region tens of millions of dollars. The responsibility that the towers function as designed and their maintenance is the role of Transpower as Grid Owner. Responsibility for the management of load and the power system during the event, and management of the power system after the tower had collapsed is the role of the System Operator.

6.7. The System Operator conducted an investigation into its operational performance as per its System Operator procedures for reporting significant incidents (see Northland Loss of Supply). The System Operator identified seven recommendations it intends to consider.

6.8. The Minister for Energy requested the Authority carry out a review under section 18 of the Act into the Northland power outages. Transpower accepts the recommendations in the report, and has completed all recommendations for it. While the Northland tower collapsed in the 2023/24 financial year, actions arising out of the recommendations have occurred in the 2024/25 financial year.

6.9. Staff have been working collaboratively with Transpower over the past year, meeting monthly and reviewing documentation to verify the recommendations as complete. All 19 recommendations for Transpower have been confirmed by the Authority as complete, including three which were primarily directed at the System Operator:

(a) Electricity Authority (EA) R2 – the System Operator should lead the establishment of plans to stand up a regional (or wider if appropriate) operating forum to improve operational coordination and communication amongst relevant operations managers, including the System Operator, Grid Owner, distribution and generation operators (including distributed generation operators) and any affected direct grid connected industrial consumers.

(b) EA R3 – Transpower should review and improve contingency plans where possible to:

(i) specifically provide for relaxing normal ‘healthy grid’ security levels during system emergency conditions, to maximise supply allocations to consumers

(i) pre-determine and resolve, to the extent possible, any applicable safety concerns and protection settings where required; and

(i) clarify delegated authorities to make decisions about relaxing normal security levels in grid emergency conditions.

(c) EA R4 – Transpower, Ngāwhā Generation Limited (NGL) and Top Energy should discuss, study and resolve the Ngāwhā phase shift concern that resulted in NGL shutting down its generating units before reconnection of Northland to the first restored 220 kV circuit, requiring a short interruption to some consumers.

6.10. In response to EA R2, the System Operator reviewed and updated its internal operating procedures to stand up event coordination forums during significant events, such as long duration grid emergencies – this initiative was communicated to industry through widely attended industry forums. The purpose of the forums is to undertake external stakeholder communications, including providing frequent updates, enabling critical frontline control room coordinators and controllers to focus on its primary operational roles during grid emergencies.

6.11. In response to EA R3, the System Operator has (in conjunction with the Grid Owner where appropriate):

(a) reviewed and updated its contingency planning documentation to address the circumstances in which normal grid operating security levels may be relaxed to maximise supply available to consumers during prolonged grid emergency events.

(b) reviewed and assessed 13 regional contingency plans to determine where relaxed security standards could be provided for.

(c) clarified delegated authorities to make decisions about relaxing normal security levels in grid emergency conditions and specifically provide for relaxing normal "healthy grid" security levels during system emergency conditions – maximising supply allocations to consumers.

6.12. In response to EA R4, the System Operator has, in conjunction with NGL and Top Energy, undertaken system studies and updated its operating documentation to identify the operating situations where the NGL geothermal stations may remain synchronised during grid circuit breaker switching operations that involve a minimum tolerable pre-closure phase shift between Transpower's 220 kV and 110 kV networks.

Under-frequency events

6.13. The System Operator provided five under-frequency event causer reports in the reporting period. Two events involved the Grid Owner and three involved Genesis Energy Limited's units at Huntly.

6.14. The Authority's final determinations of these events agreed with the System Operator's findings in its causation reports.

7. Security of supply forecasting and management

Security of supply assessment

7.1. The System Operator is required to produce a forecast of electricity supply and demand, to assess the ability of the electricity system to meet New Zealand's needs

over the next decade against energy and capacity standards specified in the Code. The analysis looks at existing generation, as well as planned generation, at different stages of the development process. This is to determine whether there is enough electricity generation in the electricity system to meet total demand across the country under a range of supply and demand scenarios.

7.2. During the review period, the System Operator engaged with the Authority on a draft security of supply assessment (SOSA) and considered our feedback. The System Operator prepared the SOSA in accordance with the assumptions specified in the Security Standards Assumptions Document (SSAD) as required by clause 7.3(2B) of the Code.

7.3. However, the System Operator has the flexibility under clause 7.3(2C) to deviate from the assumptions in the SSAD. The System Operator does this by engaging with stakeholders and using sensitivities that vary the assumptions against the reference case.

7.4. The System Operator consulted on the draft SOSA and the final SOSA was published on 26 June 2025.

System Operator rolling outage plan

7.5. The *System Operator rolling outage plan* (SOROP) sets out how the System Operator will manage and coordinate planned outages as an emergency measure during energy shortages. The System Operator proposed changes to the SOROP in May 2024. The Authority approved the changes which came into effect on 1 September 2024.

7.6. We consider the System Operator has been prudent in conducting a thorough review of the SOROP. A clear and well understood plan is essential for ensuring that any rolling outages are conducted for as short a duration as possible and minimise the impact on individual consumers. Industry preparedness to implement rolling outages was tested through the April 2025 industry exercise.

Security of Supply Forecasting and Information Policy

7.7. The *Security of Supply Forecasting and Information Policy* (SOSFIP) specifies how the System Operator prepares and publishes information to assist participants to manage security of supply risks.

7.8. In August 2024, in response to rapidly declining hydro storage levels, the System Operator applied its discretion in the SOSFIP to amend the contingent storage release boundary buffer for the first time. This decision brought forward the ability for generators to access contingent hydro storage. Although contingent storage was ultimately not used, we acknowledge the work by the System Operator to rapidly put together the consultation to apply discretion to amend the buffer.

7.9. In March 2025, the System Operator sought feedback on an issues paper to inform the scope of the 2025 SOSFIP review. In April 2025 it published a document presenting its decisions and communicating next steps, including a commitment to review the SOSFIP by the end of 2025. We recognise the work by the System Operator to pull together this comprehensive piece of work at short notice.

Power system operations

7.10. The System Operator's key function is to manage the power system to ensure a safe and stable supply through its principal performance obligations. This involves dispatching generation and demand, maintaining frequency, procuring reserves, and producing various power system analysis and forecasting to assist its real time operations. The System Operator's functions are an integral part of the wholesale electricity market. It ensures the supply-demand balance is maintained in real time and provides scheduling and dispatch data for price discovery, market analytics and part of the clearing and settlement process.

Review of the system security forecast

7.11. The System Operator has completed its most recent review of its system security forecast. The Authority appreciated early engagement on the system security forecast.

7.12. The first report was finalised in December 2024, focusing on transient rotor angle stability; this was the first time the whole of New Zealand was included. The second report was in June 2025 and focused on a minor update to the N-1 Thermal and Voltage Study.

Assessing outage coordination

7.13. The System Operator must act in an impartial manner when assessing outage coordination. We recommend the System Operator provides more visibility of how it demonstrates impartiality and how it makes recommendations when assessing outage coordination.

Electricity risk curves

7.14. The System Operator publishes assessments of the electricity risk curves, which are used to indicate the risk of running out of hydro storage over a rolling 12-month period.

7.15. The Authority has been pleased with the System Operator's monthly industry engagement through the Energy Security Outlook (ESO) report, which has included ongoing improvements to the data to ensure robust information for participants.

7.16. The System Operator has supported industry by updating the Electricity Risk Curves (ERC) 101 training to a broader ESO 101 scope.

8. Impartiality

8.1. Impartiality and the management of conflicts of interest is critical to the effective performance of the System Operator role. To manage this requires clear processes and procedures to be in place that ensure the System Operator role is not affected or influenced by any other role or capacity that Transpower has.

8.2. Obligations reflecting the importance of impartiality and the separation of roles are reflected in the Code and SOSPA including:

(a) clause 3.2A of the Code which requires the System Operator to perform its obligations under this Code in a way that assists the Authority to give effect to

its main objective in section 15 of the Act, and to progressively increase this assistance

(b) clause 7 which provides that Transpower's role as System Operator under the Code and the Act is distinct and separate from any other role or capacity that Transpower may have including as a Grid Owner or transmission provider

(c) clauses 5.1 and 14(1)(b) of the SOSPA which respectively refer to clause 3.2A of the Code and allow for audits of impartiality policies and procedures.

8.3. The System Operator has agreed to provide information on impartiality situations in its monthly reports. While the information provided is more than what was previously provided, it remains very high level and gives limited visibility of how impartiality issues and conflicts of interests are managed, particularly for decisions made at a senior level where staff may have dual roles.

8.4. Accordingly, one of the recommendations for the 25/26 year is for the System Operator to provide more detailed information on situations where impartiality issues arise, either in the monthly reporting or otherwise.

9. System Operator self-review and performance metrics

System Operator required to self-review

9.1. The System Operator is required to self-review its performance each year, see System Operator annual self-review and assessment 2024/25.

9.2. The System Operator continues to increase its collaboration with the Authority and actively engages with us.

9.3. We have ten recommendations for the 2025/26 financial year. We recommend the System Operator:

(a) Focus on the evolution of the system operation function through its strategy development. This should include (but not be limited to): information technology strategic roadmap, future planning for systems, control room of the future, workforce development and retention.

(b) Provide more detailed information on situations where impartiality issues arise, either in the monthly reporting or otherwise, including the detail of the specific situation, the internal processes applied, and actions taken.

(c) Make use of the Service Enhancement Capex project funding option available under the SOSPA to ensure that major tool enhancements can be accommodated in a timely manner with appropriate funding

(d) Discuss with the Authority performance metrics proposed by the Authority related to IT systems, with the aim to agree these metrics with the Authority and implement them in the 2026/27 financial year. This will ensure the Authority and market participants have assurance that systems are performing as required.

(e) Work with the Authority to clarify roles and responsibilities for planning and running future industry exercises.

(f) Continue to encourage the Grid Owner to plan and promote operational discipline to optimise maintenance and reduce development-driven outages on the grid

(g) Prepare and publish discussion papers on a wider range of topics.

(h) Proactively make suggestions to improve content or reporting where appropriate; in particular, the Authority suggests the following are addressed for improved content:

(i) the performance of Ancillary Services to include more than just cost performance

(j) system frequency and voltage reporting to include more than the minimum requirements in the Code.

(k) Ensure its strategy informs future performance metrics by considering the needs of the System Operator, the Authority, and industry.

(l) Provide reporting on actionable insights or lessons learned from international engagements to help the Authority understand what could be implemented in New Zealand.

9.4. The System Operator acted on the recommendations the Authority made in 2024/25. In particular:

(a) The System Operator and Authority are collaborating to update the Joint Work Planning Team (JWPT) terms of reference to help support line of sight between planning and delivery to the Strategy. This work has continued into the 2025/26 financial year with the aim to complete in December 2025.

(b) The System Operator completed an environmental scan with a broad cross-section of the industry to inform its draft strategy.

(c) There has been improvement in the System Operator's communication at various levels with the Authority e.g. increased Market Operations Committee attendance, and operational meetings.

(d) The refreshed Security of Supply Assessment (SOSA) was published by the System Operator, with good engagement with the Authority throughout the process.

(e) The System Operator undertook development and iteration of a widely scoped risk register, for which the Authority was invited to provide input. This was discussed with the Market Operations Committee on two occasions and will continue hereafter regularly.

The System Operator's performance of its metrics was satisfactory

9.5. Each year, the Authority agrees a set of performance metrics with the System Operator. For 2024/25, we agreed 18 metrics with quantitative and qualitative components and seven high-level outcomes (see Figure 1 and Table 2 for a list of metrics and outcomes).

9.6. The qualitative component allows the System Operator and Authority to adjust the quantitative scores based on evidence provided. This year, the overall outcome score was 4.4 (80%), which resulted in the full incentive payment of $200,000.

9.7. The Authority agreed with the overall outcome score, with no adjustments, and provided feedback on what went well and where improvements could be made:

(a) The System Operator developed a risk register with a wider scope to include aspects outside of its control, with Authority input (workshop) and presented to the Market Operations Committee.

(b) The Authority was pleased to see the System Operator provided evidence to support each of the performance metrics for each quarter.

(c) The Authority recognises the large effort by System Operator to deliver the industry exercise in collaboration with the Authority

(d) The Authority would like to see a wider range of discussion papers published

(e) The Authority would like a more proactive improvements made to reporting and to understand barriers to suggested improvements by the Authority that are not able to be included.

9.8. The Authority is pleased that the System Operator is providing data to verify the performance of the metrics (where applicable) for quarterly performance discussions.

9.9. The Authority continues to look for more transparency and sharing of information with the System Operator as one of our key service providers. This is particularly important for demonstrating that the IT system is performing well.

9.10. The Authority acknowledges the System Operator consistently scores well in the survey in terms of participants perceptions. However, for the reasons set out in section 7 above, we consider that ensuring impartiality requires ongoing proactive management and visibility, including by increasing the extent of information provided to the Authority.

System Operator high-level outcomes scores 2024/25

Outcome#		Weighting	Score out of 5
1	New security and reliability risks are identified and appropriately managed	20%	4.22
2	Significant events are appropriately scoped, understood, prepared for and managed	25%	4.64
3	The Authority is supported to evolve and develop the electricity market and power systems	20%	4.27
4	Relevant market information is made accessible to stakeholders	10%	4.38
5	Stakeholders are effectively informed on and included in decisions where relevant	10%	4.21
6	Stakeholders are satisfied with our service	10%	4.57
7	SOSPA delivery provides value	5%	4.55
		Overall outcome score	**4.4**
		Overall Performance %	**80%**

Figure 1 System Operator performance outcomes 2024/25

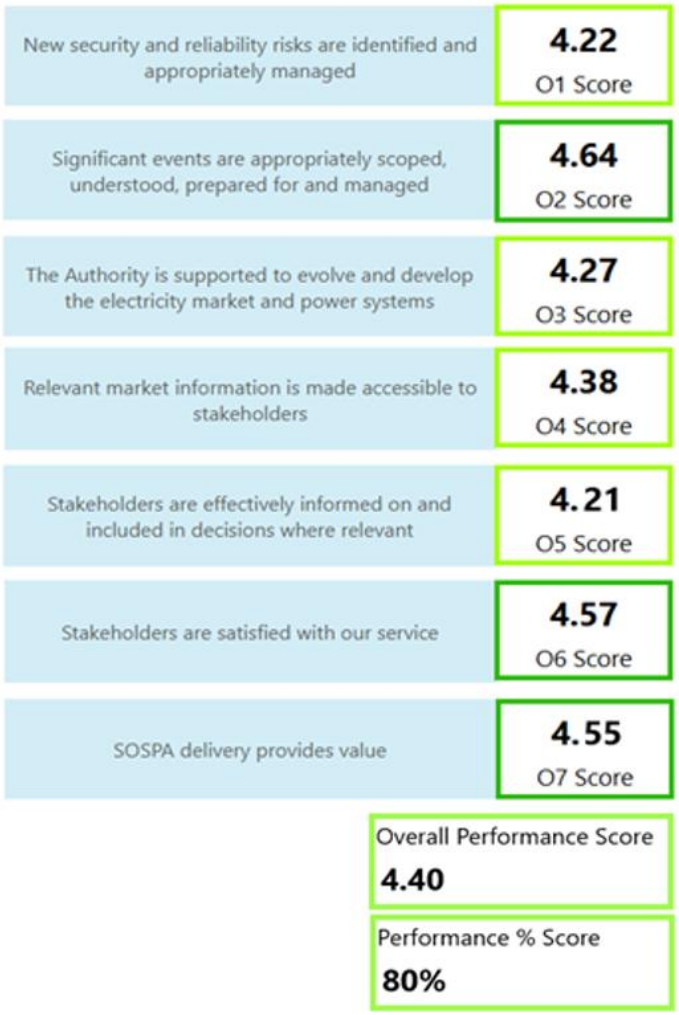
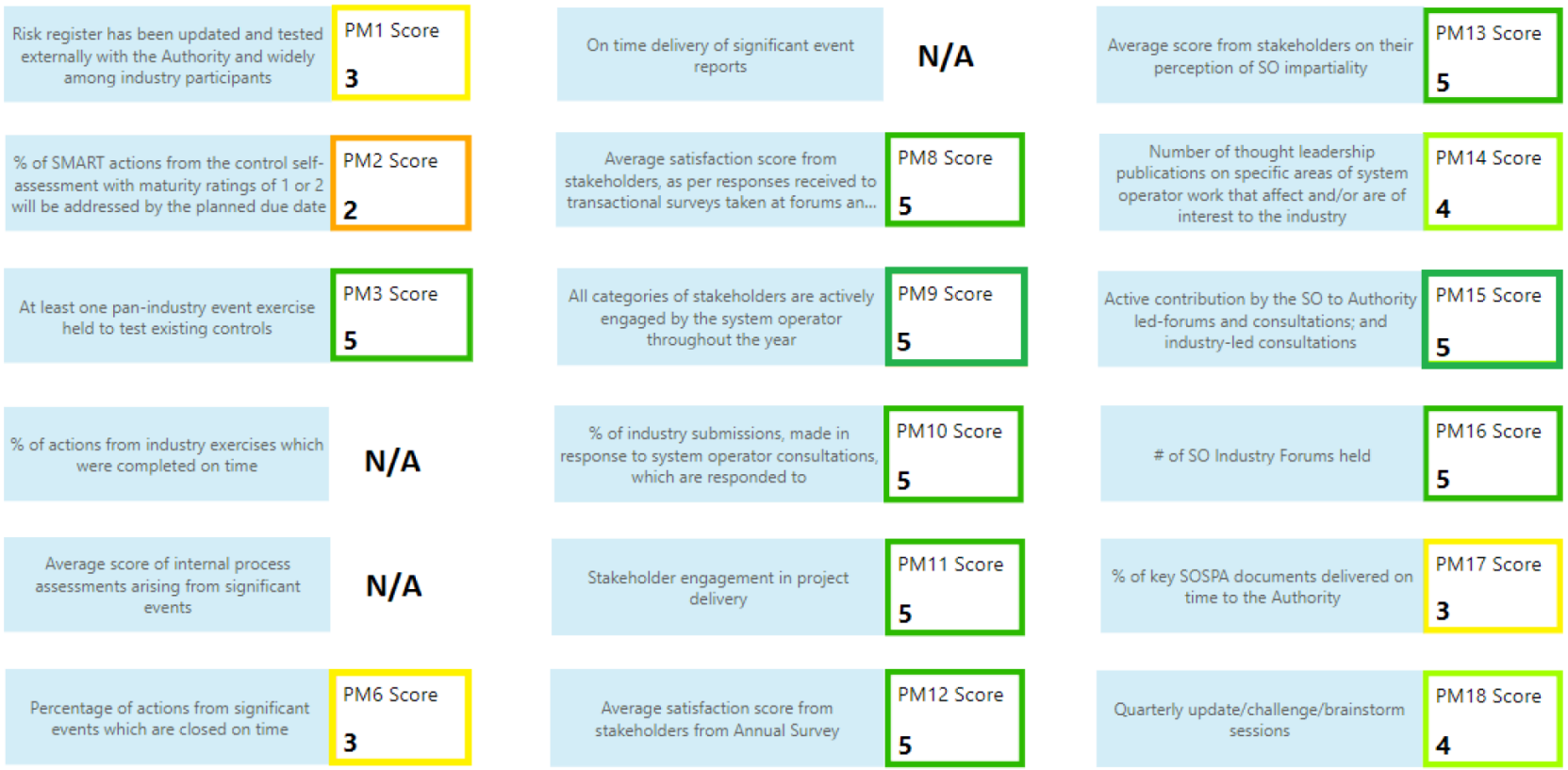


Figure 2 System Operator performance metrics 2024/25



The 18-performance metrics are scored on a scale of 1-5 using a calibrated scale. Three metrics (7, 17, and 18) do not have a score of 5 available, and metric 17 does not have a score of 4 available. The score of each metric provides a weighted input into the score of one or more of the seven outcomes listed in Table 1.

Compliance

9.11. All participants, including the System Operator, are required to report any breaches under Parts 7, 8, 9, or 13 of the Code to the Authority. In addition, participants must report breaches if they believe, on reasonable grounds, that another participant has breached the Code.[8]

9.12. In the reporting period, the System Operator self-reported six breaches, participants reported one breach against the System Operator, and the System Operator reported three breaches against other participants.

9.13. Four of the six System Operator self-reported breaches were related to the long non-response schedule failing to publish. Two were closed with no warning issued, and two were closed under regulation 11(1)(b).

10. Financial results

10.1. Transpower, as a regulated entity, is required to publicly disclose financial information under the Transpower Information Disclosure Determination [2014] NZCC 5.

10.2. The System Operator provided financial information, audited by Ernst & Young, as an addendum to its annual self-review of performance. The following tables and numbers were subject to an annual audit / review of results.

[8] Sections 7 and 8 of the Electricity Industry (Enforcement) Regulations 2010.

Changes in 2024/25

Financial measure	Changed by ($M)	Changed to ($M)	Percent change	Reasons for change
Revenue	$0.95 ↑	$50.30	1.91% ↑	Increase primarily due to the annual CPI uplift and final year SOSPA2 Capex Fixed Fee. Real Time Pricing fully recovered in CY+2 (2026/27) resulting in lower anticipated revenue in CY+3 (2027/28). Capital Fee increases again in CY+4 (2028/29) as a result of higher capital programme over SOSPA4 as indicated through the SOSPA3 reset process.
Operating expenditure	$3.59 ↑	$31.57	12.85% ↑	Uplift primarily due to higher occupancy rates, SaaS project delivery, and higher capital project design and scope (investigation) costs in readiness for the increased SOSPA3 capital programme.
Depreciation	$1.64 ↓	$12.93	-11.25% ↓	Depreciation is driven by the Fixed Asset Register, refer Fixed Assets (RAB) comment.
Fixed Assets (RAB)	$6.94 ↓	$36.97	-15.80% ↓	Less assets were commissioned in FY23/24 and FY24/25 compared to previous years, which included larger projects like Real Time Pricing. The increased capital programme for SOSPA3 will result in an increase to the Fixed Asset Register in future years.
Regulatory profit (after tax)	$1.36 ↓	$3.29	-29.33% ↓	Regulatory profit is a function of an increase in revenue offset by higher operating costs, and depreciation (above).

10.3. The System Operator's 'vanilla' return on investment is 8.45%, a reduction from the prior year return of 10.09%. The vanilla ROI is the interest rate calculated such that the present value of the System Operator's closing fixed assets and cashflows for the year (assuming mid-year timing) are NPV equivalent to its opening fixed assets.

10.4. The System Operator's Opex revenue is adjusted annually by the consumer price index minus an adjustment factor (a 'CPI minus X' approach). This means that within each contract period, the System Operator's regulatory profit will tend to reduce if its operating costs rise faster than the consumer price index minus the adjustment factor.

10.5. If the System Operator implements efficiencies beyond that needed to maintain its regulatory profit, the System Operator retains the benefit of those reductions in operating expenditure during the then-current period. Every reset period, revenue is renegotiated with consideration of actual performance (such as enduring reductions or increases in operating expenditure).

SCHEDULE SO1: SYSTEM OPERATOR

Transpower	Disclosure Date	30 June 2025
	Disclosure Year (year ended)	30 June 2025

ref

SO1(i): Return on Investment

		CY ($000)	CY ($000)
	Operating surplus/(deficit)	18,731.2	
less	Assets purchased or commissioned	5,986.5	
less	Tax payable	2,517.9	
	Notional cash flows for the year		10,226.9
	Opening fixed assets		(43,913.4)
	Closing fixed assets	36,972.9	
plus	Lost assets	-	
less	Found assets	-	
	Adjusted closing fixed assets		36,972.9

	CY-4	CY-3	CY-2	CY-1	CY
Vanilla ROI	23.52%	10.96%	10.30%	10.09%	8.45%
Leverage (%)	42.00%	42.00%	42.00%	42.00%	42.00%
Cost of debt (%)	2.23%	2.79%	5.31%	5.94%	6.23%
Corporate tax rate (%)	28.00%	28.00%	28.00%	28.00%	28.00%
Post-tax ROI	23.26%	10.63%	9.67%	9.39%	7.71%

SO1(ii): Regulatory Profit

	2020/21	2021/22	2022/23	2023/24	2024/25
	CY-4 ($000)	CY-3 ($000)	CY-2 ($000)	CY-1 ($000)	CY ($000)
Total revenue	42,528.9	41,591.0	46,454.1	49,355.6	50,300.7
less Operating expenditure	20,710.5	23,122.4	25,690.1	27,975.5	31,569.5
Operating surplus/(deficit)	21,818.5	18,468.6	20,764.0	21,380.2	18,731.2
less Total depreciation	10,590.8	12,253.9	14,060.8	14,564.8	12,926.9
Regulatory profit/(loss) before tax	11,227.7	6,214.7	6,703.2	6,815.3	5,804.3
less Tax payable	2,812.0	1,182.8	1,671.6	2,165.3	2,517.9
Regulatory profit/(loss) after tax	8,415.7	5,031.8	5,031.6	4,650.1	3,286.4

SO1(iii): Revenue

	CY-4	CY-3	CY-2	CY-1	CY
Revenue	($000)	($000)	($000)	($000)	($000)
System operator service provider agreement revenue - operating	26,641.7	27,162.6	28,884.6	30,691.1	31,305.2
System operator service provider agreement revenue - capital	15,561.1	13,735.2	16,797.1	17,857.0	18,121.5
Technical services advisory revenue	326.1	693.1	772.4	807.5	874.0
Other gains /(losses) (provide details)	-	-	-		
Total revenue	42,528.9	41,591.0	46,454.1	49,355.6	50,300.7

	CY+1	CY+2	CY+3	CY+4	CY+5
Revenue forecast	($000)	($000)	($000)	($000)	($000)
System operator service provider agreement revenue - operating	35,316.2	35,847.1	36,373.0	37,830.0	38,423.7
System operator service provider agreement revenue - capital	19,665.5	19,600.1	16,672.0	20,899.7	20,899.7
Technical services advisory revenue	602.8	614.8	627.1	639.6	652.4
Other gains /(losses) (provide details)					
Total forecast revenue	55,584.5	56,062.0	53,672.1	59,369.3	59,975.8

	CY-4	CY-3	CY-2	CY-1	CY
Actual vs. forecast	($000)	($000)	($000)	($000)	($000)
Historical forecast revenue	41,966.5	41,605.3	45,725.7	49,007.4	49,900.0
Actual revenue	42,528.9	41,591.0	46,454.1	49,355.6	50,300.7
Variance ($)	(562.5)	14.4	(728.4)	(348.2)	(400.7)
Variance (%)	(1%)	0%	(2%)	(1%)	(1%)