

Improving information on high-voltage network capacity

Consultation paper

5/05/2026

Executive summary

New Zealand's electricity system is changing rapidly as more people adopt electric technologies and distributed energy resources (DER) and are incentivised to flex their electricity use. To keep pace with these changes, parties seeking connection to distribution networks need clearer, more consistent, and more timely information about the hosting capacity of distribution networks. At present, the information available is fragmented, difficult to find, and often not provided at the level of detail required for effective decision-making.

The Electricity Authority Te Mana Hiko (Authority) proposes to improve visibility of distribution networks by requiring electricity distributors to publish capacity information about their high-voltage networks. Under our proposals, this would include information about load and export capacity – both current and forecast – network topology, planned upgrades, historical reliability and the potential use of non-network solutions as alternatives to building infrastructure, avoiding or deferring costs associated with network upgrades. We further propose requiring distributors to publish this information in standardised formats such as network maps and downloadable data sets so the information can be easily understood and compared across distributors.

Most distributors already have good visibility of their high-voltage assets and power flows, and so we propose focusing initial efforts to improve network visibility here. Restricting the proposal to high-voltage networks will reduce the costs of the proposal, compared to a broader proposal that also covered the low-voltage network. Publishing high-voltage network information would provide access seekers with useful hosting capacity information sooner than if we waited for low-voltage capabilities to be developed. It would also enable distributors, access seekers and regulators to build capability, refine standards, and learn from implementation before considering whether to expand the requirements to low-voltage networks.

Through our proposals to improve network visibility, we aim to help those wanting to connect to, or use, networks (access seekers). Increased transparency and better understanding of what capabilities and connection size would be efficient for a range of locations is expected to streamline connection processes, reduce speculative connection applications and support more efficient investment decisions by access seekers. Improved visibility of network information and hosting capacity analysis is also expected to:

- better support network planning, optimise the use of existing assets, and reduce the costs associated with distributors responding to information requests and processing speculative applications.
- support more robust regulatory decisions, including operating and capital allowances.
- enable the development of new services that draw on flexible use and supply of load or distributed generation to support more efficient network management.

Over the longer term, these benefits would increase competition, enhance security of supply, and put downward pressure on electricity prices for consumers.

This consultation paper details our proposed amendments to Part 6 of the Electricity Industry Participation Code 2010 (Code). If we progress with the proposals in this paper, we will work with industry to develop technical specifications to accompany the Code amendments. These specifications would better define required data sets, set expectations for data formats and update frequencies and ensure consistency across networks.

We welcome feedback on our proposed Code amendments, data sets and approach to implementing the requirements. Your feedback will inform our decisions on the next steps.

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1 Purpose of this consultation paper

- 1.1 The Electricity Authority Te Mana Hiko (Authority) is seeking feedback on proposed draft Code amendments to require distributors to publish network information relating to the hosting capacity of their high-voltage networks.
- 1.2 The proposed amendments support our statutory objective of promoting competition and a reliable supply of electricity for the long-term benefit of consumers. The amendments would also support the Authority's core strategic outcomes of delivering affordable, secure and resilient electricity for all New Zealanders.
- 1.3 Under the Electricity Industry Act 2010, the Authority must consult before making changes to the Electricity Industry Participation Code 2010 (Code) and develop a corresponding regulatory statement. It also requires the regulatory statement to include a statement of the objectives of the proposed amendment, an evaluation of the costs and benefits of the proposed amendment, and an evaluation of alternative means of achieving the objectives of the proposed amendment. You can find the regulatory statement in Part 5 of this paper.

Terminology

- 1.4 'Access seeker' is used throughout this paper to refer to a person or service provider who wants to connect to or use a distribution network. This may be in the form of connecting load, generation or energy storage to the network, or providing flexibility services to a distributor or retailer. It also includes consumers who want to connect distributed energy resources (DER) to the network.
- 1.5 The proposed Code amendments relate to high-voltage distribution networks, which convey electricity at voltages exceeding 1,000 volts AC, as defined in the Electricity Act 1992. This excludes low-voltage networks where the standard operating voltage is below 1,000 volts AC. In New Zealand this is generally 230 volts (single phase) or 400 volts (three phase).
- 1.6 'Network visibility' involves distributors having an accurate view of, and regularly publishing, up-to-date information on network topology, linked with reliable estimates on available network hosting capacity (including current and forecast capacity) and other useful information (eg, use of non-network solutions). Network visibility includes the processes and outputs needed to make available useful and accessible network hosting capacity information.
- 1.7 In New Zealand, 'network hosting capacity' has traditionally referred only to the capacity of a network to accommodate distributed generation. However, for the purposes of this work, we refer to 'network hosting capacity' as an estimate of the amount of load, generation and DER (both controllable load and controllable distributed generation) that can be accommodated anywhere on the distribution network, without adversely impacting power quality or reliability under existing control configurations and without requiring infrastructure upgrades.¹
- 1.8 DER are typically, but not exclusively, small-scale devices or technology that generate, use or store electricity near the point of consumption. These devices may be controllable and able to respond to wholesale market and/or network conditions by varying load or injection. They are either connected directly to a distribution network or located behind a consumer's meter. Some examples of DER include roof top solar photovoltaic panels, electric hot water cylinders, electric vehicle (EV) charging and battery energy storage systems.
- 1.9 Further definitions can be found in the Glossary of abbreviations and terms in Appendix G.

¹ Electric Power Research Institute, *The Hosting Capacity Process*, October 2020, 2. Accessed via [Program 200: Distribution Operations and Planning | Product Abstract](#)

2 How to make a submission

- 2.1 The Authority's preference is to receive submissions in a Word document in the format shown in Appendix B.
- 2.2 Submissions should be emailed to distribution.feedback@ea.govt.nz with 'Consultation - Improving information on high-voltage network capacity information' in the subject line by 5pm, Tuesday 16 June 2026.
- 2.3 The Authority will confirm receipt of all submissions.
- 2.4 If you cannot send your submission electronically, please email distribution.feedback@ea.govt.nz or call 04 460 8860 to discuss alternative arrangements.
- 2.5 Authority staff are also available to meet should you wish to provide verbal feedback on the proposed Code amendment. Please contact us at distribution.feedback@ea.govt.nz to set up an online meeting before Tuesday 2 June 2026.
- 2.6 We will publish all submissions. If you consider that we should not publish any part of your submission, please:
 - (a) indicate which part should not be published and explain why,
 - (b) provide a version of your submission that we can publish (if we agree not to publish your full submission).
- 2.7 All submissions, including any parts the Authority does not publish, can be requested under the Official Information Act 1982. This means the Authority would be required to release material not published unless good reason existed under the Official Information Act.

3 Background

3.1 This section of the paper provides contextual information about the wider regulatory framework that applies to electricity distribution businesses. It also outlines our assessment of the current state of the information and capabilities distributors would need to inform network visibility and how network visibility relates to the Authority's other work.

Regulation of the electricity industry

3.2 The Authority's role as a kaitiaki (steward) of electricity is to support an efficient and competitive electricity market that works for the long-term benefit of consumers. We do this by using our regulatory tools and levers to help enable a future where everyone has access to lowest cost and reliable electricity.

3.3 There are several organisations that have a role in regulating the electricity industry. One regulator the Authority works closely with is the Commerce Commission (Commission). Both organisations have responsibilities related to the economic regulation of the electricity industry. Amongst other things, the Commission is responsible for regulation to address the absence of competition in the transmission and distribution systems. In comparison, the Authority is focused on access to the transmission and distribution systems as well as competition in the overall electricity market.

3.4 As electricity distribution businesses are monopolies, the Commission's primary role under Part 4 of the Commerce Act 1986 is to promote outcomes that are consistent with competitive markets for the long-term benefit of consumers. The Commission's regulatory functions under Part 4—Information Disclosure and Price-Quality regulation—exist to replicate, as far as possible, the outcomes of a workably competitive market. These regulatory tools are designed to create incentives for distributors to innovate, improve performance, and invest efficiently in their networks, even though they operate as monopolies.

3.5 As outlined above, the Authority's main statutory objective is to promote the efficient, reliable, and competitive supply of electricity to consumers. For electricity distribution networks, this includes:

- (a) setting distribution pricing principles
- (b) encouraging efficient investment in distribution networks
- (c) setting Code obligations that govern how distributors manage and provide access to their networks.

3.6 There can sometimes be crossovers between matters that could be regulated under the Code or Part 4 of the Commerce Act. To resolve this overlap, the Code may generally not regulate anything that the Commission is authorised to regulate under the Commerce Act.² However, the Code may contain provisions that would otherwise be prohibited if these set quality or information requirements for Transpower or one or more distributors in relation to access to transmission or distribution networks.³

3.7 Our view is that our proposed amendments enabling network visibility facilitate access to distribution networks by providing access seekers with the information they need to efficiently site network connections and investments, including installing or operating DER that could improve network operations and optimisation. They also have the potential to improve competition, enhance security of supply in both the wholesale and ancillary services markets,

² See section 32(2)(b) of the [Electricity Industry Act 2010](#)

³ See section 32(4)(b) of the [Electricity Industry Act 2010](#)

and support the development of future market services. As such, the proposals are consistent with the Authority's statutory functions, including section 32(4)(b) of the Electricity Industry Act. We note that there would also likely be some spillover benefits to matters regulated under Part 4 of the Commerce Act, such as promoting the efficient operation and planning of distribution network businesses.

- 3.8 We have engaged with the Commerce Commission on the proposals in this consultation document. It is important for there to be consistency between both regulatory frameworks and avoid duplicated effort by distributors. We intend to consult formally with the Commerce Commission before amending the Code, as required by section 54V(1) of the Commerce Act.

Existing information disclosure arrangements

- 3.9 The Authority and the Commission both require distributors to disclose certain information relevant to network visibility. The Commission's disclosure requirements are set out in the Electricity Distribution Information Disclosure Determination 2012 (and amendments) (ID Determination) made under Part 4 of the Commerce Act. The Authority's relevant disclosure requirements can be found in Part 6 of the Code.
- 3.10 The focus of the Commission's disclosure requirements is primarily about ensuring that sufficient information is available for interested parties to assess whether distributors are making decisions that result in outcomes consistent with those produced in a competitive market.⁴ The Authority's disclosure requirements under Part 6 of the Code relate to the distributors making information publicly available to enable the efficient connection of distributed generation and load.
- 3.11 Further detail about the existing information disclosure requirements can be found in Appendix C of this paper.

Voluntary publication of network capacity maps

- 3.12 Some distributors have started network capacity analysis and publishing information about their high-voltage networks in the form of capacity maps. This is an encouraging development and demonstrates the value of network capacity analysis to these distributors.

Review of current information inputs into network visibility

- 3.13 The Authority has reviewed the current information available to parties interested in the hosting capacity of electricity networks. Hosting capacity is typically referred to as a value, but it involves a process of collecting and validating data from a range of sources, data analysis, and application of the results for specific uses.
- 3.14 Our assessment is that most distributors have a good understanding of the topology and the power flows on their high-voltage networks. This is demonstrated through the information already provided through existing information disclosure requirements, which offers some visibility of network characteristics, constraints, investment plans, and performance. In addition, the methods used for traditional network planning studies are useful for network hosting capacity analysis.
- 3.15 However, the Authority's assessment is that distributors' understanding of the topology and installed capacity of their low-voltage networks is not as well developed. At present, many distributors do not have the systems and processes needed to acquire data relating to power flows on their low-voltage networks, and to validate and analyse such data.

⁴ The purpose of the Commission's disclosure requirements is to ensure that sufficient information is readily available to interested parties to assess whether the purpose of Part 4 is being met. The overall purpose of Part 4 is to promote the long-term benefit of consumers, by promoting outcomes consistent with those produced in competitive markets.

- 3.16 Publishing network hosting capacity information can be done in a variety of ways. User-friendly maps displaying hosting capacity and downloadable data files have been shown to help access seekers understand what size project and technologies can be most easily accommodated in a particular network location. Part 4 of this paper outlines the Authority's analysis of, and access seeker feedback on, the usefulness of current published information relating to network hosting capacity.
- 3.17 Further detail about hosting capacity analysis and the use cases for network hosting capacity can also be found in Appendix F.

Q1. Do you agree with our assessment of the current state of the information and capabilities needed to inform network hosting capacity? If not, please explain why.

How this consultation relates to the Authority's other work

- 3.18 Our proposals to improve visibility of high-voltage network hosting capacity information are part of the Authority's broader work to support the reliable supply of electricity to New Zealand consumers at the lowest possible cost. The Authority's priorities include supporting network efficiency and enabling the use of flexibility to apply downward pressure on the price of electricity to consumers.
- 3.19 We believe that our proposals will help enable a competitive flexibility services market by reducing information asymmetry between distributors and access seekers. This would allow flexibility service providers to make informed investment decisions by identifying locations where their services could offer greatest benefit to distributors. We also consider that this work will support better network efficiency by assisting distributors with identifying areas on their network where flexibility services (or other non-network solutions) could be used to defer or avoid network upgrades, or encourage consumers to make greater use of DER.
- 3.20 This consultation builds on recent rule changes to make network connection applications easier, faster, more equitable and more consistent across New Zealand, which includes requirements for distributors to publish a network connections pipeline and provide information about known or expected network constraints.⁵ It also contributes to the work the Authority has underway with other regulators in this space to encourage distributors to actively consider non-network solutions where they improve network efficiency and reduce costs.⁶

⁵ See Electricity Authority, [Network connections project \(stage one\) – Decision paper](#), September 2025 (republished).

⁶ See Electricity Authority, Commerce Commission and Energy Efficiency and Conservation Authority, [Joint open letter on non-network solutions](#), February 2026.

4 Issues the Authority would like to address

4.1 This section outlines the issues the Authority seeks to address via the proposed Code amendment and why we consider that improved network visibility is part of the solution to these issues.

New Zealand's energy system is changing

- 4.2 New Zealand's energy system is undergoing a major transformation and becoming increasingly electrified. This presents huge opportunities for New Zealand's electricity sector, but there is a risk that distribution networks won't be able to keep up with increased demand as consumers switch from other energy sources (eg, gas) to electricity.
- 4.3 A key priority for the Authority during this transition is securing a resilient, efficient and affordable electricity system for the long-term benefit of consumers. Our view is that this can be achieved through a more decentralised electricity system that optimises existing electricity networks and integrates DER effectively.
- 4.4 Traditionally, distributors have designed their networks to meet one-way electricity flows. Further, increased demand for electricity has been typically met by expanding or augmenting distribution networks. This is sometimes referred to as building for peak demand. However, as DER penetration increases and consumers can make greater use of flexibility, distributors will need to accommodate multidirectional flows of electricity on their networks. Controllable DER provides an opportunity to better optimise available network capacity and move away from building for peak where non-network solutions are a more efficient option.
- 4.5 To manage the increased complexity of power flows and demand, distributors will need accurate information about the topology, current capacity and some modelling of future capacity of their networks. This information is expected to support more efficient management and use of networks, improve competition, enhance security of supply in both the wholesale and ancillary services markets, and support the development of future market services.
- 4.6 Access seekers also need information about network topology and forecast capacity or constraints to make informed decisions about how to meet their energy needs. For example, access seekers would be able to make efficient decisions about whether to invest in DER or to connect to a distribution network in a different location that offers more appropriate capacity or connection conditions.

The issues with existing arrangements

- 4.7 The Authority has analysed existing information disclosure requirements to determine whether these support efficient, informed decision-making by access seekers. Our analysis has also been informed by the outcomes the Authority aims to secure as the energy transition takes place and related work the Authority has carried out previously.
- 4.8 We tested our early analysis in September and October 2025 by publishing a discussion paper and holding an industry workshop. We received feedback on the paper and at the workshop from a range of industry representatives including distributors, access seekers, and parties interested in flexibility services.

Limitations of current information disclosures

- 4.9 Our analysis identified several limitations with the current information disclosures, including:
- (a) Frequency of disclosures: distributors are required to disclose most network information annually. Our view is that this does not allow access seekers to make informed

decisions as the network information quickly becomes outdated, particularly in relation to network constraints. Feedback from access seekers is that they would prefer more timely network information.

- (b) Granularity of information: we identified that the information currently disclosed by distributors is quite high-level and not linked to specific locations on a network. We consider that this makes it difficult for access seekers to identify locations where there is sufficient network hosting capacity to meet their needs or where there could be opportunities to offer flexibility services to distributors. This view was supported in feedback from access seekers.
- (c) Lack of digitalisation: while distributors are required to disclose information on their websites, the required disclosure formats generally do not apply modern tools such as application programming interfaces (APIs), data portals or network mapping. Our view is that the use of modern tools would help ensure that network information is accessible to those who seek to use it.
- (d) Consistency of information disclosures: while distributors are subject to the same information disclosure requirements, they often disclose the information in different ways. This makes it difficult for access seekers to make direct comparisons between distributors and/or integrate the data into their planning tools. We consider that consistency in how network capacity information is disclosed would help support informed decision-making.
- (e) Discoverability of information: some access seekers commented that it can be difficult to find and apply network information as it is often spread across multiple documents or formats, making the information hard to locate and interpret.
- (f) Absence of visual or interactive tools: currently, distributors are primarily required to disclose network information in narrative form or quantitative information in static PDFs or tables. Our review of literature relating to network hosting capacity analysis indicates that maps can be useful for visualising the hosting capacity information. Feedback from access seekers indicated that that maps and dashboards that are regularly updated would be more useful than the current static PDFs or tables.

4.10 If the limitations we have identified are not addressed, access seekers would continue to lack the information they need to make informed connection or investment decisions. There is also a risk that distributors would miss opportunities to consider and use non-network solutions where these are efficient.⁷ Ultimately, these limitations would lead to higher long-term network costs and increased electricity prices for consumers.

4.11 We note that most distributors attending the workshop or providing written feedback did not identify any concerns with the existing information disclosure requirements. However, they did point out that improvements to network visibility have costs for distributors. Some also questioned whether there would be benefit in publishing network information as, in their view, access seekers are not making use of the information that is already published.

Voluntary publication of network capacity maps

4.12 As mentioned above, some distributors have started network capacity analysis and publishing information about their high-voltage networks in the form of capacity maps. This is an encouraging development and demonstrates the value of network capacity analysis to these distributors.

⁷ Non-network solutions may offer a more efficient way of optimising existing network capacity and avoiding the build out of networks to meet increasing demand for network services.

4.13 However, our concern is that, in the absence of regulation, distributors may not adopt standardised methodologies or formats for publishing this information, nor provide the underlying data for access seekers to use. As such, there is a risk that independent approaches to network visibility make it more costly for access seekers to undertake network screening assessments across a range of distribution networks.

Other issues

4.14 In a previous discussion paper, [Our future is digital](#), the Authority identified that there can be competitive advantages when some participants have access to more or better data than others. In addition, the recently published Authority [Guidance on distributor involvement in the flexibility services market](#) includes an expectation that distributors should share non-public network information even-handedly to ensure that their related parties do not have an unfair advantage over other businesses through earlier or more access to network capacity or other information.⁸

Q2. Do you agree the issues identified by the Authority are worthy of attention? If not, please explain why.

Why the Authority is addressing this now

- 4.15 New Zealand's electricity system is changing rapidly. The Authority wants to ensure that, as the system evolves, it continues to deliver the best long-term outcomes for consumers. We consider that timely progress towards a digitalised electricity system will support this outcome.
- 4.16 Access to electricity network information is a vital component of a digitalised electricity system. Access to timely, reliable and up-to-date network related information supports access seekers' decision making. Such information can help with location selection by giving information about their connection options at the outset. This information can also assist with the choices and the configuration of behind the meter capabilities. These capabilities can be made available to support more efficient management and use of networks, improve competition, enhance security of supply in both the wholesale and ancillary services markets, and support the development of future market services.
- 4.17 In addition, without good quality network information, distributors cannot make informed decisions about when or where their networks need reinforcement or whether non-network solutions could be a more efficient solution to known capacity or power quality issues. The publication of network hosting capacity can also speed up connection processes and improve the quality of connection applications.
- 4.18 However, it will take time for distributors to develop the capability, systems and processes needed to produce good quality, useful network hosting capacity information and make it publicly available. It will also take time for access seekers to use network information in a meaningful way.
- 4.19 The sooner we implement regulatory settings to encourage and guide distributors' efforts relating to network visibility for access seekers, the sooner these capabilities will be developed and the sooner the above benefits to the electricity system are realised. Our concern is that if the development of these capabilities is left too late, the benefits of network visibility may come too late. For example, early information about network constraints may

⁸ See Principle 6.

enable non-network solutions to be developed rather than relying on traditional network reinforcement.

- 4.20 Some distributors have expressed concern that it may be too soon to introduce network visibility requirements as the most recent information disclosure amendments in the ID Determination only came into force in late 2024 and haven't been fully bedded in yet. Some distributors expressed a preference for allowing a few years to 'road-test' the new information disclosure requirements before considering any further changes.
- 4.21 We have taken these concerns into consideration when developing the proposed Code amendment. Our view is that the timing appears right for introducing network visibility requirements for high-voltage networks, and it is prudent to wait to consider whether there would be sufficient benefit in expanding requirements to low-voltage networks.

Q3. Do you agree with our assessment that now is the time to regulate for network visibility? If not, when do you consider would be the right time?

5 Regulatory Statement for the proposed Code amendment

- 5.1 This section provides the Authority's regulatory statement for our proposed Code amendment, which is required under section 39 of the Electricity Industry Act. This includes:
- (a) the objectives we seek to achieve through the proposed Code amendment
 - (b) our evaluation of the costs and benefits of the proposed Code amendment
 - (c) a summary of the alternative means we have considered for achieving our objectives.

Objectives of the proposed amendment

- 5.2 The Authority's overall objective of this amendment is to improve and standardise publicly available information about high-voltage distribution networks' hosting capacity. Better quality and timely assessments of network hosting capacity support a smarter, more digitalised and data-driven electricity system. We think network visibility contributes to the following outcomes:
- (a) Supporting network connection decisions, including location selection, investment in behind the meter capabilities, and connection capacity.
 - (b) Providing standardised network hosting capacity information to ensure that network data and information is easily comparable, across all networks, at the lowest overall cost to access seekers.
 - (c) Supporting a level-playing field and competition for new services on or for distribution networks by reducing any advantage a distributor may have from privately held network related information.
 - (d) Improving competition, enhancing security of supply in both the wholesale and ancillary services markets, and supporting the development of future market services.
 - (e) Supporting efficient network operations, and upgrade planning and investment by distributors including through the consideration of the location and use of DER to optimise current hosting capacity. Such insights may help distributors factor in and influence the location of DER.

Q4. Do you agree with our assessment of the outcomes that network visibility supports? If not, why not?

The proposed amendment

- 5.3 The Authority proposes to amend Part 6 of the Code to introduce an obligation for distributors to publish high-voltage network capacity information. The indicative timeframe for implementing this obligation, if it proceeds, is September 2027.
- 5.4 This obligation would be supported by technical specifications providing industry with information about how and in what format network capacity information is to be published, such as:
- (a) the data sets captured within the definition of network capacity information
 - (b) the formats distributors should use when publishing network capacity information
 - (c) any relevant technical standards.
- 5.5 The Authority proposes that its relevant technical groups would be involved in the development of these specifications in collaboration with access seekers, industry bodies

and relevant regulators (eg, the Commerce Commission and the Energy Efficiency and Conservation Authority (EECA)).

- 5.6 The drafting of the proposed Code amendment is contained in Appendix A. We have summarised the matters to be covered by the Code amendment and the proposed specifications below.

Summary of proposed Code amendment

- 5.7 The proposed Code amendment introduces high-level requirements for distributors to publish high-voltage network capacity information. These requirements include:
- (a) distributors must publish network maps showing specified network capacity information
 - (b) distributors must also make high-voltage network capacity information available in downloadable data files (eg, API enabled transfer)
 - (c) distributors must disclose the methodology used to calculate each data set and indicate the accuracy of the information
 - (d) distributors must update network-related information on at least a quarterly basis.
- 5.8 Distributors would also be required to indicate the extent to which they reasonably expect to use alternatives to network reinforcement, and the price they may be willing to pay for those alternatives.
- 5.9 We propose that technical specifications be developed to support any Code amendments regarding network visibility. The technical specifications would be developed in consultation with distributors, access seekers and other interested stakeholders. It would cover the details needed to support the development and publication of network capacity information that is both efficient for distributors and useful for access seekers.

Proposed data sets

- 5.10 The proposed data sets to be published on network maps are largely drawn from the priority data sets identified by the Australian Energy Regulator (AER) in their network visibility project.⁹ The data sets were included in our September 2025 discussion paper.
- 5.11 Our aim is that distributors provide useful network information that supports the development of alternatives to network reinforcements. Such information can be incorporated into platforms that will enable flexible services with greater transparency and tradability, for example, OurEnergy's Localflex marketplace.
- 5.12 The data sets and our reasoning for adopting each data set are discussed below.

Location of high-voltage network circuits

- 5.13 Under this proposed requirement, distributors would be required to publish an interactive map and underlying data showing the high-voltage network circuit information, including:
- (a) grid exit points
 - (b) zone substations
 - (c) sub-transmission feeders
 - (d) distribution substations
 - (e) distribution feeders.

⁹ See Australian Energy Regulator, Low-voltage Network Visibility – Phase 3 Final Report, March 2025. Accessed via [Update - Phase 3 | Australian Energy Regulator \(AER\)](#)

- 5.14 The proposed requirement responds to feedback from access seekers that they would like location-specific information about distribution networks presented in visual formats.
- 5.15 The following is the additional network information that would be required to be linked with network locations.

Design capacity of each circuit

- 5.16 Design capacity of an electricity network refers to the built distribution capacity information at a given location on the network. This includes points along feeders where the capacity changes for example because the cable sizes decrease.
- 5.17 This requirement would allow access seekers to identify the maximum amount of load or distributed generation that can be accommodated at locations on a network regardless of how much of that capacity is being used.

Forecast load capacity

- 5.18 Under the proposed amendments, distributors would be required to show on their network maps an estimate of the remaining load capacity for the next 12 months, and each of the next five years. This includes potential network upgrades and downgrades and future expectations of growth.
- 5.19 This requirement would provide access seekers with an indication of how much load they may be able to connect at specific locations on a distribution network in the short to medium term. It could also signal to flexibility services providers where they may be able to offer their services to distributors to address forecast constraints.

Forecast export capacity

- 5.20 We propose that distributors also be required to show on their network maps an estimate of the remaining capacity for distributed generation for the next 12 months and each of the next five years. This includes accounting for capacity changes due to proposed network upgrades and downgrades and future expectations of growth.
- 5.21 This requirement would allow access seekers (including consumers) to make informed decisions about how much and what distributed generation to invest in at the desired location. This may include whether there would be financial benefits in supplying electricity to the network at peak times, or whether investing in battery storage for surplus electricity would be more effective.

Historical network reliability

- 5.22 The proposed Code amendment includes a requirement for distributors to publish on their network maps the SAIDI and SAIFI for the immediate past 12 months.
- 5.23 These measures would provide access seekers with an indication of how reliable the high-voltage network is at the location they are interested in. This information is also expected to be useful for downstream load and distributed generation connections.

Alternatives to network reinforcement

- 5.24 As part of estimating the current and forecast capacity of their high-voltage network over the next five years, we propose that distributors would need to indicate the extent to which they are using or reasonably expect to use alternatives to network reinforcement, including demand-side response, flexible connections, energy storage facilities and curtailment. Distributors would also be required to indicate the price they may be willing to pay for these as a service.

- 5.25 We anticipate that information about alternatives to network reinforcement could be used by access seekers in several ways. These include:
- (a) Timing of load: if a distributor indicates that it expects to use demand-side response on a regular basis, the access seeker would be able to assess whether they are able to use electricity outside of those peak periods or whether a different location may better meet their needs.
 - (b) Opportunity to provide services: if a distributor indicates that it expects to use energy storage facilities, an access seeker could assess whether it may be able to offer this service to the distributor based on the price they are willing to pay.
 - (c) Distributed generation: if a distributor indicates that it expects to curtail the export of electricity significantly on a regular basis, access seekers could take this into account when deciding how much or what distributed generation to install.

Details of proposed technical specifications

- 5.26 The Authority considers that detailed information about how the proposed Code amendments would work in practice should be published in technical specifications. The content of these specifications would be developed in consultation with distributors, access seekers and industry bodies. However, types of matters that would be covered by the specifications could include:
- (a) measures to protect the privacy of individuals
 - (b) definitions for common terminology used by distributors
 - (c) technical requirements for publishing network data and information in common formats or software
 - (d) linking to GIS data, eg, network maps and downloadable data file formats
 - (e) user guidance for access seekers.
- 5.27 For example, the specifications could include information about how to display granular information on network maps or descriptions of the methodologies distributors may use as part of their network hosting capacity analysis.
- 5.28 We intend to publish the proposed specifications within six months of the Code amendment entering into force.

- Q5. Do you consider the proposed amendments to Part 6 of the Code would promote the Authority's statutory objective? If not, why not?
- Q6. Are there any matters you believe are missing from the proposed Code amendment? Please specify.
- Q7. Is the indicative timeframe for implementing the proposed Code amendment likely to be adequate? If not, please provide information supporting a different timeframe, including identifying cost savings from a later implementation date.
- Q8. What are your views on the proposed approach where detailed information about the data sets captured within the definition of network capacity information would be contained in technical specifications?
- Q9. Do you consider that the proposal to develop network visibility specifications in consultation with interested parties would be effective? If not, why not?
- Q10. Is the proposed timeframe for developing the specifications likely to be sufficient?

Why we are starting with high-voltage network visibility

- 5.29 The Authority's overall goal is for distributors to publish information relating to their networks, to meet the use cases and other needs of access seekers in an effective and efficient manner, where benefits exceed the costs. In future, this may include requiring publishing network information for all of distributors' networks.
- 5.30 As noted earlier in this paper, part of the Authority's decisions on its network connections project in July 2025 included amending Part 6 of the Code to introduce requirements for distributors to publish information they already have about constraints and capacity on their distribution networks. At the time, we noted that the Authority was undertaking more comprehensive work on increasing visibility of network information and may revisit Code obligations as this work continues. This paper is the continuation of that earlier work.
- 5.31 As outlined earlier in this paper, many distributors do not have access to the right data, nor have the current capabilities to develop, provide and publish good quality and up to-date low-voltage network hosting capacity information. For these reasons, the scope of this work is limited to the use of high-voltage network data and the capabilities distributors have available now.
- 5.32 Starting with high-voltage network visibility still needs distributors to begin developing and building out the capabilities to manage data and establishing the frameworks to support decision makers, including the publishing of fit for purpose network hosting capacity information.
- 5.33 Feedback from previous consultations indicates that access seekers and some distributors consider that there would be fewer barriers for distributors if there was an initial focus on high-voltage data, allowing some of the benefits of network visibility to be realised sooner. It was also acknowledged that to realise the full potential of network visibility, access seekers also need to develop capabilities relating to the understanding and use (including limitations) of network hosting capacity information.
- 5.34 For the above reasons, we consider that network visibility should be implemented using a phased approach, beginning with high-voltage networks. We believe most distributors already have access to, or can more easily access, data relating to their high-voltage networks. Moreover, most distributors are familiar with and have experience with the analytical models and tools to inform network hosting capacity analysis.
- 5.35 This said, we acknowledge that there will still be challenges with high-voltage network visibility. These include interpreting hosting capacity analysis results and publishing standardised information that is both accessible and useful for a range of access seekers and other interested stakeholders. There will also be costs to distributors associated with analysing and publishing network information.
- 5.36 We think the benefits of a phased approach to network visibility, beginning with the high-voltage networks, include:
- (a) leveraging existing data and analytical capabilities
 - (b) allowing distributors to collaborate on common solutions and shared services, and build common standards and processes that can be easily adapted and reused for low-voltage networks to lower costs
 - (c) earlier benefits for access seekers and distributors than would be the case if low voltage network visibility is included from the beginning as this would require a longer lead in timeframe for implementation

- (d) allowing distributors, access seekers and regulators to learn lessons that can be applied to hosting capacity analysis for low-voltage networks
- (e) easier to make the business case, as the complexity and costs of a phased approach are likely to be lower overall.

5.37 We also consider a phased approach would allow the Authority to assess how well access seekers are using high-voltage network information before considering expanding transparency requirements to low-voltage networks.

5.38 We have identified the following use cases for high-voltage network visibility:

Table 1: Use cases for high-voltage network information

User	Use case for high-voltage network information
Charge point operators	Identifying potential sites for EV chargers based on available capacity of the high-voltage network, or planned upgrades to the high-voltage network.
Aggregated or medium sized generators or battery energy storage system providers	Investment in generation or battery energy storage systems close to areas where the high-voltage network is constrained.
Large property developers	Information about current network hosting capacity, future network hosting capacity and any planned network upgrades could influence decisions about where to locate new developments or expand existing developments or locate supply points for developments.
Large connections	Current, future and seasonal capacity information relevant to decisions about where to locate commercial premises, supply points into premises or make changes to existing electricity demand eg, electrification of process heat or their transport fleet.
Aggregators and owners of DER	Improved ability to participate and enhance security of supply in both the wholesale and ancillary services markets, and support the development of future market services

5.39 While a high quantity of small-scale DER is forecast and will connect to distributors low-voltage networks, there is value in improving network visibility for high-voltage networks. Such information benefits parties looking to connect to high-voltage networks as noted in Table 1 above. High-voltage network information may also help low voltage network connection decisions, for example where upstream constraints impact on downstream low-voltage network hosting capacity or incentivises aggregation of DER to alleviate the constraint.

Q11. Do you agree with the proposal to start with high-voltage network visibility? If not, please share your perspectives on where best to start.

International developments

5.40 Many jurisdictions are grappling with rapid changes to their electricity networks as they decarbonise their energy systems and become increasingly reliant on renewable electricity. This includes growth in distributed renewable generation, which creates complications for distributors as their networks have traditionally been built around one way energy flows.

5.41 Several countries have identified digitalisation and increased access to energy system data as key enablers of an electrified energy system. We have reviewed international literature relating to the development and publication of network hosting capacity information in the United Kingdom, United States and Australia. For example, early grid mapping efforts in states such as California and Hawaii have been widely accepted as a useful tool by both access seekers and distributors. There is some evidence that publication of network hosting

capacity information is positively redirecting projects and reducing the number of speculative or non-viable projects that ultimately apply to connect.

- 5.42 We believe that New Zealand's electricity system would benefit from the positive outcomes that are beginning to be seen overseas following the introduction of network visibility requirements. For example, one distribution network operator in the UK has reported that visibility of its network information has made it easier for its customers to make informed decisions about connecting DER to its network and help maintain the lowest cost bills possible.¹⁰ As discussed above, the sooner requirements are implemented, the sooner the benefits can be realised.
- 5.43 A brief description of each jurisdiction's network visibility requirements can be found in Appendix D.

The proposed amendment's benefits are expected to outweigh the costs

- 5.44 We acknowledge that there is limited information available for us to quantify the costs and benefits of the proposed amendment in detail. However, based on the information available to us, we have completed a qualitative evaluation of the benefits to be gained, and we expect that the benefits of the proposed amendments will outweigh the costs.

Our assumptions

- 5.45 In assessing the costs and benefits of the proposed Code amendment, we have made several assumptions. These are:
- (a) Distributors have good power quality data and understanding of the topology of their high-voltage networks, due to their use of operations management tools such as supervisory control and data acquisition systems (SCADA) or Advanced Distribution Management Systems.
 - (b) The costs of publishing high-voltage network data would primarily be associated with how distributors make the information available. For example, distributors will need to develop network capacity maps and processes to keep these maps up to date.
 - (c) Published network hosting capacity information would be used by access seekers to make more efficient connection decisions, including behind the meter capability that can respond to distributor, retailer, or flexibility service provider incentives.
 - (d) Access seekers connecting or controlling distributed energy resources (both load and/or generation) that require connecting to high-voltage networks, eg public EV charging stations, will use this information. Further, high-voltage network hosting capacity information may also be useful for connections and use cases relating to low-voltage networks.

Q12. Do you agree with the assumptions the Authority has made? Why/Why not?

The expected benefits of the proposed Code amendments

- 5.46 We expect there to be benefits from the proposal requiring distributors to publish high-voltage network information. The following section identifies the expected benefits for access seekers, distributors and regulators. We expect benefits to any one of these groups to flow through to consumers.

¹⁰ UK Power Networks, [Digitalisation Strategy and Action Plan 2025](#), 21.

Expected benefits: access seekers

- 5.47 For access seekers, we expect that the following benefits from improved visibility of network hosting capacity would be realised:
- (a) Streamlined network connections: visibility of hosting capacity on distributors' high-voltage networks would allow access seekers to identify supply locations that meet their needs in a more efficient manner. This would also reduce the cost of obtaining network studies by allowing access seekers to rule out sites that don't meet their minimum requirements from the outset.
 - (b) Opportunities to offer flexibility services or distributed generation to distributors, retailers, and wholesale and ancillary service markets: transparency of existing or expected network constraints would allow access seekers to identify areas where they may be able to offer localised solutions to distributors and system wide solutions.
 - (c) More consistent network information: the proposed amendment includes a requirement for distributors to provide open access to information in a standard format. This would allow access seekers to compare network capacity information across distributors. More standardised network capacity information reduces search costs for access seekers who are looking for sites across networks, or for multiple sites on multiple networks.
- 5.48 We anticipate the benefits for consumers from better and more accessible information on network hosting capacity include, better optimised connection decisions, including matching behind-the-meter capabilities with available network capacity, lower connection costs, and overall lower network costs through better optimisation of existing capacity and capabilities.

Expected benefits: more efficient distribution networks

- 5.49 We think there are secondary benefits from this proposal in terms of more efficient distribution networks and these will have flow on benefits for consumers. We expect that systematic and ongoing network hosting capacity analysis could lead to lower overall network costs. These savings flow through to consumers. We expect the insights from distributors better understanding their networks will lead to better optimisation of existing network capacity, more efficient connection processes, better understanding of the value proposition of flexible use of DER to support network operations and planning.
- 5.50 Work done for the ENA estimated the benefits for distributors from the costliest of the preferred approaches for low-voltage network monitoring at \$477m over ten years. These benefits were savings in asset replacement and renewals; reduction in lost load and reduction in the costs of system growth.¹¹ Other benefits for distributors from network capacity analysis include:
- (a) network information can support the integration of DER into network operations to optimise current hosting capacity
 - (b) incentivising the development of methods to identify the value of DER at locations on their networks
 - (c) improved distribution system planning by requiring estimates of future network hosting capacity under a range of forecast conditions, including DER forecasts and growth forecasts, will be useful inputs into distributors' upgrade planning processes
 - (d) deferral of network investment due to more efficient use of existing distribution networks. In some cases, this could remove the need for physical network investment altogether.

¹¹ Sapere Research Group, [Business Case for Investment in Low Voltage Network Monitoring](#), November 2020. Commissioned by Electricity Networks Aotearoa.

5.51 The proposed publication of network hosting capacity is expected to guide location selection and system design by access seekers. Easily accessible information about locations with surplus network capacity may encourage connections in those locations, improving network utilisation. Such information may also provide useful connection screening processes and support more efficient connection processes.

Expected benefits: better regulation

5.52 Improved transparency of networks' hosting capacity (both current and forecast) is expected to be a useful input into regulators' judgements and decisions. For example, greater transparency and locational information reduces concerns of distributors using network information to discourage competition in markets that rely on or provide services to the electricity system.

5.53 Better informed regulatory decisions have flow on benefits to consumers. These benefits can include lower network operating costs and lower costs of regulation. For example, improved information about network hosting capacity may produce system growth savings, which are related to judgements regulators make about future capital expenditure allowances.

Q13. Have we correctly identified the benefits of network visibility?

Q14. Do you have any information that might help quantify the value of these benefits? If so, please provide this information.

There will be increased costs for distributors

5.54 During our September 2025 workshop, and in written feedback, distributors identified several costs associated with implementing network visibility. Similar themes were also identified by distributors in their 2024 information disclosures relating to visibility of constraints on distributors' low voltage networks.¹²

5.55 In a business case prepared for the ENA, Sapere put the costliest preferred approach for low voltage network monitoring at between \$160m and \$214m over ten years.¹³ These costs related to purchasing and installing network monitoring devices, data management and analytics. Further investment in such functionality is in our view largely unnecessary for high-voltage network monitoring, because we understand distributors have good power quality data and understanding of the topology of their high-voltage networks, due to their use of operations management tools such as supervisory control and data acquisition systems (SCADA) or Advanced Distribution Management Systems. However, we acknowledge there will be costs for distributors. Feedback on these costs are summarised below.

Replacement or upgrade of legacy systems

5.56 Many of the systems that distributors currently use, such as SCADA, GIS systems and operations management systems, may not have been designed with data sharing in mind. Some distributors noted that network information held in different systems can be fragmented or incomplete, which would make it difficult to integrate the data.

5.57 It is likely that some distributors may need to replace or upgrade their systems to enable sharing of high-voltage network information, which would come at a cost. However, we have not received feedback from distributors about the specific costs associated with system upgrades.

¹² A summary of distributors' disclosures is available on the Commissions website. See Commerce Commission, [Visibility of Low Voltage Networks across Electricity Distribution Businesses: Summary report - Disclosure year 2024](#), February 2025.

¹³ Sapere Research Group, [Business Case for Investment in Low Voltage Network Monitoring](#), November 2020. See page 18, Table 5: Summary of cost benefit analysis, by scenario

5.58 We expect distributors to collaborate with each other, including distributors with more advanced capabilities offering to provide shared services or distributors working together on a common project to provide visibility across multiple networks. This will further reduce costs to individual distributors.

Costs of storing, analysing and enabling access to data

5.59 Distributors also identified that there would be costs associated with storing, analysing and publishing network data. This includes the systems required to store and process information and people capability in terms of analysing and publishing network data. For the latter, this may be more apparent for smaller distributors who don't have dedicated data or analytics teams. Some felt that these costs would be disproportionate for distributors when most of the benefits from publishing the information would accrue to access seekers.

5.60 Given that the focus of our proposal is on the use of high-voltage network information that is, in most cases, already available to distributors, we think the overall costs of this proposal will not be highly material. Most high-voltage networks are, to a greater or less extent, already monitored. Moreover, distributors already have a good understanding of the topology of these networks (particularly by comparison with low-voltage networks).

5.61 That said, we acknowledge there may be costs with upgrading systems and amending processes to support the ongoing and efficient production and publication of network hosting capacity information. Collaboration in a common project could reduce these costs, by reducing duplication of effort and resources.

Q15. Have we correctly identified the costs of network visibility?

Q16. Do you have any information that might help quantify the costs? If so, please provide this information.

Regulatory overlap and duplication

5.62 Some distributors expressed concern that introducing network visibility requirements under the Code could duplicate the Commission's existing information disclosure requirements. Some felt that this would add additional costs by requiring staff to put effort into providing the same information in different formats.

5.63 We have assessed the extent to which there would be overlap or duplication between the proposed Code amendment and the Commission's existing requirements, the expected benefits to access seekers and potential costs to distributors. A summary of our assessment is in the table below.

Table 2: Comments on overlapping regulations

Proposed requirement	Potential area of regulatory overlap	Assumed benefit to access seekers	Assumed costs for distributors
Location of high-voltage network circuits	There would be regulatory overlap with the requirements for distributors to disclose network geographic information about their zone substations under clause 2.5.2A of the ID Determination.	Access seekers would benefit from useful information about all of a distributors high-voltage network rather than only having geographic information relating to zone substations. The increased publication frequency (from annual to quarterly) would also provide access seekers with more up to date information.	We expect increased costs for distributors associated with: <ul style="list-style-type: none"> including information about all components of distributors' high-voltage networks on network maps not just zone substation information updating network geographic information on a quarterly rather than annual basis.

Estimate of remaining circuit capacity for the next 12 months and each of the next five years (load)	There would be some overlap with the requirements in Schedule 12b of the ID Determination for distributors to provide a breakdown of the current and forecast capacity for each of their zone substations.	In addition to benefits identified above, the proposed Code amendment would address feedback from access seekers about having network hosting capacity information shown in visual formats such as network maps rather than in spreadsheets.	We expect increased costs for distributors associated with: <ul style="list-style-type: none"> • developing network maps to show network hosting capacity information • producing more granular information than is currently required.
Estimate of remaining circuit capacity for the next 12 months and each of the next five years (distributed generation)	As above, there may be some overlap with the requirements in Schedule 12b of the ID Determination in relation to zone substations. We propose to replace the current requirements in clause 6.3 of the Code relating to export congestion. ¹⁴	As above.	Clause 6.3 would only require distributors to publish information about export congestion where it is known. The proposed amendment would increase costs for some distributors as they would now be required to collect this information.
SAIDI and SAIFI for the immediate past 12 months	There is a degree of overlap between the proposed Code amendment and existing requirements for distributors to publish SAIDI and SAIFI information under Schedules 10 and 10a of the ID Determination. However, the information to be disclosed under the proposed Code amendment would be broader than that published under the ID Determination.	Publishing SAIDI and SAIFI on network maps would benefit access seekers by linking information about network reliability to specific locations on a network.	We anticipate that there would be a minimal increase in costs for distributors as they already disclose SAIDI and SAIFI for their high-voltage networks. Any increase in costs would be associated with publishing the information on a network map and updating the information quarterly rather than annually.

5.64 The Authority's view is that, despite some areas of minor regulatory overlap, there is still a net benefit from the proposed amendments. We believe more granular, up-to-date circuit capacity information about high-voltage networks helps access seeker decision making. It also improves distributor decisions on connecting DER and potentially making better use of flexibility to defer or avoid network upgrades. These benefits are likely to outweigh any costs arising from the minor regulatory overlap we have identified.

5.65 We will consider how we might reduce any overlaps to avoid duplicated effort by distributors as the proposed specifications are developed.

5.66 Further detail of our gap analysis between existing disclosure requirements and the proposed Code amendment can be found in Appendix E.

Q17. Have we correctly identified the regulatory overlaps?

Q18. Do you agree with our assessment that there is a net benefit notwithstanding any regulatory overlap? If not, why not?

Q19. Do you have any information that might help quantify the costs and benefits associated with the regularly overlap? If so, please provide this information.

¹⁴ Note that, should distributors begin publishing network maps prior to 1 September 2027, this would be deemed to be compliance with the requirements of clause 6.3 in place prior to that date.

Q20. Do you agree that the Authority should consider reducing the regulatory overlap as the proposed specifications are developed?

Our overall evaluation

- 5.67 Our overall qualitative evaluation is that the expected system-wide benefits (including benefits to access seekers, more efficient distribution networks and better regulation) to consumers from the proposed Code changes relating to high-voltage network capacity information exceed the costs of developing, providing and using this information.
- 5.68 Our view is that the benefits of the proposal are likely to be material.
- 5.69 As discussed above, we consider there are benefits from greater understanding and transparency of high-voltage network hosting capacity. Further, we think these benefits produce an overall benefit for consumers, including through benefits to access seekers, more efficient distribution networks and better regulation.
- 5.70 The benefits to access seekers mainly come from better informed connection-related decisions, including designing behind-the-meter capabilities to better align with forecast network conditions, and quicker connection times. Benefits are also likely to include lower connection and ongoing lines charges – particularly if network reinforcement investments are reduced through better optimisation of existing network capacity. Further, such information potentially improves the ability of access seekers to create competition, enhance security of supply in both the wholesale and ancillary services markets, and support the development of future market services.
- 5.71 The Authority considers that increased network visibility would allow for more efficient use of existing network capacity, reducing or deferring distributor expenditure on network assets. Distributors current forecast of spending to accommodate future system growth, between now and 2030, is approximately \$2 billion.¹⁵ The potential savings from the deferral of expenditure on replacement and renewal and on system growth could be significant. More transparent network information helps identify opportunities to integrate DER into distribution network operations and planning.
- 5.72 While the proposal will create costs for distributors, our view is that these are not highly material, because the proposal leverages distributors' existing capabilities.
- 5.73 We also note that there are possible mitigations to the costs identified by distributors in relation to storing and analysing network data. These may include:
- (a) collaborating with other distributors to develop systems for analysing and/or publishing network data for increased efficiency of scale.
 - (b) contracting with specialist service providers to store, analyse and/or publish network data rather than building this capacity within the distributors business.
- 5.74 We note that some distributors are already working together to develop shared platforms and standard approaches to avoid duplication and improve efficiency. For example, since the beginning of 2026, Counties Energy has announced partnerships with both Unison¹⁶ and The Lines Company¹⁷ to develop shared digital platforms and standardised asset management approaches. Such partnerships can be useful for improving efficiencies and lowering the costs of analysing and publishing high-voltage network hosting capacity.

¹⁵ Commerce Commission, Electricity Authority and EECA, [Joint open letter to distributors on non-network solutions](#), February 2026.

¹⁶ Counties Energy, [Unison and Counties Energy partner to standardise network services and enable a smoother customer energy transition](#), January 2026.

¹⁷ Counties Energy, [The Lines Company and Counties Energy launch a Shared Platform and Services Partnership](#), February 2026.

- 5.75 We have not been able to source any quantitative information relating directly to the costs and benefits from greater understanding and transparency of high-voltage network hosting capacity. To the extent that distributors do not currently systematically monitor and analyse high-voltage network capacity, there may savings from this proposal.
- 5.76 Recent distributor efforts to better understand their high-voltage networks suggest there is value in doing this work. Further, some distributors also see value in publishing high-voltage network hosting capacity information. Both of these things appear to support our view that there is value in this work.
- 5.77 For the above reasons, our overall qualitative evaluation is that the expected system-wide benefits to access seekers, distributors and regulators from the proposed Code changes relating to high-voltage network hosting capacity information exceed the costs of developing, providing and using this information.

Q21. Do you agree with our assessment that there will be net benefit from the proposed amendments? If not, why not?

The Authority has identified other means for addressing the objectives

- 5.78 The Authority has identified and considered several alternative options for the development and publication of information relating to high-voltage network hosting capacity.

Status quo

- 5.79 Over time, information disclosure requirements and voluntary adoption of tools such as network capacity maps might achieve the outcomes that the Authority outcomes. However, we consider that the status quo is unlikely to deliver uniform timely progress, or standardised and useful network-capacity information for access seekers. Feedback from access seekers reinforces that the status quo does not meet their needs.

Industry-led approach

- 5.80 At the September 2025 workshop, and in written feedback, some distributors expressed a preference for an industry-led approach such as guidance. We note that some progress towards network visibility has been made through the ENA's 2019 Network Transformation Roadmap.
- 5.81 The Network Transformation Roadmap identifies actions for distributors in relation to monitoring and visibility of their low voltage networks. However, progress on the roadmap has been uneven and limited. We also note that the ENA cannot require individual distributors to implement actions, resulting in inconsistent uptake. The Authority considers that regulatory incentives are required to ensure consistent, timely and useful network information is provided by all distributors.

Amendments to information disclosure requirements under the Commerce Act

- 5.82 As discussed in Section 4, access seekers gave feedback about the usefulness of existing information disclosed by distributors as required by the Commission under Part 4 of the Commerce Act. This feedback highlighted that current information disclosure requirements do not meet the needs of access seekers due to the frequency, granularity and format of current information disclosures.

- 5.83 One option for improving visibility of information about high-voltage network hosting capacity would be for the Authority to recommend that the Commission review its information disclosure requirements. However, our view is that our preferred option of amending the Code is more appropriate as the proposed information disclosure requirements are targeted at improving access to distribution networks and ensuring an even playing field for the electricity market as a whole rather than focusing on individual distributor performance.
- 5.84 As outlined in an earlier section, information disclosures under Part 4 of the Commerce Act are intended to allow the Commission and interested parties to monitor the performance of distributors and assess whether they are making decisions consistent with outcomes produced in competitive markets. The Authority's proposed Code amendment is focused on enabling access to distribution networks. The Authority's view is that the focus of its proposed Code amendment is distinct from that of the information disclosure requirements under the Commerce Act.

Guidance only

- 5.85 The Authority has also considered whether it could develop guidance for distributors about the visibility of network information without amending the Code. This approach could provide the industry with more certainty about the Authority's expectations around network visibility and encourage more distributors to make information available while providing flexibility in how network visibility is implemented.
- 5.86 This option is not preferred as the Authority would not be able to require distributors to act in accordance with the guidance. It is likely that some distributors would choose not to apply the guidance so there would be gaps in the information available for some networks. At the September workshop we heard from some distributors that they did not have any capacity constraints on their networks and therefore the business case did not stack up for investing in understanding network hosting capacity.
- 5.87 The efficiency concern for networks in the above situation is they have oversized networks. Promoting locations with excess network capacity to access seekers seems one approach to spread network costs across more connections. Further, timely access to information about current or future network hosting capacity could inform future network renewal, reinforcement and replacement decisions.

Implement full network visibility

- 5.88 The Authority has considered whether the proposed Code amendment should introduce requirements for distributors to publish network capacity information about low-voltage networks as well as high-voltage networks. Feedback on the Discussion paper noted information about low-voltage networks would be useful to access seekers seeking to connect DER to distribution networks.
- 5.89 While there would be clear benefits for access seekers in requiring distributors to publish low-voltage network capacity information now, the Authority's assessment is that the costs of obtaining low-voltage network data (both network topology and electricity flows) would likely outweigh the benefits to distributors in the short term. For instance, in feedback on our earlier Discussion paper, multiple distributors provided feedback that accessing smart meter data is one of the main barriers to implementing low-voltage network visibility. In that Discussion paper, the Authority noted that there is a cost to metering equipment providers for obtaining and providing both consumption and network operating data. We also noted that in our view, the prices being charged and the terms for access are currently reasonable.
- 5.90 Other barriers for distributors implementing low-voltage network visibility include the costs associated with the need for more extensive data collection and cleansing and limited

topology for low-voltage networks. It would also take time for distributors to develop capability for analysing and publishing low-voltage network capacity information.

- 5.91 Over time, the costs associated with obtaining, analysing and publishing low-voltage network capacity data are likely to be offset through more efficient network management. However, the Authority’s preferred approach is for staged implementation to allow for a trial of network visibility using the information distributors already have access to about their high-voltage networks, before considering whether to expand the requirements to low-voltage networks.

The proposed amendment is preferred to other options

- 5.92 Of the alternatives identified, only the option of implementing full network visibility would meet the Authority’s objectives. As a result, we have not considered the other potential alternatives further.
- 5.93 We developed a set of criteria to assess whether we should implement network visibility using a staged approach (preferred option) or require visibility of low-voltage network information at the same time as high-voltage network information. These criteria are in addition to the Code amendment principles discussed below.

Table 3: Assessment criteria

Criteria	Description
Effective	The extent to which the option supports the Authority’s objective to improve and standardise access to network information to meet the needs of access seekers in an effective and efficient manner.
Cost	Do the expected benefits exceed the net costs, and are the costs to distributors proportionate
Timely	Can the option be implemented quickly enough to support the needs of an electricity system undergoing rapid electrification and increased DER uptake.
Feasible	How practical and realistic is it for distributors to implement the option, given current capability, systems, and data availability.

Table 4: Qualitative assessment of options for addressing Authority’s objectives

Option	Effective	Cost	Timely	Feasible
Implement requirements for low-voltage and high-voltage network visibility at the same time	Would meet the needs of access seekers wanting to connect to low-voltage and high-voltage networks.	Costs of providing low voltage network visibility include: <ul style="list-style-type: none"> Accurately digitising network topology develop capability to monitor low-voltage network power flows data cleansing and developing models for low-voltage networks. As such these costs are likely to be considerably greater than starting with high-voltage networks.	This option would need to be implemented over several years to allow distributors to develop the capability to collect and publish low-voltage network information.	It may not be feasible for most distributors currently – particularly given the likely costs to upgrade data and capabilities.
Phased approach beginning with high-voltage	Would primarily meet the needs of access seekers wanting to	There would be costs to distributors in collecting and	Most distributors already have good information about	While some distributors may experience

network information	connect to high-voltage networks. However, this would also benefit access seekers connecting to low-voltage networks where the high-voltage network hosting capacity has downstream effects on the low-voltage networks.	publishing high-voltage network information. However, these would be lower than for low-voltage network information. Starting with high-voltage should also help incrementally build the necessary systems and capability for low-voltage.	their high-voltage networks. We expect that an implementation of 12 months would be sufficient to begin publishing information about high-voltage distribution networks.	challenges with implementing visibility of their high-voltage networks, our assessment is that most have the required data available to them and are capable of publishing it.
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5.94 Our overall assessment is that, while the phased approach of implementing high-voltage network visibility first might be less effective for meeting the needs of access seekers connecting DER, it meets our remaining assessment criteria better than full implementation. For this reason, we prefer the phased approach.

Q22. Do you agree the proposed amendment is preferable to the other options? If you disagree, please explain your preferred option in terms consistent with the Authority's statutory objective in section 15 of the Electricity Industry Act 2010.

The proposed amendment complies with section 32 of the Electricity Industry Act

- 5.95 The Authority's main objective under section 15(1) of the Electricity Industry Act is to promote competition in, reliable supply by, and efficient operation of, the electricity industry for the long-term benefit of consumers. The Authority's additional objective under section 15(2) is to protect the interests of domestic and small business consumers in relation to their supply of electricity.
- 5.96 Section 32(1) of the Electricity Industry Act says that the Code may contain any provisions that are consistent with the Authority's objectives and are necessary or desirable to promote any matters listed in this section.
- 5.97 The proposed Code amendment is necessary or desirable to promote competition in, and the efficient operation of, the electricity industry for the long-term benefit of consumers. We also consider that the proposed Code amendment is necessary to promote the reliable supply of electricity to consumers. The proposed Code amendment promotes these matters by:
- providing equal access to network information to allow for the development of a competitive flexibility services market
 - ensuring that distributors make more efficient planning and investment decisions in response to increasing demand for electricity
 - supporting New Zealand's transition to a more decentralised and digital electricity system which would help maintain reliable and lowest cost electricity for consumers in the future.
- 5.98 We also reiterate that our assessment is that there is net benefit from the proposed Code amendment in relation to access to distribution networks, notwithstanding any overlap with matters regulated under Part 4 of the Commerce Act. Accordingly, we consider that the Authority is permitted to amend the Code to implement the proposed information requirements for distributors.

Q23. Do you agree the Authority's proposed amendments comply with section 32 of the Electricity Industry Act?

The Authority has given regard to the Code amendment principles

5.99 When making amendments to the Code, the Authority is required to follow the amendment principles set out in its Consultation Charter, to the extent that the Authority considers they are applicable.¹⁸ Table 5 below explains how these principles were considered when preparing this proposal.

Table 5: Regard to the Code amendment principles

Principle	Consideration
1. Clear case for regulation	The Authority has identified a clear case for amending the Code, as set out in this document and the regulatory statement.
2. Costs and benefits are summarised	The Authority has undertaken an evaluation of the costs and benefits of the proposed amendment and has included this in the regulatory statement. The Authority considers that the expected benefits exceed the estimate of costs of the proposal.

5.100 The remaining Code amendment principles are only needed where there is no clear best option in terms of amending the Code. We are satisfied that the proposal to implement network visibility using a phased approach is the best option.

Next steps

5.101 The Authority will consider submissions made in response to this paper. We expect to publish our final decisions by the end of 2026.

5.102 Following publication of our final decisions, if the proposals are confirmed, we will begin developing the technical specifications to support the Code amendment. We expect this process to take approximately six months to complete. If you would like to be consulted during the development of the specifications, please indicate this in your submission.

¹⁸ Electricity Authority, [Consultation Charter](#), February 2024.

Appendix A Proposed Code amendment

Part 1 – Preliminary provisions

...

1.1 Interpretation

...

system average interruption duration index and SAIDI has the meaning given in the EDB ID determination

system average interruption frequency index and SAIFI has the meaning given in the EDB ID determination

...

Part 6 – Connection to distribution networks

...

6.3 Distributors must publish information that is not confidential

...

(2) Each distributor must publish—

...

(da) until 1 September 2027 and unless network maps are published under paragraph (dg), a list, updated before the first **business day** after 15 December, 15 March, 15 June, and 15 September, of all locations on its **distribution network** that the **distributor** knows are subject to **export congestion**; and

(db) until 1 September 2027 and unless network maps are published under paragraph (dg), a list, updated before the first **business day** after 15 December, 15 March, 15 June, and 15 September, of all locations on its **distribution network** that the **distributor** expects to become subject to **export congestion** within the next 12 months; and

...

(de) until 1 September 2027 and unless network maps are published under paragraph (dg), lists containing the following information if known (“capacity information”) updated before the first **business day** after 15 December, 15 March, 15 June, and 15 September—

(i) location and available capacity at points along zone substation distribution feeders; and

(ii) location and available capacity of transformers 500 kVA and above; and

(df) until 1 September 2027 and unless network maps are published under paragraph (dg), the capacity information recorded in the lists referred to in paragraph (de) should—

(i) be marked with an as at date, which is as close as possible to the applicable date set out in paragraph (de); and

(ii) be to the best of the **distributor’s** knowledge at the time of **publication** and should be corrected as soon as reasonably practicable if an error is discovered; and

(iii) be marked as estimated where it is estimated; and

(iv) include caveats where the capacity is subject to change intra-day or intra-year; and

(v) note that **applicants** should contact the **distributor** directly for the most up to date and accurate capacity information.

- (dg) no later than 15 September 2027, **network** maps that show the location of all the **distributor’s** high-voltage **network** circuits and, for each circuit and each point along the circuit where the design capacity changes the following information:
 - (i) the designed capacity;
 - (ii) an estimate of remaining circuit capacity for the next 12 months;
 - (iii) an estimate of remaining circuit capacity for each of the next 5 years;
 - (iv) the **SAIDI** and **SAIFI** for the immediately preceding 12 months; and
- (dh) no later than 15 September 2027, the methodology used in preparing the estimates of capacity referred to in subparagraphs (dg)(ii) and (iii), and the confidence level the **distributor** has with these estimates, linking this information to **network** maps **published** under paragraph (dg); and
- (di) no later than 15 September 2027, the capacity information referred to in paragraph (dg), in a downloadable format commonly used by geographical, or equivalent, information systems mapping software; and
- (dj) updates to the **network** maps and the capacity information **published** under paragraphs (dg) and (di), before the first **business day** after each 15 December, 15 March, 15 June, and 15 September subsequent to 15 September 2027; and
- (dk) if any change is made to a methodology referred to in subparagraph (dh) or the level of confidence that a **distributor** has in a methodology, the updated methodology or level of confidence at the time of the next update under paragraph (di); and

....

- (3A) The estimate under subparagraph (2)(dg)(ii) must—
 - (a) be based on actual or estimated current power flows for the immediately preceding 12 months; and
 - (b) include separate estimates of capacity for the following:
 - (i) **load**;
 - (ii) **distributed generation**;
 - (iii) minimum available capacity and maximum available capacity; and
 - (c) note whether the estimated current **network** capacity is reliant upon control of existing **load** or **distributed generation**.

- (3B) Each estimate under subparagraph (2)(dg)(iii) must—
 - (a) be based on estimated forecast power flows and **load** increases or decreases, and any planned circuit upgrades or downgrades for the future years; and
 - (b) include separate estimates of capacity for the following:
 - (i) **load**;
 - (ii) **distributed generation**; and
 - (c) include the minimum available capacity and maximum available capacity; and
 - (d) indicate the extent to which the **distributor** reasonably expects to need to use, as an alternative to **network** reinforcement, any of the following:
 - (i) demand-side response;
 - (ii) energy efficiency;
 - (iii) energy storage facilities;
 - (iv) other resources; and
 - (e) indicate the price that the **distributor** may be willing to pay for alternatives to **network** reinforcement, listed in paragraph (d), for the relevant high-voltage **network** circuits.

...

6.3A Specifications for preparing and publishing capacity information

- (1) Each **distributor** must prepare and **publish** the capacity information under clause 6.3(2)(dg) to (dk) in accordance with the specifications **published** by the **Authority** under subclause (3).
- (2) The specifications **published** under subclause (3) may deal with technical matters relating to the **publication** of the capacity information under clause 6.3(2)(dg) to (dk) including the following:
 - (a) **measures to ensure that the privacy of individuals is protected:**
 - (b) **definitions for common terminology for **distributors** to use:**
 - (c) **technical requirements for publishing network data and information in common formats or software**
 - (d) **linking to geographic information systems data, for example, network maps and downloadable data file formats:**
 - (e) **user guidance for access seekers.**
- (3) The **Authority** must—
 - (a) **before publishing or amending the specifications referred to in subclause (1), consult on the proposed specifications or proposed amendment to the specifications; and**
 - (b) **publish the specifications as soon as reasonably practicable after the completion of the consultation.**

...

Q24. Do you have any comments on the drafting of the proposed amendment?

Appendix B Submission form

Improving information on high-voltage network capacity

Submitter	
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Questions	Comments
Q1. Do you agree with our assessment of the current state of the information and capabilities needed to inform network hosting capacity? If not, please explain why.	
Q2. Do you agree the issues identified by the Authority are worthy of attention? If not, please explain why.	
Q3. Do you agree with our assessment that now is the time to regulate for network visibility? If not, when do you consider would be the right time?	
Q4. Do you agree with our assessment of the outcomes that network visibility supports? If not, why not?	
Q5. Do you consider the proposed amendments to Part 6 of the Code would promote the Authority's statutory objective? If not, why not?	
Q6. Are there any matters you believe are missing from the proposed Code amendment? Please specify.	
Q7. Is the indicative timeframe for implementing the proposed Code amendment likely to be adequate? If not, please provide information supporting a different timeframe, including identifying cost savings from a later implementation date.	
Q8. What are your views on the proposed approach where detailed information about the data sets captured within the definition of network capacity information would be contained in technical specifications?	
Q9. Do you consider that the proposal to develop network visibility specifications in consultation with interested parties would be effective? If not, why not?	
Q10. Is the proposed timeframe for developing the specifications likely to be sufficient?	
Q11. Do you agree with the proposal to start with high-voltage network visibility? If not, please share your perspectives on where best to start.	

Q12. Do you agree with the assumptions the Authority has made? Why/Why not?	
Q13. Have we correctly identified the benefits of network visibility?	
Q14. Do you have any information that might help quantify the value of these benefits? If so, please provide this information.	
Q15. Have we correctly identified the costs of network visibility?	
Q16. Do you have any information that might help quantify the costs? If so, please provide this information.	
Q17. Have we correctly identified the regulatory overlaps?	
Q18. Do you agree with our assessment that there is a net benefit notwithstanding any regulatory overlap? If not, why not?	
Q19. Do you have any information that might help quantify the costs and benefits associated with the regularly overlap? If so, please provide this information.	
Q20. Do you agree that the Authority should consider reducing the regulatory overlap as the proposed specifications are developed?	
Q21. Do you agree with our assessment that there will be net benefit from the proposed amendments? If not, why not?	
Q22. Do you agree the proposed amendment is preferable to the other options? If you disagree, please explain your preferred option in terms consistent with the Authority's statutory objective in section 15 of the Electricity Industry Act 2010.	
Q23. Do you agree the Authority's proposed amendments comply with section 32 of the Electricity Industry Act?	
Q24. Do you have any comments on the drafting of the proposed amendment?	
Please indicate if you wish to be consulted during the development of the technical specifications supporting the proposed Code amendment.	

Appendix C Existing information disclosure requirements relating to network visibility

C.1 This appendix provides detail on the Commerce Commission and Electricity Authority requirements for distributors to disclose information related to network visibility.

Commerce Commission requirements

C.2 The Commission has operated an information disclosure regime under Part 4 of the Commerce Act since 2012. Several provisions within that regime already provide – to varying degrees – information that is relevant to network access.

C.3 The Commission’s current information disclosure requirements can be found in the *Electricity Distribution Information Disclosure (amendments related to IM Review 2023) Amendment Determination 2024 (Amendment Determination)*.¹⁹ The table below summarises the provisions relevant to network visibility.

Clause or Schedule requirement	Description
Amendment Determination	
Clause 2.3 Financial Information for the Disclosure Year	<p><i>Map of anticipated network expenditure and network constraints</i></p> <p>Clause 2.3.13 requires that, where distributors have had any related party transactions in a disclosure year, they must publicly disclose a map of their distribution network within 5 months after the end of the disclosure year. This includes providing a brief explanatory description of:</p> <ul style="list-style-type: none"> the 10 largest forecast operational expenditure projects in the AMP planning period and the likely timing, value and location of the projects the 10 largest forecast capital expenditure projects in the AMP planning period and the likely timing, value and location of the projects possible future network or equipment constraints and their location, where the responses to the constraints would involve one of the 10 largest future operational expenditure projects in the AMP planning period possible future network or equipment constraints and their location, where the responses to the constraints would involve one of the 10 largest future capital expenditure projects in the AMP planning period. <p>Clause 2.3.14 specifies that the map required above must identify whether the forecast or possible operational expenditure or capital expenditure is:</p> <ul style="list-style-type: none"> already subject to a contract and, if so, whether that contract is with a related party; forecast to require the supply of assets or goods or services by a related party; or currently not indicated for supply by a related party. <p>Under clauses 2.3.15 and 2.3.16, if distributors have fewer than 10 forecast or future operational expenditure or capital expenditure projects, the map must include all the forecast or future projects.</p>
Clause 2.5 Non-financial Information Relating to Network Assets	<p><i>Network geographic information</i></p> <p>Clause 2.5.2A requires distributors to publicly disclose the following information about each of their zone substations in a format commonly used by</p>

¹⁹ See [Current information disclosure requirements for electricity distributors | Commerce Commission](#)

Clause or Schedule requirement	Description
	geographical, or equivalent, information systems mapping software: <ul style="list-style-type: none"> • the name of the zone substation • the names of any feeders connected to it • the location of the zone substation (in coordinates) • the boundary of the area the zone substation serves. • the input and output voltages the zone substation primarily transforms.
Attachment A Asset Management Plans	
Clause 4 Assets Covered	Distributors are required to include details of the assets and non-network solutions covered in their AMPs. <p>Clause 4.1, requires distributors to provide a high-level description of their service areas, including:</p> <ul style="list-style-type: none"> • the regions covered • identifying large consumers that have a significant impact on network operations or asset management priorities • describing the load characteristics for different parts of the network • peak demand and total energy delivered in the previous year. <p>Clause 4.2 requires distributors to describe their network configuration, including:</p> <ul style="list-style-type: none"> • bulk electricity supply points, their firm supply capacity and current peak load. • the subtransmission system, the capacity of zone substations and the voltage(s) on the subtransmission network. • quantification of the contribution each non-network solution makes towards solving a network risk or constraint, and a description of the extent to which those non-network solutions are provided by a related party or third party.
Clause 11 Network Development Planning	Clause 11.8 requires distributors to include in their AMP details of demand forecasts, the basis on which they are derived, and the specific network locations where constraints are expected due to forecast increases in demand. This includes: <ul style="list-style-type: none"> • explaining the load forecasting methodology and indicate all the factors used in preparing the load estimates • providing separate forecasts to at least the zone substation level covering at least a minimum five-year forecast period • identifying any network or equipment constraints that may arise due to the anticipated growth in demand during the AMP planning period <p>Clause 11.12 requires distributors to describe their policies on non-network solutions, including how information on current and forecast constraints (both load and injection) is shared with potential providers of non-network solutions.</p>
Clause 17 Requirements to provide qualitative information in narrative form	<p><i>Voltage quality and constraints</i></p> Clause 17.2.1 requires distributors to describe their practices for monitoring voltage including: <ul style="list-style-type: none"> • practices for monitoring voltage quality on their low-voltage networks • how they are responding to and reporting on voltage quality issues when they are identified by the distributors, or they are raised by a stakeholder

Clause or Schedule requirement	Description
	<ul style="list-style-type: none"> • how they are communicating the work they are doing to improve voltage quality their low-voltage networks to affected consumers <p>Clause 17.2.2 requires distributors to describe their practices for monitoring load and injection constraints including:</p> <ul style="list-style-type: none"> • any challenges, and progress, towards collecting or procuring data required to inform the distributor of current and forecast constraints on their low voltage networks, including historical consumption data • any analysis and modelling (including limitations and assumptions) distributors undertake, or intend to undertake, with that constraint-related data. <p><i>Practices for connecting new consumers and altering existing connections</i></p> <p>Clause 17.4.5 requires distributors to describe their approach to sharing information on current and forecast constraints (both load and injection) with potential new consumers. This must include any information on low voltage network constraints.</p> <p><i>New connections likely to have a significant impact on network operations or asset management priorities</i></p> <p>Clause 17.5 requires distributors to describe how they assess the impact that new demand, generation or storage capacity will have on their network, including:</p> <ul style="list-style-type: none"> • how the scale and impact of new demand, generation or storage capacity is measured • how the timing and uncertainty of new demand, generation, or storage capacity is taken into account • how other factors such as the network location of new demand, generation, or storage capacity are taken into account.
Schedules	
Schedule 6a Report on Capital Expenditure for the Disclosure Year	Distributors are required to provide a breakdown of capital expenditure incurred in the disclosure year. This includes expenditure on system growth and asset replacement and renewal.
Schedule 6b Report on Operational Expenditure for the Disclosure Year	Distributors are required to provide a breakdown of operational expenditure incurred in the disclosure year. This includes expenditure on non-network solutions provided by a related party or third party.
Schedule 10 Report on Network Reliability	<p>Distributors are required to provide a summary of the key measures of network reliability for the disclosure year: interruptions, SAIDI, SAIFI and fault rate.</p> <p>The key measures are recorded according to the class the interruption falls into:</p> <ul style="list-style-type: none"> • Class A (planned interruptions by Transpower) • Class B (planned interruptions on the network) • Class C (unplanned interruptions on the network) • Class D (unplanned interruptions by Transpower) • Class E (unplanned interruptions of EDB owned generation) • Class F (unplanned interruptions of generation owned by others) • Class G (unplanned interruptions caused by another disclosing entity) • Class H (planned interruptions caused by another disclosing entity) • Class I (interruptions caused by parties not included above)

Clause or Schedule requirement	Description
	<p>For class B and C interruptions, the SAIDI and SAIFI values are recorded according to the main equipment involved:</p> <ul style="list-style-type: none"> • Subtransmission lines • Subtransmission cables • Subtransmission other • Distribution lines (excluding low-voltage) • Distribution cables (excluding low-voltage) • Distribution other (excluding low-voltage) <p>Distributors are also required to provide information about the worst-performing feeders on their network. These are defined in clause 1.4.3 of the Amendment Determination as “the feeder lines on an EDB’s network that, in respect of a disclosure year, are in the 90th percentile or higher for one or more of any of the following:</p> <p>(a) unplanned feeder SAIDI; (b) unplanned feeder SAIFI; and (c) customer impact ratio.”</p>
Schedule 10a Report on Interruptions	<p>Distributors are required to disclose raw interruption data for the disclosure year. This includes:</p> <ul style="list-style-type: none"> • the circuit location • the sub-network (where applicable) • the feeder(s) affected by the interruption • SAIDI and SAIFI values (recorded using the multi-count approach) • the number of ICPs affected
Schedule 11a Report on Forecast Capital Expenditure	<p>Distributors are required to provide a breakdown of forecast expenditure on assets for the current disclosure year and a 10 year planning period. This includes expenditure on system growth and asset replacement and renewal.</p>
Schedule 11a Report on Forecast Operational Expenditure	<p>Distributors are required to provide a breakdown of forecast operational expenditure for the current disclosure year and a 10 year planning period. This includes non-network solutions provided by a related party or third party.</p>
Schedule 12b Report on Forecast Capacity	<p>Distributors are required to provide a breakdown of current and forecast capacity for each zone substation on their distribution network. This includes:</p> <ul style="list-style-type: none"> • the current peak load period (eg, the season current peak load occurred) • the installed operating capacity (expressed as MVA) • whether the zone substation is constrained or forecast to be constrained (eg, by selecting a ‘Current constraint type’ or ‘Forecast constraint type’). <p>If a zone substation is currently or forecast to be constrained, the following information is required:</p> <ul style="list-style-type: none"> • whether it is a capacity or security constraint • the cause of the constraint • the type of solution (where known) to the constraint • if the solution is temporary, how long it is expected to be in place (required for current constraints only). <p>For a forecast constraint, the following information is required:</p> <ul style="list-style-type: none"> • whether it occurs within or after the AMP planning period. The relevant year must be identified if the constraint falls within the period • if a zone substation is not currently constrained, the available capacity before it becomes constrained

Clause or Schedule requirement	Description
	<ul style="list-style-type: none"> • forecast available capacity in 5 years and an approximate range of forecast available capacity in 10 years • forecast peak load period and forecast security of supply classification in 5 and 10 years.
Schedule 12c Report on Forecast Network Demand	Distributors must provide a forecast of new connections (by consumer type), peak demand and energy volumes for the disclosure year and the 5 year planning period.
Schedule 12d Report on Forecast Interruptions and Duration	Distributors must provide a forecast of SAIDI and SAIFI for the disclosure year and the 5 year planning period.
Schedule 14 Mandatory Explanatory Notes	<p>Distributors are required to provide explanatory notes about information disclosed under part 2 of the ID Determination. This includes providing commentary on:</p> <ul style="list-style-type: none"> • capital expenditure disclosed in accordance with schedule 6a • operational expenditure disclosed in accordance with schedule 6b • network reliability disclosed in accordance with schedule 10.

Electricity Authority requirements

C.4 The Authority's information disclosure requirements relevant to network visibility can be found in Part 6 of the Code.

Code clause	Description
Clause 6.3: Distributors must make information publicly available	<p>Distributors are required to make certain information available free of charge on their websites to enable the connection of distributed generation. This includes:</p> <ul style="list-style-type: none"> • a statement of the circumstances in which distributed generation will be, or may be, curtailed or interrupted to ensure that the distributor's other connection and operation standards are met. • a list of all locations on its distribution network that the distributor knows to be subject to export congestion. • a list of all locations on its distribution network that the distributor expects to become subject to export congestion within the next 12 months.
Schedule 6.1, clause 12: Distributor must give information to distributed generator	Distributors are required to provide specified information to a distributed generator who has completed an initial application to connect to the distributor's network within 30 days of the application. This includes information about the capacity of the network, covering both the design capacity and actual operating levels.

C.5 We note that upcoming amendments to Part 6 of the Code enter into force on 1 December 2026.²⁰ At this time, a new clause 6.3 headed 'Distributors must publish information that is not confidential' will require distributors to publish network capacity information at specified quarterly intervals to enable the efficient connection of distributed generation.²¹ This information includes:

²⁰ See [Electricity Industry Participation Code \(Network Connections\) Amendment 2026](#)

²¹ Distributors will be required to update the information before the first business day after 15 December, 15 March, 15 June and 15 September each year.

- (a) a list of all locations on a distribution network that distributors know to be subject to export congestion
- (b) a list of all locations on a distribution network that distributors expect to become subject to export congestion within the next 12 months
- (c) lists containing capacity information (if known) about:
 - (i) the location and available capacity at points along zone substation distribution feeders; and
 - (ii) the location and available capacity of transformers 500kVa and above.

C.6 The lists of capacity information should:

- (a) be marked with an 'as at' date, which is as close as possible to the quarterly update date
- (b) be to the best of the distributor's knowledge at the time of publication. If an error is discovered, the information should be corrected as soon as reasonably practicable
- (c) be marked as estimated where the relevant information is estimated
- (d) include caveats where the information is subject to change intra-day or intra-year
- (e) note that applicants would still need to contact the distributor directly for the most up-to-date and accurate capacity information.

C.7 There will also be a new requirement included in clause 6.3 for distributors to publish information about their network connections pipelines at both the network and zone substation level.²² This information is to be updated before the final business day of each calendar month, except for December, which is to be updated on 22 December or the next business day if 22 December is not a business day.

C.8 Where the network connections pipeline relates to applications to connect distributed generation with a maximum export power of 300kW or more, the published information must include:

- (a) the number of distributed generation applications in the network connections pipeline
- (b) the sum of the maximum export power of these applications (in MW)
- (c) the number of applications by fuel type
- (d) the number of applications by project stage
- (e) detail on each application in the network connections pipeline (priority position in pipeline, maximum export power (in MW), fuel type, project stage, location by zone substation or feeder, and (where relevant) date commissioned).

²² A definition of 'network connections pipeline' will be inserted into clause 1.1 (Interpretation) of the Code. This definition includes that the network connections pipeline refers to the applications to connect distributed generation to a distributors' network ranked in order of their priority position for consideration in accordance with the distributor's queuing and management policy.

Appendix D International comparisons

D.1 The Authority has reviewed international literature relating to the development and publication of network hosting capacity information. We primarily focused on three jurisdictions – the United Kingdom, United States (California) and Australia. This appendix provides a summary of relevant requirements in these jurisdictions.

United Kingdom

D.2 Work around network visibility in the United Kingdom (UK) began in the 2010's, in response to decarbonisation targets set by the UK government. Digitalisation of the energy system has been identified as one of the enablers of the energy transition as it allows for greater innovation and uptake of low carbon initiatives such as distributed generation, electricity storage and demand side management. Visibility of energy data is seen as crucial as it allows for better understanding of infrastructure requirements, operational constraints and operational needs.

D.3 Electricity distribution network operators (DNOs) in the UK are regulated by the Office of Gas and Electricity Markets (Ofgem). Ofgem has implemented two main types of requirements for DNOs in relation to network visibility:

- (a) conditions imposed on distribution licences issued under the Electricity Act 1989 (UK); and
- (b) energy network price controls known as RIIO (Revenue = Incentives + Innovation + Outputs).

Distribution licence conditions

D.4 DNOs operate under distribution licences issued by Ofgem. These licences may include standard licence conditions that are incorporated by reference or licence conditions imposed on individual DNOs, referred to as special conditions.

D.5 One licence condition relevant to network visibility is a long-standing obligation for DNOs to publish a Long Term Development Statement (LTDS) annually.²³ The purpose of the LTDS is to provide those wishing to connect to or use the distribution network with the detailed network information that they need to make informed decisions.

D.6 Ofgem specifies the form and information to be included in a LTDS by way of a direction, with detailed requirements specified in the Form of Long Term Development Statement (FoS). The current FoS requires that grid model data is published in the form of a Common Information Model, and network capacity information is published as a heatmap.²⁴

RIIO price controls

D.7 DNOs are currently subject to RIIO-ED2 price controls which cover the five-year period from 1 April 2023 to 31 March 2028. Price controls set the amount of money (allowance) that can be earned by DNOs over the five-year period. The allowance for each DNO is set at a level which covers the DNO's costs and allows it to earn a reasonable return subject to delivering value for consumers, operating efficiently, and achieving the targets set by Ofgem²⁵.

²³ See condition 25 of the [Standard conditions of the Electricity Distribution Licence](#)

²⁴ Ofgem, [Form of Long Term Development Statement](#), April 2024.

²⁵ Ofgem, [RIIO-ED2 Final Determinations Core Methodology Document](#), November 2022.

- D.8 The Final Determinations for RIIO-ED2 included several measures related to network visibility.²⁶ These included:
- (a) smart optimisation initiatives; and
 - (b) distribution system operation incentives.
- D.9 Under the smart optimisation initiatives, DNOs are incentivised to share information about their networks with stakeholders. This includes a requirement for each DNO to develop a System Visualisation Interface by creating a section on their websites and open data portal (once operational) to provide access to information about their networks.
- D.10 At a minimum, Ofgem considered that the System Visualisation Interface should include, but not be limited to:
- (a) a representation of the DNO's existing network assets and associated constraints – both heat maps and raw data made available through an Application Programming Interface that is common across all DNOs.
 - (b) a representation of the DNO's network in the future, including expected constraints – in a format and time horizon to be determined collectively by DNOs and their stakeholders.²⁷
- D.11 In the interests of implementing the smart optimisation initiatives as quickly as possible, Ofgem did not require a standard format for the System Visualisation Interface.

United States (California)

- D.12 Many states have been experiencing growth in DER over the last 10-15 years. To optimise these resources, regulators have emphasised proactively integrating DER into grid planning and long-term investment decisions. To do this, some states have adopted the use of hosting capacity analysis as a tool for determining the amount of DER a distribution network can accommodate. As one of the earliest states to adopt hosting capacity analysis, we have used California as a case study.
- D.13 The California Public Utilities Commission (CPUC) introduced requirements for investor-owned utilities²⁸ to identify optimal locations on their grids for DER in 2013. As part of this, CPUC decided that the utilities needed to develop Integration Capacity Analyses (ICA),²⁹ with the ICAs for test feeders due in July 2015.³⁰
- D.14 Although CPUC specified that the utilities should use the same ICA methodology, one implemented a streamlined method while the other two implemented an iterative method. These two approaches can be summarised as follows:³¹
- (a) streamlined method: a set of simplified algorithms are applied to each power system limitation (ie, thermal, safety/reliability, power quality/voltage and protection) to estimate the DER capacity limit at nodes across the distribution circuit.

²⁶ Ofgem, [RIIO-ED2 Final Determinations Overview document](#), November 2022.

²⁷ See Ofgem, [RIIO-ED2 Final Determinations Core Methodology Document](#), 94.

²⁸ The three investor-owned utilities in California are Pacific Gas and Electric, San Diego Gas and Electric Company, and Southern California Edison.

²⁹ Integration Capacity Analysis is the term used in California for hosting capacity analysis.

³⁰ Interstate Renewable Energy Council, [Optimizing the Grid: A Regulator's Guide to Hosting Capacity Analyses for Distributed Energy Resources](#), December 2017, 32.

³¹ As above, 19.

(b) iterative method: DER is directly modelled on the distribution grid to identify hosting capacity limitations. A power flow simulation is run iteratively at each node on the distribution system until a violation of one of the four power system limitations arises.

D.15 CPUC established a stakeholder working group to work with the utilities to refine the method and determine which should be used as a common methodology. The utilities tested the streamlined and iterative methods on different parts of their networks, including urban, rural and a single test feeder, to compare results and identify any discrepancies. The agreed methodology was the iterative method due to its higher accuracy.

D.16 The first full ICAs were published in 2019. However, there have been ongoing issues with the investor-owned utilities not maintaining the ICAs as intended.³²CPUC recently adopted a resolution, with modifications, giving effect to proposals from the investor-owned utilities to establish ICA remediation plans, as well as tracking and reporting requirements.³³

Australia

D.17 Recent work has taken place in Australia around network visibility in response to the rapid growth in consumer energy resources, such as rooftop solar, batteries, and electric vehicles. This has created challenges for distribution network service providers (DNSPs) in managing their low-voltage networks.

D.18 In response, the Low-voltage Network Visibility project (Network Visibility project) was established by the Energy Security Board and led by the Australian Energy Regulator (AER). The project aimed to improve third party access to distribution network data to support the efficient integration of consumer energy resources and the management of network-related risks across low-voltage networks.

D.19 The Network Visibility project was carried out in three phases:

(a) Phase 1: identified the use cases and data sets required by stakeholders making decisions related to consumer energy resources.

(b) Phase 2: tested the challenges and value in delivering the data sets identified in Phase 1 by applying them to a real-world trial supporting the Victorian Neighbourhood Battery Initiative.

(c) Phase 3: proposed a pathway for implementing low-voltage network visibility, including recommendations about the priority data sets to be adopted and key actions to ensure that low-voltage network data is provided to the public.

D.20 One of the key actions for the AER is to support a proposed change to the National Electricity Rule (NER) requested by Energy Consumers Australia (ECA) in January 2025.³⁴ As part of the proposed rule change, ECA seeks to re-balance the asymmetry of information between distributors and third-party participants by requiring distributors to make public the data, methodology, calculations, and outputs (such as consumer energy resource hosting capacity maps) that are central to their planning.

D.21 The Australian Energy Market Commission (AEMC) published a consultation paper seeking stakeholder feedback on ECA's rule change request in June 2025.³⁵ Follow-up consultation was carried out in October 2025 with a directions paper setting out three options for

³² See [Pending Resolution from California Regulators Risks Millions in Utility Ratepayer Investments - Interstate Renewable Energy Council \(IREC\)](#)

³³ California Public Utilities Commission, [Resolution E-5440 Pacific Gas and Electric, Southern California Edison, and San Diego Gas and Electric Remediation Plans for Integration Capacity Analysis](#), March 2026.

³⁴ Electricity Consumers Australia, [Integrated Distribution System Planning \(electricity\) rule change request](#), January 2025.

³⁵ Australian Energy Market Commission, [National Electricity Amendment \(Integrated Distribution System Planning\) Rule 2026: Consultation Paper](#), June 2025.

improving distribution planning in the NER.³⁶ The AEMC also proposed a separate reporting requirements for network data which could be implemented through AER guidance. The NER would establish an obligation on distributors to publish network data in accordance with the guideline.

D.22 In their submission on the AEMCs direction paper, the AER were supportive of the proposal to require distributors to publish data in accordance with a new AER guideline.³⁷

D.23 While the AER's Network Visibility project focused on low-voltage network visibility, the Authority considers that it is also applicable to high-voltage network visibility.

³⁶ Australian Energy Market Commission, [National Electricity Amendment \(Integrated distribution system planning\) Rule 2026: Directions Paper](#), October 2025.

³⁷ See Australian Energy Regulator, [Response to Directions Paper on the Integrated Distribution System Planning \(IDSP\) Rule change proposal](#), November 2025, 3.

Appendix E Gap analysis between proposed Code amendments and existing information disclosure requirements

- E.1 The Authority has compared the proposed Code amendments with existing information disclosure requirements under Part 4 of the Commerce Act to determine whether there would be any regulatory overlap or duplication for distributors. Our analysis is outlined under each proposed requirement below.

Location of high-voltage network circuits

- E.2 As outlined in Part 5 of this paper, the Authority proposes that distributors be required to publish a network map showing the location of all their high-voltage network circuits.
- E.3 Clause 2.5.2A of the ID Determination currently requires all distributors to publicly disclose geographic information about their zone substations in a format commonly used by GIS (or equivalent) mapping software. This includes:
- (a) the name of the zone substation;
 - (b) the name of any feeders connected to it;
 - (c) the coordinates for the zone substation;
 - (d) the boundary of the area it serves; and
 - (e) the input voltage and output voltage that it primarily transforms.
- E.4 We note that distributors are also required to describe their network configurations in their AMPs. This includes identifying bulk electricity supply points, describing the subtransmission system fed from those bulk supply points and briefly describing the distribution substation arrangements.

Our findings

- E.5 Our assessment is that there would be regulatory overlap between existing requirements and the proposed Code amendment at the zone substation level. However, distributors are not currently required to publicly disclose geographic information about other parts of their high-voltage networks such as feeder or distribution substation locations. We also note that the existing information is disclosed on an annual basis rather than quarterly under the proposed Code amendment.
- E.6 The proposed Code amendment may also capture some of the network configuration information that is described in distributors' AMPs. However, there are currently no requirements for network configuration information to be presented on network maps.
- E.7 While the detailed requirements for publishing network information are still to be developed as part of the proposed technical specifications, there may be scope to align the geographic requirements of the Code and the ID Determination.

Design capacity of each circuit

- E.8 The proposed Code amendment would require distributors to publish information about the design capacity of each of their high-voltage network circuits. As there are no existing requirements related to design capacity information, there would be no duplication for distributors.

Current and forecast load capacity

- E.9 We propose that distributors include on their network maps estimates of the remaining high-voltage circuit capacity for load for the next 12 months and each of the next five years.
- E.10 Currently, Schedule 12b of the Commission's ID Determination requires distributors to provide a breakdown on current capacity and constraints for each of their zone substations, expressed in MVA. This includes:
- (a) the current peak load period for a zone substation
 - (b) whether a zone substation is constrained or forecast to be constrained
 - (c) if a zone substation is currently or forecast to be constrained - the type of constraint
 - (d) if a zone substation is not currently constrained, the available capacity before it becomes constrained
 - (e) forecast available capacity in 5 years and an approximate range of forecast available capacity in 10 years
 - (f) forecast peak load period and forecast security of supply classification in 5 and 10 years.
- E.11 In addition, where a distributor has had related party transactions in a disclosure year, it is required to publish a map of anticipated network expenditure and network constraints, as outlined in clauses 2.3.13 to 2.3.16 of the ID Determination.³⁸

Our findings

- E.12 Our view is that, while the existing information disclosure requirements cover some of the same information as the proposed Code amendment, there are significant differences between the requirements. These include:
- (a) Format: the information published in accordance with Schedule 12b is presented in the form of Excel spreadsheets rather than as a visual network map.
 - (b) Level of granularity: currently, distributors are only required to provide information about zone substations rather than distribution substations or high-voltages feeders. As a result, the existing requirements do not provide access seekers with sufficient information about how much electricity may be supplied at a particular location.
 - (c) Frequency: distributors are currently required to disclose information annually rather than quarterly as proposed in the draft Code amendment.
 - (d) Coverage: the proposed Code amendment would apply to all distributors. In comparison, the map of anticipated network expenditure and network constraints required under clause 2.3.13 of the ID Determination only applies to distributors who have had related party transactions during a disclosure year and are above the de minimis threshold specified in clause 2.3.9.³⁹

³⁸ See Appendix C for further detail.

³⁹ An amendment to the de minimis threshold came into force on 20 February 2026 which provides that a distributor is not required to comply with the specified disclosure requirements if:

- (a) the sum of its capital expenditure and operational expenditure in the disclosure year is less than \$30 million for 2026 or the amount adjust by the consumer price index in subsequent years, or
- (b) the proportion of the sum of its capital expenditure and operational expenditure accounted for by related party transactions is less than 10% in the disclosure year.

The Commission's reasons paper for the changes to the de minimis threshold estimated that only ten distributors are likely to be subject to the full set of related party disclosure requirements. See [EDB-ID-Amendment-2026-Related-Party-Transaction-Threshold-Final-Decision-Reasons-Paper-19-February-2026.pdf](#)

- E.13 As noted above, clause 2.5.2A of the ID Determination does require all distributors to publicly disclose geographic information about their zone substations. However, access seekers would need to manually collate the schedule 12b capacity information with the zone substation map for a visual representation of where zone substation constraints are.

Current and forecast distributed generation capacity

- E.14 Under the proposed Code amendment, distributors would need to include on their network maps estimates of the remaining high-voltage circuit capacity for distributed generation over the next 12 months and each of the next five years.
- E.15 In addition to the Commission's requirements under schedule 12b of the ID Determination outlined in paragraph E.10 above, clause 6.3 of the Code requires that a distributor publish on its website:
- (a) a list of all locations on its distribution network that the distributor knows to be subject to export congestion; and
 - (b) a list of all locations on its distribution network that the distributor expects to become subject to export congestion within the next 12 months.

Our findings

- E.16 Our view is that, while the information currently published in accordance with Part 6 of the Code is useful for access seekers, it would be more helpful to publish this information as a visual map. We also note that the current requirements only require distributors to identify the locations that are (or expected to become) subject to congestion; there is no requirement to publish the extent of the congestion.
- E.17 New Code clause 6.3 which enters into force on 1 December 2026 may provide useful information about export capability as distributors will be required to publish capacity information, where this is available. However, this may not go far enough as there is no incentive for distributors to obtain and publish capacity information if they are not already doing so. In addition, the capacity information is not required to be published as a visual map.
- E.18 As we propose to replace the requirements in new clause 6.3 of the Code with the proposed amendments, there would be no regulatory overlap.

Recent SAIDI and SAIFI information

- E.19 The Authority proposes that distributors be required to publish the SAIDI and SAIFI for their high-voltage networks for the immediate past 12 months.
- E.20 Schedule 10 of the ID Determination requires distributors to provide a summary of network reliability, assessed according to key measures: interruptions, SAIDI, SAIFI and fault rate. Distributors must also disclose information about the worst-performing feeders on their network. These are defined in clause 1.4.3 as "the feeder lines on an EDB's network that, in respect of a disclosure year, are in the 90th percentile or higher for one or more of any of the following: (a) unplanned feeder SAIDI, (b) unplanned feeder SAIFI, and (c) customer impact ratio."
- E.21 Schedule 10a was inserted into the ID Determination in 2024 to require distributors to disclose raw information about interruptions on their networks. This includes the circuit location, the sub-network (where applicable), the feeder(s) affected by the interruption, SAIFI and SAIDI values and the number of ICPs affected.

Our findings

- E.22 The existing information disclosures under schedules 10 and 10A of the ID Determination already require distributors to publish some information relating to the SAIFI and SAIDI of high-voltage feeders. However, there is a gap in relation to information about the reliability of zone and distribution substations.

Alternatives to network reinforcement

- E.23 The proposed Code amendment includes a requirement for distributors to include information about the amount they reasonably expect to need to use alternatives to network reinforcement over the next five years. Distributors would also be required to indicate the price they may be willing to pay for those alternatives.
- E.24 There are currently no explicit requirements for distributors to disclose information about the extent to which they may need to use alternatives to network reinforcement. However, some of the requirements of the ID Determination capture relevant information.
- E.25 For example, distributors are required to include in their AMPs a quantification of the contribution non-network solutions make towards solving a network risk or constraint, and the extent to which the non-network solution is provided by a related party, or third party.⁴⁰ In addition, the commentary to clause 11.10 of the ID Determination requires distributors to disclose in their AMP a detailed description of the investigations undertaken towards the potential for non-network solutions to be more cost effective than network augmentations and vice versa.

Our findings

- E.26 The Authority's view is that, while distributors must include some information in their AMPs that is relevant to the proposed Code amendment, there is no regulatory overlap between the requirements. Instead, we consider that the requirements would complement each other.

⁴⁰ See clause 4.2.7 of Attachment A of the ID Determination.

Appendix F Network hosting capacity

- F.1 Hosting capacity is typically referred to as a value, but it involves a process of collecting and validating data from a range of sources, data analysis and application of the results for specific uses.
- F.2 The hosting capacity assessment process is still developing. The process needs to be informed by:
- (a) engineering judgements, to ensure impacts are captured appropriately
 - (b) significant amounts of data that needs collecting and curating for use
 - (c) establishing the analytical framework to achieve the results that enable the desired application.
- F.3 Having a clear understanding of which applications the hosting capacity results will inform is critical to determining what data is required and how the analysis approach should be applied.
- F.4 The first step in hosting capacity analysis relates to gathering and validating the data needed to start the hosting capacity process. This data has not historically been readily available, and many utilities are continuing to build-out the robust data set required. The second step, analysis, represents the methodology, impact factors considered, and tools needed to calculate hosting capacity. There are multiple approaches to calculating hosting capacity and each have pros and cons. The third and final step, application, represents the use of the hosting capacity results for specific purposes.
- F.5 There are two principal use cases for hosting capacity analysis. The first is to support and streamline the connection of DER to distribution networks. For network connections, the focus is on considering a specific location to ensure that under any situation (grid configuration, device operation, load condition) the device does not cause any adverse impacts to the network. While hosting capacity varies over time the minimum value influences interconnection. Because of this, the hosting capacity process must capture the absolute minimum hosting capacity that applies to the considered device. If not, the system would be at risk of power quality and reliability issues, limiting the utility's ability to manage the system to meet all customer's needs.
- F.6 The second use case for hosting capacity analysis is to support more robust distribution system planning. Hosting capacity analysis can identify where constraints on a distribution network exist. Such analysis can be used to proactively identify feeders that require upgrades to increase hosting capacity for load or generation. This analysis can also be used to encourage the siting of DER at locations with available capacity, or at locations where additional distributed generation could help support network operations. Increasingly, we think it is important that network planning ensures DER can be incorporated and reflected in future network plans and investments.
- F.7 A third, complementary use case of hosting capacity analysis is to inform pricing mechanisms for distributed energy resources based on separate analyses to assess the benefits of these resources based on their physical location on the network and their performance characteristics.

Appendix G Glossary of abbreviations and terms

AMP	Asset management plan
Apparent power	The total power flowing through a circuit, including both the real power being used and the reactive power required to maintain voltage levels. Apparent power accounts for the total power capacity needed in an electrical system.
CPUC	California Public Utilities Commission
Disclosure year	The 12-month period ending on 31 March of the year the disclosure relates to or, if the term disclosure year is combined with a year, the 12 month period ended on 31 March of that year.
Distributed generation	A variety of technologies that generate electricity at or near where it will be used. Examples include rooftop solar panels, solar farms and grid-scale batteries.
Distribution substation	An electrical installation where electricity is stepped down further from 33kV or above to 11kV
EDB	Electricity distribution business (how the Commerce Commission's regime refers to distributors)
Export capacity	The maximum amount of electricity a system is able to export to the grid
Flexibility services provider	An entity – often an aggregator or owner of DER - that provides a service allowing the ability to change generation injection and/or consumption patterns in response to network constraints.
HV feeder	High-voltage power lines transmitting electricity from a zone substation to distribution substations
ICA	Integration Capacity Analyses (the term used in California for hosting capacity analysis)
ICP	Installation control point – a point of connection at which an electricity consumer or generator is connected to a network
kV	Kilovolt – a unit of power equivalent to 1,000 volts.
kVA	Kilovolt-amperes – a measure of 'apparent power,' which includes both real power and reactive power.
kW	Kilowatts – a unit of power equal to 1,000 watts, used to measure the rate at which electricity is used or produced. kW is a measure of 'real power' - the actual usable electricity produced by DG systems.
MVA	Megavolt-amperes – a measure of 'apparent power', which includes both real power and reactive power. MVA represents the total electrical load a transformer, generator or transmission line can handle.
Network topology	A description of how the components of an electricity network are arranged and connected.
Non-network solution	Any of: (a) distributed generation (b) electricity storage (c) demand response measures
SAIDI	System Average Interruption Duration Index – the average forced sustained interruption duration per connection point served per year, measured in minutes.
SAIFI	System Average Interruption Frequency Index – the average forced sustained interruption frequency per connection point served per year, measured in frequency per year

Subtransmission	Any part of the power system which operates as an intermediary between the high-voltage transmission system to local distribution substations.
Subtransmission voltage	Intermediate power line voltage that bridges the gap between transmission voltage (110kV to 220 kV) and distribution voltage (generally below 33kV). Common subtransmission voltages include 33 kV, 50 kV and 66 kV.
Zone substation	An electrical installation where subtransmission electricity is stepped down to distribution voltages.