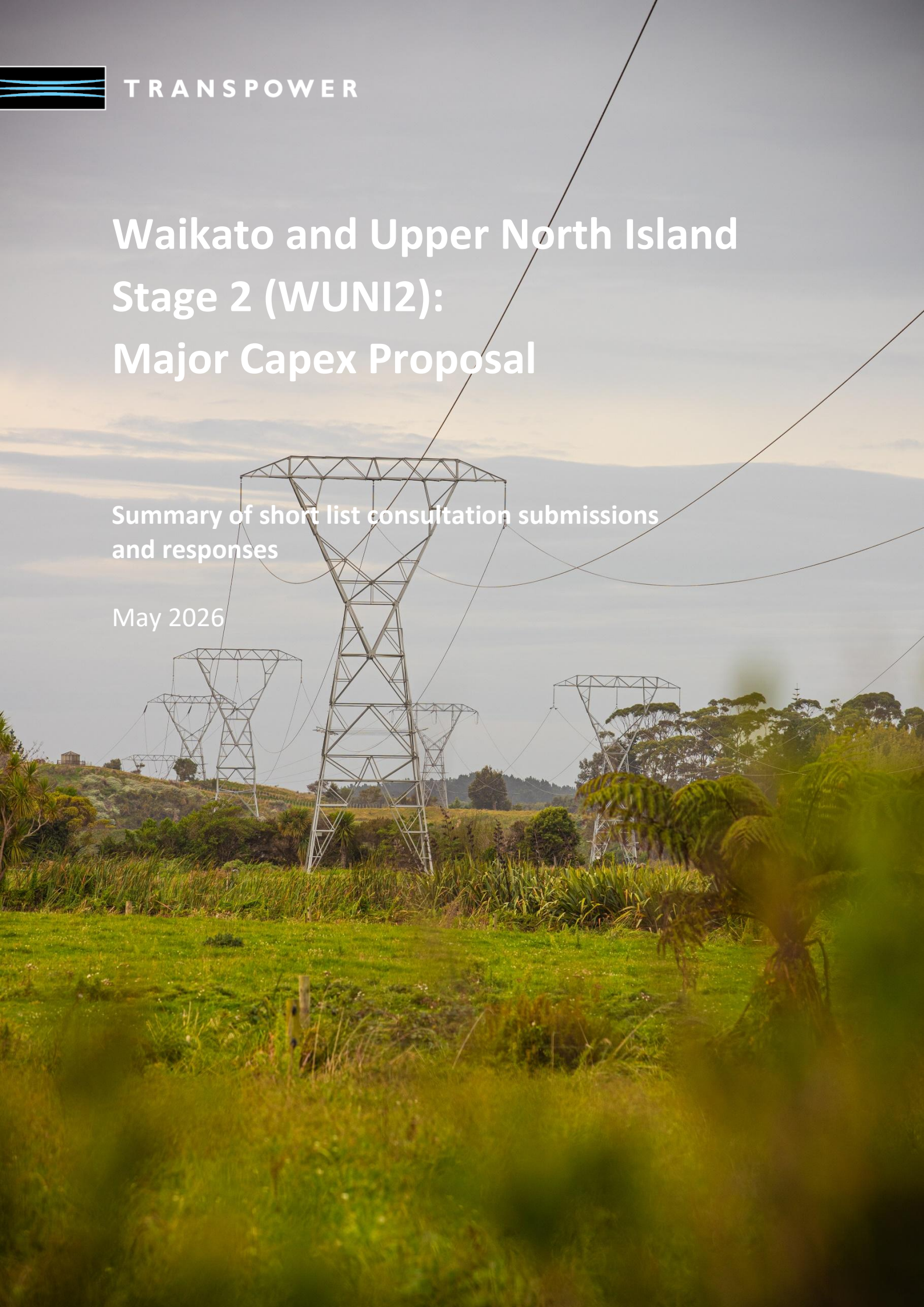
TRANSPOWER

Waikato and Upper North Island Stage 2 (WUNI2): Major Capex Proposal

Summary of short list consultation submissions and responses

May 2026



1 Executive summary

This document provides a summary of submissions received on Transpower's *Waikato and upper North Island Stage 2 (WUNI2) short list consultation* of January 2026 (the consultation paper).[1]

This consultation sought feedback from stakeholders on a short list of potential electricity infrastructure investments designed to ensure a reliable and resilient electricity supply for the Waikato and upper North Island (WUNI) region, home to nearly 40% of Aotearoa's electricity demand.

In this consultation our preferred option was to upgrade the two lowest-capacity lines serving the WUNI region, enhancing voltage stability through series compensation, and adding static synchronous compensators (STATCOMs) and shunt capacitors at various locations within the region.

We received five submissions from stakeholders, including electricity distributors, generators, the system operator and major consumers. Thanks to everyone who reviewed our consultation material and provided feedback.

In this document we have summarised the key points raised by submitters. For more comprehensive information, please refer to our project page for the original submissions. We have also taken the opportunity to provide a response to the submissions, where appropriate.

Key themes and feedback:

1. Submitters acknowledged the need for the WUNI2 investment to maintain N-1 security and support reliable supply in the WUNI region.
2. Option 4b (duplexing before series compensation) was widely supported as it allows for flexible staging if forecast load growth is slower or does not occur.
3. Submitters agreed that the demand forecast is based on reasonable assumptions, with emphasis on the need for ongoing monitoring of demand growth.
4. Submitters acknowledged the scale of project costs but generally did not comment on indicative starting allocations, indicating they will provide feedback on the Transmission Pricing Methodology (TPM) allocations during Transpower's formal consultation of the proposed starting allocations.
5. Submitters raised concerns associated with series compensation, including SSR and SSCI[2] risks, and highlighted the need for early coordination across the sector.
6. Submitters supported the use of non-transmission solutions (NTS) and flexibility to defer transmission investment but noted that greater coordination is needed between Transpower and electricity distribution businesses (EDBs), as well as longer-term contracts and availability payments to incentivise investors to establish new flexibility resources and to lower overall costs to consumers. There is interest to work together with the Commission to determine how the regulatory framework can best enable these changes.
7. We received further information on key generation assumptions, including availability of generation at Huntly and plans for increasing BESS capacity.

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[1] The consultation, the submissions and this document are available at Waikato and upper North Island (WUNI) stage 2 project short list consultation | Transpower

[2] Sub-synchronous resonance (SSR) and sub-synchronous control interaction (SSCI) oscillations

Please feel free to contact us at grid.investments@transpower.co.nz if you have any questions or further feedback.

2 Submissions received

Submissions were received from:

- **Powerco** – the electricity distributor in the western Bay of Plenty region, amongst other regions.
- **Vector** – the electricity distributor for the greater Auckland region.
- Major Electricity Users' Group (**MEUG**) – an association representing the interests of large industrial and commercial electricity users.
- Transpower (as **System Operator**) – providing a submission in its regulated role as System Operator, distinct from its role as Grid Owner.
- Genesis Energy (**Genesis**) – a major electricity generator and retailer.

3 Submissions with Transpower's responses

This section provides a summary of each submission. Transpower welcomes the opportunity to incorporate feedback into our WUNI2 Major Capex Proposal (MCP).

Powerco submission

Powerco strongly supported Transpower's consideration of NTS, and identified three areas where the current NTS approach could be improved:

1. Powerco emphasised the importance of coordinated procurement of flexibility between Transpower and the EDBs to minimise long-term network costs. Powerco suggested that EDBs could procure flexibility to defer their own planned investments, with Transpower procuring only the residual flexibility required to defer transmission grid investment.

2. Powerco also considered that the current framework provides limited incentives for Transpower to coordinate or co-optimise flexibility procurement with EDBs.

3. In addition, Powerco noted that the current approach, which focuses on 12 months deferral, may not be enough to encourage investment in new flexibility resources. Longer contract durations may be required to provide sufficient certainty for flexibility providers and support investment in new flexibility resources. The absence of availability or establishment payments may limit investor confidence that capital costs can be recovered, reducing incentives to develop new flexibility capacity.

Transpower response:
We welcome Powerco's suggestions to improve our NTS approach and acknowledge the importance of effective communication, coordination and orchestration of shared flexibility resources between Transpower and EDBs to minimise long-term network costs.

1. *We agree with Powerco's suggested two-stage approach to coordinated flexibility procurement, where EDBs procure flexibility first to address local needs and Transpower then "tops up" the residual flexibility required to support interconnected grid investment deferral. We agree this can improve affordability for consumers by avoiding duplicative procurement. Transpower will continue to engage with Powerco, including through approaches similar to our ongoing coordination efforts in the western Bay of Plenty, to support the most economic outcomes for the WUNI region.*
2. *We acknowledge Powerco's comments regarding incentives for coordinated procurement and will continue to engage with the Commerce Commission and stakeholders as the framework evolves to support coordination where it delivers the most economic outcomes.*
3. *We acknowledge Powerco's view, shared by other EDBs and Flexibility Service Providers, that longer-term arrangements (for example, 3 to 5 years) would encourage further uptake of flexibility resources (e.g., battery storage) in best efforts to support the particular NTS need. We also acknowledge Powerco's feedback that availability of payments may be needed to support investment in new flexibility resources. Previous MCPs have sought approval for funding based on the value of one year of deferral, to demonstrate the economic value of deferral, rather than being a funding limit. We continue to engage with the Commerce Commission and other stakeholders to examine the feasibility, costs, and risks associated with longer-term deferral options as part of our ongoing work on enabling NTS, and are interested in longer term proposals where that is in the best interest of consumers.*

Vector submission

Vector supported Transpower's preferred Option 4b (over Option 4a). Vector also noted that it will provide feedback on the indicative benefit-based investment allocations when Transpower undertakes its formal consultation on the proposed allocations.

Vector agreed that the demand forecast is based on reasonable assumptions, while noting that growth associated with data centres and the rate of gas conversions remain difficult to forecast and could change rapidly.

Vector highlighted that, under the current regulatory framework, EDBs do not have direct financial incentives or allowances to pursue solutions that support transmission investment deferral. Vector therefore expressed interest in working with Transpower and the Commission to determine how the regulatory framework could better enable coordination between EDBs and Transpower to deliver solutions that will lower costs to consumers at the whole of system level.

Vector strongly supports Transpower's consideration of NTS and project staging and indicated a willingness to work with Transpower to explore potential projects that could reduce overall costs to consumers. While Vector did not propose specific NTS alternatives for the Auckland region at this stage, it noted that a range of NTS initiatives are being introduced on its network. These initiatives may deliver benefits at the transmission level and change the shape of observed load at GXPs.

Transpower response

We thank Vector for their submission and for supporting the preferred Option 4b. We acknowledge Vector's comments on demand uncertainty, particularly in relation to data centre growth and gas

conversions. We recognise the importance of monitoring demand trends over time and will continue to do so as part of our ongoing work.

We also appreciate Vector's early engagement with our NTS programme team (18 March 2026) and their strong support for our consideration of NTS (project staging). We welcome Vector's willingness to work with us to explore potential NTS opportunities in the region.

We acknowledge that NTS initiatives are and continue to be introduced on Vector's network, including a local flexibility market platform (INSTA) and Residential & Commercial DER focused tariffs. We also note Vector's work with other EDBs on a shared platform to publish potential NTS opportunities and facilitate contracting with NTS providers. We note that such initiatives may deliver consequential benefits at the transmission level, including through changes in load shape at GXPs. We will continue to collaborate with Vector on NTS opportunities and commit to regular engagement and workshop sessions to support the development of complementary NTS solutions.

Transpower's current NTS framework has been developed to explore economic deferral of major transmission investments and to manage delivery and timing risks associated with those investments. NTS may provide a valuable complement to the WUNI Stage 2 development plan, and we intend to seek support for potential NTS as part of our MCP proposal.

We acknowledge Vector's observations regarding regulatory incentives and coordination. Previous MCPs have sought approval for funding based on the value of one year of deferral, to demonstrate the economic value of deferral, rather than being a funding limit. We are continuing to engage with the Commerce Commission and stakeholders to examine the feasibility, costs, and risks associated with longer-term deferral options (for example, 3 to 5 years) as part of our ongoing work on NTS, and are interested in longer term proposals where that is in the best interest of consumers.

MEUG submission

MEUG supported the need for the investment, noting changes in system operation following the decommissioning of thermal plant in the region and expected growth in demand for electricity across multiple sectors.

They supported Transpower's preferred option, noting that Options 4a and 4b deliver a similar level of benefits.

MEUG encouraged Transpower to continue monitoring regional demand over the coming years to see if it aligns with forecasts.

They supported Transpower's NTS approach to potentially defer the transmission investment when cost-effective.

MEUG indicated that further feedback on allocations may be provided when Transpower formally consults on proposed starting allocations.

Transpower response:
We thank MEUG for their submission and for supporting the need for the investment and the preferred option.

We acknowledge MEUG's support for the pursuit of NTS. Our current NTS approach has been developed to manage delivery and timing risks associated with major transmission investments, and economic deferral of those investments. As part of our ongoing work on NTS, we are considering how demand monitoring and flexibility arrangements can be used to manage uncertainty and inform investment timing where this is feasible and cost-effective.

System Operator submission

The System Operator supported the preferred Option 4b, which proposes duplexing the OTA–WKM circuits before implementing series compensation on the BHL–WKM circuits.

The submission emphasised that the introduction of series compensation represents a new technology for the New Zealand power system, highlighting that series compensation can introduce sub-synchronous resonance (SSR) and sub-synchronous control interaction (SSCI) oscillations. They recommended the Grid Owner to consider these phenomena and potential mitigation measures.

The System Operator raised the following key considerations related to the use of series compensation:

Real-time operation considerations

Series compensation may require amendments to System Operator tools and processes to support secure real-time operation:

- Enhancements may include wide-area monitoring and integration into current operation processes to manage potential oscillations
- Additional training for coordinators and support teams may be required
- Some tool changes may have long lead times and significant cost.

The System Operator noted that any material costs associated with these requirements should be reflected in the Investment Test assessment.

Market operation considerations

The System Operator will evaluate the type of series compensation technology proposed, and depending on the technology selected, they will determine whether:

- Updates to market systems may be required
- Changes to Part 13 of the Electricity Industry Participation Code may also be necessary.

Engineering modelling and support considerations

The System Operator noted that online stability analysis would be beneficial for managing system stability efficiently, which requires developing detailed models compatible with online tools.

In addition, the System Operator agreed with our assumptions on Huntly generation and BESS availability during winter peak periods and suggested that the assumption on AC losses should be tested.

Transpower response:

We thank the System Operator for its submission and for supporting the need for the investment and the preferred option.

We acknowledge the concerns around sub-synchronous resonance and control interactions that series compensation can introduce to the network. This has been an area of focus in our investigation, and we are considering technology options including thyristor-controlled series capacitors (TCSCs) and fixed series capacitors with passive damping filters to mitigate sub-synchronous risks.

Although TCSCs are capable of achieving power flow control by dynamically varying its effective impedance, there is no intention to use this capability. Similarly the fixed capacitor with passive damping filter option is comprised of fixed primary components and is not capable of variable impedance. Therefore, while the proposed series compensation is intended to operate as a fixed

impedance device in normal operation, we acknowledge that the System Operator will determine whether the selected technology has any implications for market systems or Code provisions, and we will work with them to address any such requirements.

In the event that a TCSC is procured, a TSAT[3] model requirement will be included in the procurement contract. We acknowledge that TSAT-compatible models address planning and contingency analysis requirements, and that additional work may be required to support real-time or near-real-time stability monitoring, which we will assess jointly with the System Operator.

Transpower (the Grid Owner) commits to working with the System Operator to identify any material changes to operational processes, tools, training, or monitoring required to securely operate series-compensated circuits within agreed operating envelopes, and to reflect any material costs or lead time implications that may need to be considered in our assessment of the short list of options.

We also acknowledge the System Operator's comments regarding testing AC loss differences. We will investigate these further, alongside other aspects of the project, as we finalise our proposal.

Genesis submission

Genesis supported the need for the investment to maintain N-1 transmission limits. The submission focused on:

- Technical implications for Huntly Power Station
- Genesis's future generation development pipeline in the WUNI region

Technical implications for Huntly Power Station

Genesis noted that the preferred option includes series compensation on the BHL–WKM circuits.

They highlighted that series compensation can introduce SSR and SSCI risks, which may adversely affect its connected generating plant. Transpower has engaged Siemens Energy to undertake a modelling study for the Huntly Rankine units and this work is ongoing.

Genesis requested the opportunity to review the final series compensation design prior to implementation and indicated a willingness to continue engaging with Transpower on this issue.

Genesis's future generation development pipeline in WUNI region

- Genesis plans to achieve approximately 1,370 MW of flexible capacity at Huntly by 2032, combining existing thermal generation with additional BESS capacity in the WUNI region.
- Genesis is also progressing a proposed 271 MW solar farm at Rangiriri, with commissioning targeted for 2029.
- The Huntly Firming Options agreed in 2025 support the continued operation of the Huntly Power Station, including the ongoing availability of the three Rankine units for a further ten years.

In addition, Genesis supported Transpower's consideration of NTS to help smooth grid investment and alleviate cost impacts on consumers.

Genesis did not comment on the indicative starting allocations and will provide feedback during Transpower's formal consultation on the proposed starting allocations. They recommended that Transpower clarify the potential impacts of the TPM operational review on WUNI2.

[3] Transient stability analysis tool (TSAT).

Transpower response:

We thank Genesis for their submission and support for the need for investment.

We acknowledge the concerns regarding SSR and SSCI that fixed series capacitors may cause. However, we are only considering series compensation technology that either mitigates or removes the SSR and SSCI risks. Residual SSR/SSCI risks will be managed through a combination of design specification and agreed operating envelopes, developed in collaboration with the System Operator and affected generators.

We are cognisant of the impacts this may have on existing Huntly generation, and these limitations are informing the performance specifications of any series compensation we ultimately procure, and we are happy to engage and collaborate with Genesis regarding our series compensation plans. Consistent with this, Transpower will provide Genesis with the opportunity to review the proposed series compensation design and associated SSR mitigation approach prior to finalisation and implementation.

Depending on the technology ultimately selected for the series compensation, there may be a need to co-ordinate control system settings for inverter-based resources to avoid possible electrical resonances. Transpower will provide the frequencies to avoid and will work through collaboratively with Genesis and other potential generators to address possible SSR/SSCI.

The study by Siemens Energy is nearing completion, and we look forward to engaging with Genesis in the near future.

We appreciate the feedback on Genesis's future generation development plans. We are reviewing the WUNI development plans based on different assumptions for the Rankine units and BESS availability. This will inform investment timings and staging decisions, and selection of the preferred option.

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