Network Connections Project

Purpose

This document:

- provides the Network Connections Technical Group (NCTG) with detail on the Network Connections Project (the project)
- proposes Code changes for the NCTG to consider
- for those changes, asks some questions we want the NCTG to consider for the first meeting on 8 April.

Disclaimer

- This document does not represent the Authority's view.
- This document is not consultation. The NCTG will provide advice to inform future consultation.
- The Authority is comfortable with members sharing this document within their organisation (to get wider feedback) before the NCTG meets, but we ask that you share it no further.[1]

[1] The Authority will publish NCTG papers and minutes on its website, as each NCTG meeting is concluded.

Project overview

The Authority published its short-term work programme for the distribution sector in October 2023.[2] This included two priorities for network connections:

- Address the non-price barriers to the efficient connection of large capacity load.
- Address the non-price barriers to the efficient prioritisation of large capacity distributed generation and load.

These priorities are being addressed together as Stage One of the project:

- Stage One – address the non-price barriers to the connection and prioritisation of large capacity DG and load.

Stage One is high priority and is the key focus for the NCTG in the short term.

Part 6 will be reviewed as Stage Two of the project:

- Stage Two – review Part 6 *connection of distributed generation*.

The Authority seeks NCTG advice on how best to progress Stage Two. It may be preferable to bring planned Stage Two work forward and/or undertake the review in more than one stage.

Project outcomes and objectives

The project outcome is:

- New Zealand's distributors provide efficient, standardised processes for large loads and generation to connect and operate efficiently.

The two objectives are:

- To increase the efficiency of network connections, i.e. the process of connecting to networks is easier, faster, more consistent and more equitable.
- To improve the efficiency of networks through the use of improved standards.

The project does not address network pricing

The Authority's Network Pricing team is undertaking work on network pricing.[3] There are linkages to this project, and a representative from the Network Pricing Team will attend NCTG meetings. The Network Pricing Team may occasionally seek NCTG input on pricing issues.

The project sees value in industry guidelines

Industry has proposed guidelines to support the application of the Code. During this project, NCTG members may want to consider what requirements should go into the Code and what might be better captured in an industry guide.

Government priorities

The Government has set out its intentions for the electricity sector in two documents, *Electrify NZ*[4] and *Supercharging EV infrastructure*[5]. The latter document sets a target to install 10,000 public EV chargers by 2030.

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[2] https://www.ea.govt.nz/documents/3929/Work_programme_Oct_231406907.13.pdf

[3] See https://www.ea.govt.nz/projects/all/distribution-pricing/

[4] https://assets.nationbuilder.com/nationalparty/pages/17865/attachments/original/1684306518/Electrify_NZ.pdf?1684306518

[5] https://assets.nationbuilder.com/nationalparty/pages/18364/attachments/original/1693957243/Supercharging_EV_Infrastructure.pdf?1693957243

Project detail

Stage One – *Address the non-price barriers to the connection and prioritisation of large capacity distributed generation and load*

The Authority has not set thresholds for 'large capacity'. We seek NCTG advice on this.

The non-price barriers to the efficient connection of large capacity load

In the current environment, load access seekers face challenges to connect (or to expand the capacity of their existing connection). These challenges include:

- limited visibility of network capacity/constraints and where best to invest
- a lack of visibility of where their application sits in the application process, other applications on the network, and of the application process as a whole
- no mechanisms for multi-party applications (the Code assumes individual applications) and competing applications on the same part of the network
- variation in distributor application processes, which can be particularly frustrating for access seekers that operate across more than one region
- a lack of engagement and inflexibility on the part of some distributors (for example, a resistance to compromise on redundancy levels)
- slow distributor application approval times, and long waits for electricity infrastructure to be installed
- limited ability to compete for connection works (e.g. installing poles, wires and transformers).

Distributors face challenges to connect load customers, including:

- a significant increase in applications to connect, which is putting added strain on network capacity and distributor resources
- responding to current and future demand for electric vehicles (EVs), including the need for public EV chargers to support EV uptake
- supporting industrial customers to decarbonise, which may require a significant capacity upgrade
- making efficient use of flexibility, in a context of increasing demand and capacity constraints
- managing power quality in an increasingly flexible environment, with growth in multi-directional electricity flows
- managing product supply-chain constraints.

Currently there are no load connection processes in the Code. This means each distributor needs to create their own processes, making the connection of large capacity load (e.g. public EV chargers) less efficient, and slowing New Zealand's decarbonisation journey. It also adds cost that is passed onto the consumer.

Part 6 sets the rules that distributors and distributed generators must meet to connect to networks. The Authority proposes to widen Part 6 to include large capacity load applications. We seek NCTG views on this proposal, and how best to implement change.

The non-price barriers to the efficient prioritisation of large capacity distributed generation and load

Currently Part 6 prioritises large capacity DG applications on a first-come, first-served basis.[6] This allows "placeholder" applications for non-confirmed (especially large single-site) generation to hinder the progress of confirmed applications of greater value to New Zealand. Also, there are no Code provisions to make the pipeline of network applications visible, which would support more efficient investment decisions.

The Authority proposes to implement a connections management framework similar to that used by Transpower for grid connections.[7] The addition of an 'application' stage to Transpower's Connection Management Framework (CMF) has enabled the grid owner to:

- better inform access seekers of the requirements to connect
- more accurately assess the readiness of projects
- better support access seekers to get their projects ready
- assign their resources for best effect.

The framework also includes visibility requirements for the pipeline of applications.[8]

The Authority seeks NCTG views on this proposal, and how best to implement a framework for both large capacity DG and load applications.

Stage Two – *Part 6 Connection of distributed generation* review

Stage Two will address the remaining provisions in Part 6, with the exception of schedule 6.4 *Pricing principles*.[9] It will consider the suitability of current provisions, and whether new requirements should be added to Part 6 (or other parts of the Code). The scope will include load as well as DG applications.

Following consultation with the sector, the Authority has identified a range of Part 6-related issues. In summary, these include but are not limited to:

- application processing fees[10]
- LV capacity/congestion data
- network congestion/curtailment provisions
- connection and operation standards
- unauthorised connections
- small-scale DG application processes
- monitoring sector performance.

Part 6 has not kept pace with the number, size and complexity of network applications, particularly for large capacity connections. It is likely other issues will arise as the project progresses, beyond those noted here. The project will maintain an 'issue register' to ensure that raised issues are recorded and addressed when possible. Members are encouraged to raise issues they would like addressed.

The Authority seeks NCTG advice on the scope and sequencing of work for Stage Two

[6] Except when another final application for the same part of a network is received within 20 business days, in which case the two applications can be considered competing applications.

[7] Decision Paper A New Customer Connections Management Framework.pdf (transpower.co.nz). The CMF is currently undergoing review (see Review of the Connections Management Framework March consultation paper 2024.pdf (transpower.co.nz)).

[8] https://www.transpower.co.nz/connect-grid/connection-enquiry-information.

[9] As previously noted, the Authority's Network Pricing team leads pricing work.

[10] This work cannot be fully resolved until Stage One of the project is complete.

Indicative timeline (open to change)

Task	Date
STAGE ONE	
First NCTG meeting	8 April
Second NCTG meeting	22 Apr
Third NCTG meeting	1 May
Complete consultation paper and get internal signoff	-
Consultation paper to June Board meeting[11]	18 June
Consultation paper released	5 July
Consultation period ends (6 weeks)	16 Aug
Submissions published (verbatim)	19 Aug
Fourth NCTG meeting (review submissions + advise on changes)	26 Aug
Complete decision paper and get internal signoff	-
Decision paper to October Board meeting[12]	15 Oct
Decision paper published	22 Oct
Transition period (TBC via consultation)	TBC
STAGE TWO	
Fifth NCTG meeting (Stage Two scoping and prioritisation)	Nov 2024

Proposed Stage One questions (to be discussed 8 April)

We seek your feedback on the following questions. You are not limited to the questions supplied and can suggest additional questions for the group to consider. Members can provide their responses before the meeting and/or on 8 April. Addressing the questions is likely to take more than one NCTG meeting.

When considering these questions, members should familiarise themselves with the following resources:

Load

- Part 6 of the Code *Connection of distributed generation*: https://www.ea.govt.nz/documents/2549/Code_-_Part_6_-_Connection_of_distributed_generation_-_1_APRIL_2023.pdf

Connection Management Framework

- CMF presentation: We're working for New Zealand. (transpower.co.nz)
- CMF consultation paper: Review of the Connections Management Framework March consultation paper 2024.pdf (transpower.co.nz)
- CMF decision paper: Decision Paper_A New Customer Connections Management Framework.pdf (transpower.co.nz)
- Application Form: Connection Application Form.docx (live.com)[13]
- Guidance Notes: GuidanceNotestoApplication Form_V2_Final.pdf (transpower.co.nz)

[11] The June consultation paper includes preferred options, a regulatory statement, economic analysis and draft Code wording

[12] The October decision paper includes a thematic summary of submissions & the Authority's response, final Code wording and the external legal written instrument.

[13] Transpower also has a New Customer Checklist: New customer - information checklist to help Transpower tailor our connection process.pdf

- Pipeline of grid applications: Connection enquiry information | Transpower.

Questions for load

	Question	Authority comment
1	What do members think of the proposal to add large capacity load applications into the Code?	The Authority has received feedback that the proposed approach would be valuable, and that mandatory Code requirements are required rather than voluntary measures. Load applications are included in the UK and Australian codes.[14] The Authority has excluded small-scale load applications at this time as these are not identified as a problem.
2	Where does the NCTG think the Authority should set the thresholds for large capacity load requirements?	Stage One is focused on large capacity load (e.g. public EV chargers, decarbonising industrials). The Authority seeks your advice on an appropriate size (kW/MW) threshold.
3	The Authority proposes to widen the current Part 6, rather than develop a new Part of the Code? What are the NCTG's thoughts on this? If we widen Part 6, what challenges does the NCTG see for applications that that are both load and DG?	We are proposing to apply many (but not all) of the Part 6 DG requirements to large capacity load. As such, there is a strong argument to widen the current Part 6.
4	As a starting point, the Authority proposes to use the Part 2 application process (in Schedule 6.1) for large capacity load, with changes as required (a Part 2 flow chart is included as Appendix A). What challenges do you see with this approach and what changes should the Authority consider?	Some stakeholders say that Part 2 is not suitable for very large capacity applications (e.g. 1MW) and that a new application process is needed to reflect the complexity involved. This work is planned for Stage 2 of the project. If the proposed CMF approach is implemented in Stage One, this may fully or partly address these concerns. It would be preferable to make a single change to application processes, if possible.

[14] For example, see https://www.mbie.govt.nz/dmsdocument/28013-baringa-ev-international-case-studies-report.

5	The purpose of the proposal is to improve the efficiency of network connections. This includes setting timeframes for distributors to approve applications to connect. The current DG timeframes are flexible, with distributors able to request multiple extensions and access seekers not able to unduly withhold approval for these. The Authority has received feedback that this flexibility is valued by both parties. Given the Authority is seeking to speed up the connection process, how might we change Part 6 to make that happen?	We seek your views on the approach that we should adopt, including how much flexibility. Where specific timeframes are written into the Code, we seek your advice on what these should be. Adopting an application management process, similar to the CMF, may help to address this issue.
6	How might the Authority best address applications to increase the capacity of existing connections (e.g. from decarbonising industrials)? How might the new Code requirements deviate from the proposed changes for new connections, if at all?	Many of the same challenges apply for new connections and capacity increases. Transpower considers new and existing connections as part of a customer's journey.

Questions for adopting a connections management approach

	Question	Authority comment
7	The Authority proposes to adopt an approach similar to the CMF used by Transpower for both DG and load applications, with changes as necessary. What are the NCTG's thoughts on this approach? What changes, if any, to the CMF might be needed (e.g. given networks have many more connections of different types)? Is there a size threshold where applying a CMF-style approach might not work?	Transpower undertook a robust process to develop the CMF, including reviewing international schemes. For larger capacity applications, there is value in aligning the application processes for networks and the grid.
8	Should the Authority consider other aspects of Transpower's general connections approach?[15]	The Authority is open to value added in Stage One, although some work may be deferred until Stage Two
9	How should the CMF be integrated into Part 6 of the Code, so the connection process is most efficient? Where in the application process should it occur? Should, for example, the current Part 2 application process apply to small/medium applications only?	Distributors have limited resources that should be applied to best effect.
10	The CMF provides greater visibility of grid applications to connect. How much visibility of network applications should be provided?	The Authority seeks as much visibility of applications as possible. This will support better investment decisions and network management.
11	There are many distributors but only one grid owner. What changes might be needed so the CMF works best for networks? (e.g. managing commercial sensitivity, web dashboards)	Commercial sensitivity may be more difficult to manage on smaller networks.

[15] Our connection process | Transpower

Part 6 questions for load and prioritisation

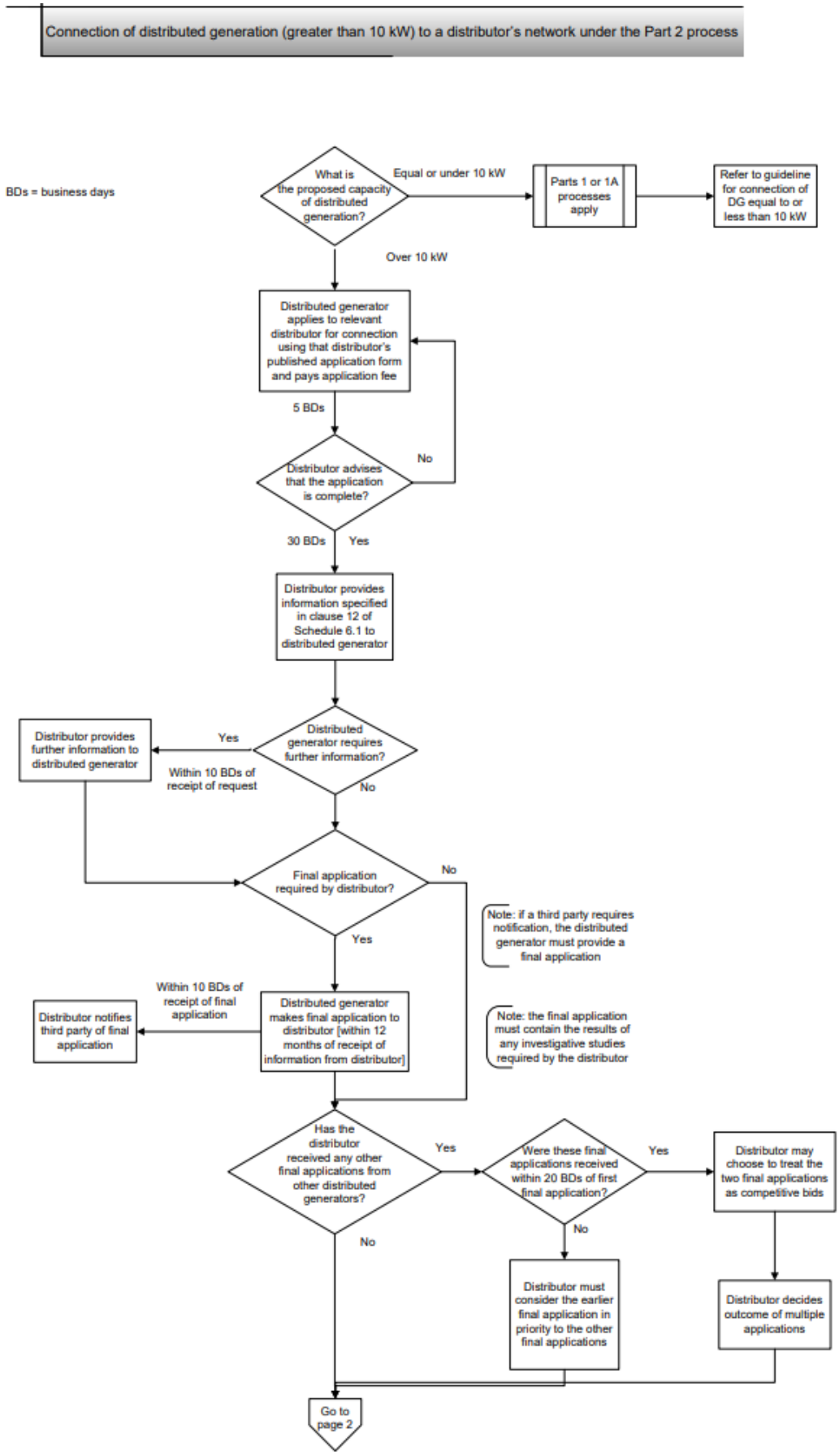
	Question	Authority comment
12	Schedule 6.2 Part 6 sets regulated terms for distributed generation. These apply when a distributor and distributed generator do not enter into a direct contract. How might the regulated terms apply to load applications (new and expanded), if at all?	The scope of the regulated terms could be expanded to support greater demand flexibility. However, this work might be better considered in Stage Two.
13	Schedule 6.3 Part 6 sets a default disputes resolution process for DG applications. Stakeholders say arbitration can be expensive and have suggested the Code provide alternative ways to resolve disputes (e.g. greater use of the EA's Ruling Panel). What options might be preferable for DG and load disputes?	The Authority has limited resources to be directly involved in disputes.
14	Schedule 6.5 Part 6 sets the maximum fees that distributors can recover for processing DG applications. The Authority will review the fees regime in Stage Two, including: • whether an alternative approach to capped fees should be implemented • the relationship between grid and network fees and how this impacts investment decisions • how the fees should reflect change to application processes from Stage One (including the addition of load to Part 6). Outside of this project, the Authority is considering a one-off inflation adjustment to the current fees (DG only), to come into effect in early 2025. Given the above, the Authority seeks your views on whether maximum fees for load should be introduced in Stage One or left to the review of fees in Stage Two.	The fees, if applied to load, would set the upper thresholds that could be charged, offering some protection for access seekers. The Authority doesn't want to make too many adjustments to fees.
15	Part 6 sets *connection and operation standards* for DG, and Part 11 of the Code refers to *connection standards*. Stage Two of the project will consider these in greater detail, including whether these requirements should be better cemented in the Code, if there should be greater consistency for access seekers, and whether a minimum quality threshold should be set. For Stage One, the Authority is interested in your views on how connection standards for load might be accommodated in a revised Part 6.	We seek your views on how connection standards are currently set between distributors and access seekers, and what change is required, if any, should load applications be formally added to the Code.

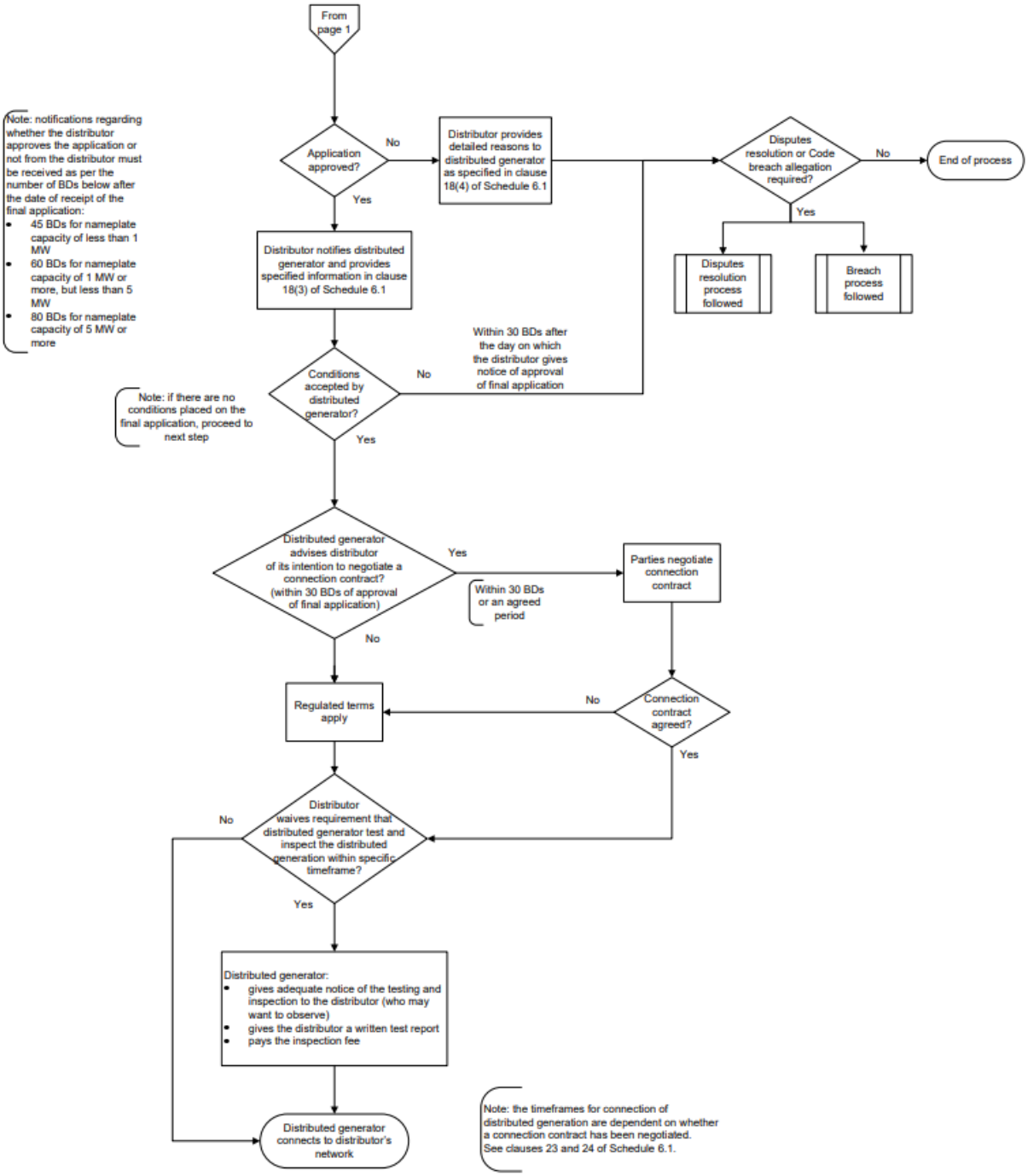
Questions for Stage Two *Review of Part 6*

	Question	Authority comment
16	The Authority has provided a brief summary of Stage Two issues here, based on feedback we have received from the sector. What issues have we not included in the list?	The Authority is undertaking other work in the distribution sector beyond the Network Connections Project.[16]
17	What Stage Two issues, if any, should be brought forward and considered by the Authority/NCTG earlier?	For example, the Authority has heard increasing calls about the importance of network capacity information.
18	Should Stage Two be undertaken in more than one stage and, if so, what are the issues of most importance?	The sector is dynamic, which requires the Authority to be more agile.
19	What other work in the sector (e.g. non-government) may assist with, or influence, the delivery of Stage Two?	This could be a standing item for the NCTG to discuss.

[16] For details, see https://www.ea.govt.nz/documents/3929/Work_programme_Oct_231406907.13.pdf

Appendix A: Part 2 DG application process (proposed for large capacity load)




From page 1
Note: notifications regarding whether the distributor approves the application or not from the distributor must be received as per the number of BDs below after the date of receipt of the final application:
45 BDs for nameplate capacity of less than 1 MW
60 BDs for nameplate capacity of 1 MW or more, but less than 5 MW
80 BDs for nameplate capacity of 5 MW or more
Application approved?
No
Yes
Distributor provides detailed reasons to distributed generator as specified in clause 18(4) of Schedule 6.1
Disputes resolution or Code breach allegation required?
No
End of process
Yes
Disputes resolution process followed
Breach process followed
Distributor notifies distributed generator and provides specified information in clause 18(3) of Schedule 6.1
Conditions accepted by distributed generator?
No
Within 30 BDs after the day on which the distributor gives notice of approval of final application
Note: if there are no conditions placed on the final application, proceed to next step
Yes
Distributed generator advises distributor of its intention to negotiate a connection contract? (within 30 BDs of approval of final application)
Yes
Parties negotiate connection contract
Within 30 BDs or an agreed period
No
Regulated terms apply
No
Connection contract agreed?
Yes
Distributor waives requirement that distributed generator test and inspect the distributed generation within specific timeframe?
No
Yes
Distributed generator:
gives adequate notice of the testing and inspection to the distributor (who may want to observe)
gives the distributor a written test report
pays the inspection fee
Distributed generator connects to distributor's network
Note: the timeframes for connection of distributed generation are dependent on whether a connection contract has been negotiated. See clauses 23 and 24 of Schedule 6.1.