TRANSPOWER

Transpower Guideline – draft:
Customer-led New Connections

Contents

1 Version history

Version	Author	Date	Description
0.1	R Holbrook	30/11/23	First draft of external version
1.0	R Holbrook	15/12/23	Reviewed and approved for publication

2 Introduction & Purpose

Transpower's usual process for new Transpower connections works sequentially from concept assessment to investigation, then delivery, with Transpower leading all stages.

Some generation or industrial load developers seeking a connection to Transpower may request to lead all or part of the connection process and undertake much of the work themselves.

This guideline identifies when and under what conditions Transpower may agree to a customer-led approach for connection of new generation or industrial load to Transpower's transmission network. Transpower involvement is always required, although the extent of this will vary by project.

The Transmission Grid is built, maintained, and operated by Transpower for the benefit of New Zealand. Any connection to the Grid must not compromise the wider operation of New Zealand power system and therefore rules and standards will apply to connection design, construction, and commissioning. Transpower will always need to be involved in all grid connections to set standards, agree designs, and monitor quality regardless of who leads the process.

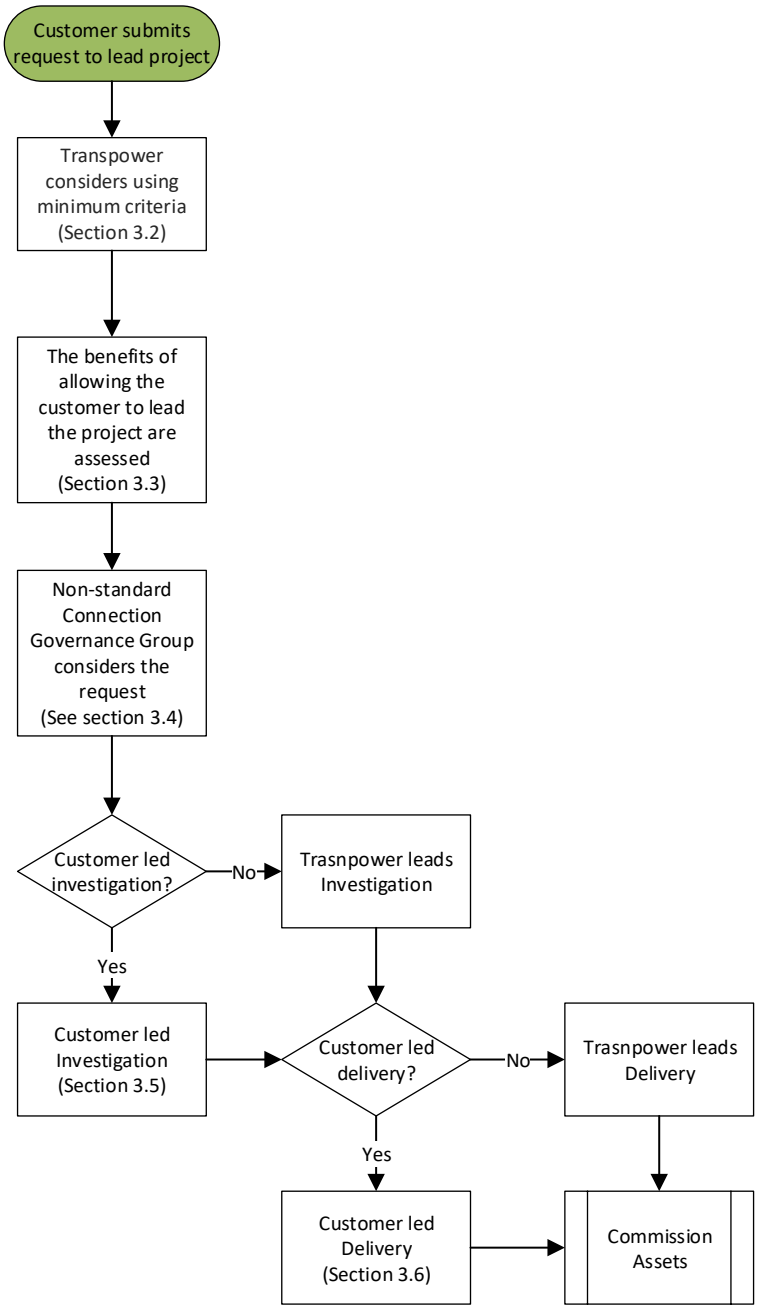
Approval of requests for a customer-led project approach are based on assessment of a project's specific requirements, the capability and experience of the customer, as well as the potential benefits and risks for a customer-led approach.

Transpower welcomes feedback on this draft guideline. If you have any feedback, please email Customer.Solutions@transpower.co.nz

3 Customer-led connection process

3.1 Process overview

The diagram below provides an overview of the key stages involved in a customer-led project. Section 3.2 through 3.6 provide further detail on each stage.



3.2 When will Transpower consider allowing a customer to lead a project?

The table below provides an overview of Transpower's key risks related to allowing a customer-led project and the minimum criteria that has been set in place to ensure that risk is sufficiently mitigated.

The proponent of a customer-led project must from the outset agree in writing to the minimum conditions for their request to be considered.

In addition to the items stated in the table, project specific costs and benefits will be included in Transpower's assessment.

Transpower will be less likely to allow a customer-led connection where the proposed connection is to a part of the network that is considered critical[1].

Risk to Transpower	Mitigation	Description
The Engineering Consultant (EC) engaged by the customer does not have the expertise and experience required, resulting in the ownership, operation, and maintenance of sub-standard assets.	Transpower must approve the EC engaged by the customer prior and the customer must be prepared to enter a Services Agreement and subsequent Development Agreement[2] with Transpower which sets out the roles, responsibilities, and decision rights of the parties involved in the project (see Appendix A for an example project RASCI).	Transpower will require that the lead Engineering Consultant (EC) engaged by the customer is considered by Transpower to be capable of completing the work to a satisfactory standard[3].
The lead Service Provider (SP) engaged by the customer does not have the expertise and experience required, resulting in the ownership, operation, and maintenance of sub-standard assets.	As above. Transpower must approve the SP engaged by the customer prior and the customer must be prepared to enter a Services Agreement and subsequent Development Agreement with Transpower which sets out the roles, responsibilities, and decision rights of the parties involved in the project	Similarly, for a customer wishing to lead the build phase of a project, the lead Service Provider (SP) engaged by the customer for electrical and commissioning works should be known to Transpower and considered by Transpower to be capable of completing the work to a satisfactory standard[4].
The core grid assets installed are not fit for purpose and/or the consents related to those assets compromise Transpower's ability to effectively operate, maintain and future develop the Grid	Transpower must have the right to set design specifications for Assets developed by the customer which will transfer to Transpower ownership following commissioning. Transpower must agree that the consents and property rights, where obtained by the customer on our behalf, are sufficient to facilitate the ongoing operation, maintenance, development, and upgrade of Transpower's grid assets. The customers consenting and environmental approval approach, for any assets Transpower will own, operate, and maintain must be endorsed by Transpower and must not compromise Transpower's social license.	Transpower must also be satisfied the core grid connection assets Transpower will take ownership of following completion of the project will be fit for purpose, and that the consents related to those assets will not prove unnecessarily restrictive for future Transpower needs or have a negative impact on Transpower's social license.

[1] For example, a 220kV double circuit which forms the sole transmission supplying a region.
2 A Development Agreement is used in place of a TWA for a Transpower led project. In the Development Agreement, Transpower retains the right to specify the requirements for, approve the design and build of, own and be capable of operating and maintaining, any assets which will form part of the core grid.
3 EC's on Transpower's EC panel will generally be considered suitable.
[4] SP's on Transpower's panel will generally be considered suitable.

3.3 Additional considerations for a customer-led project request

Potential costs / benefits of a customer-led project will also be considered. These may include opportunities for Transpower to learn from innovation, resourcing implications, impacts on Transpower's wider programme of works, supply chain implications, other benefits / costs / risks.

3.4 How are customer-led projects governed?

Projects which meet Transpower's minimum criteria and are assessed as providing a suitable level of cost / benefit to Transpower will be considered by Transpower's *Non-Standard New Connections Governance Group*[5].

The Governance Group will either

i. Determine that the project is unsuitable for a customer led project and to proceed can be led solely by Transpower; or

ii. Provide approval for the project to proceed as a customer-led project. Then once the project reaches the front of our generation pipeline, Transpower will complete the work required to sign a services agreement or development agreement with the customer and for the work agreed[6].

3.5 Customer-led Investigation projects

A customer-led investigation is not a mechanism to jump the queue for investigation resource in Transpower's connection pipeline. A customer-led investigations still requires a supporting Transpower team and as such must still make a connection application and cannot start until Transpower resources are available.

Where it is agreed that the customer can lead the investigation phase, Transpower is responsible for undertaking system impact and system reliability studies to present the customer with a short list of connection configuration options and the different asset ownership options (that is the demarcation between the assets that, once commissioned, will be owned, and maintained by Transpower versus those retained by the customer).

The customer then selects their preferred option to investigate and supports Transpower in the development of a Technical Scope Document[7] for the project. This will focus on the core grid connection assets that Transpower will take ownership of at the completion of the project.

Once completed and approved by Transpower, the Technical Scope Document is provided to the customers who completes the investigation for the project (supported by Transpower as required).

5 The Non-standard New Connections Governance Group is called together each time a customer requests consideration of a customer-led project.
6 There is the option for the customer to lead only the investigation or delivery phase of a project rather than the 'end-to-end' project itself. This agreement will be captured in the SA signed at the time of approval.
7 Appendix 3 lists the design items that remain solely with Transpower during the development and approval of the Technical Scope Document.

Finally, Transpower will develop and approve the TDA[8] and the RACI[9] for the delivery phase of the project. At this point it will be agreed if the customer will lead the delivery phase of the project or if this will be led by Transpower.

3.6 Customer-led Delivery projects

Where it is agreed that the customer can lead the delivery of a project, a detailed design document must first be completed and submitted to Transpower for approval. Once approved, the customer completes the project build (supported by Transpower as required).

Transpower retains responsibility for completing final inspection of the works completed, approving commissioning tests and accepting the new connection assets. Acceptance triggers the execution of the Sales & Purchase Agreements to formally transfer the ownership of new core grid assets to Transpower. Following this the project is considered complete.

Post completion the customer is typically responsible for defects for:

i. 4 years from the commissioning date for the plant and works provided by the customer as part of the Customer Works; and

ii. 2 years from the commissioning date for workmanship in the construction or installation of plant undertaken by the customer as part of the Customer Works

While customer-led projects will receive required Transpower technical support for their grid connection, the customer will normally not be able to access additional services such as pre-purchase agreements for long lead-time equipment. Transpower will also not support the consenting processes and customer-led projects will have lower priority for access to Transpower internal and external resources when there are constraints.

8 Whilst the TDA is the primary contractual document required to complete the investigation phase of a document, it is normally supported by a suite of the contractual documents required to cover the scope of the project. A table of these can be found in section 4.2

9 An example of the RACI used to govern an historic customer-led projects can be found in appendix 1

4 How will a project differ from Transpower-led projects?

4.1 General differences

Transpower-led	Customer-led
• Projects are approved for entry to Transpower's connection pipeline through the normal application process.	• A customer-led approach is considered and approved by the *Non-Standard New Connections Governance Group*[10]. As TP resources are always required for a Transpower connection, a customer-led project must still make an application to join the generation pipeline.
• Transpower leads the new connection project from end to end and retains responsibility for all core deliverables.	• The customer may lead the Investigation or Delivery phase (or both) when approved by the Non-standard New Connection Governance Group.

• During the investigation, Transpower determines the list of connection configuration options to investigate and agrees the final option with the customer.	• Where the customer leads the Investigation
	  ○ Transpower presents the acceptable list of configuration options
	  ○ The customer investigates each and selects the preferred option
	  ○ Transpower approves the selected option

• During the Delivery phase, Transpower manages the procurement of all core connection assets and retains ownership of them once commissioned. Transpower through its contractors constructs and commissions the connection.	• Where the customer leads delivery, the Customer procures all primary equipment (with ownership of the agreed core grid assets transferring to Transpower via the execution of a Sale & Purchase agreement). The customer through its contractors constructs and commissions the connection with Transpower providing quality control and final acceptance prior to transfer via Transpower's rights under the TDA terms.[11]
• Transpower works will get priority where resource constraints occur	

10 The Non-standard New Connections Governance Group is called together each time a customer requests consideration of a customer-led project

[11] The TDA also defines Transpower's right and responsibilities when providing quality control and how issues or faults are to be rectified in the event the event they are discovered after commissioning has been completed, including how the costs related to any work required are allocated between parties.

4.2 Customer-led project artefacts

The table below provides an overview of the key artefacts related to a customer-led project that are modified from, or not normally applicable to Transpower led projects.

Artefact	Description
Consenting and Project Interface Agreements	Documents how Transpower and the customer will work together when a customer-led approach is approved (see Appendix A for an example customer-led project RASCI).
Technical Scope Document	Transpower provided specifications the customer must use to design components of the connection Transpower will take own, operate, and maintain once the project has been completed.
Delivery RACI	An output of the investigation stage defining roles associated with design, procurement, implementation, commissioning, and ownership of all assets associated with the connection.
Transpower Development Agreement (TDA)	Modified investment contract based on the Transpower Works Agreement, with additional sections covering support services provided by Transpower, and documenting Transpower's review and approval rights over key customer-led activities.
Sale & Purchase Agreement	Documenting core grid assets developed by the customer and transferred to Transpower ownership post commissioning.

Other project artifacts common to Transpower-led and customer-led projects are not listed.

Appendix 1 Exemplar of Customer-led project RASCI

Example of the RASCI developed at the point at which a customer-led project is approved, agreeing roles & responsibilities.

Connection activity	Cust	Cust EC/SP	TP Gov	TP Eng teams	Cust & Comm	TP Prop	TP Enviro	TP Legal	TP Inv project	TP Build project	SDM
Receipt of connection request & supporting info	A	S	I	I	R	I	I	I	I		
TP SA and SOW(s)	C		A	I	R	I	I	C	C		
Review supporting info	S	S	I	C	A	C	C	C	R		
Project Interface Agreement	C	C	I	C	A	C	C	R	S		
Approval of approach	I	I	R	S	A	S	S	S	S		
Determination of acceptable connection configurations	I	I	I	R	A	C	C	C	S		
TP Consenting Agreement	C		C	C	A	C	S	R	S		
TP Property Rights Agreement	C		C	C	A	S	C	R	S		
Eventual asset ownership	C		C	R	A	I	I	I	S		
Investigation and design Customer's components	A	R	I	S	I	S	S	I	S	S	
Review and approval of design components impacting or integral to the transmission system	I	I	C	R	I	S	S	C	S	S	
Investigation and design Transpower's components	I	C	I	R	I	S	S	I	A	A	I
Transpower Development Agreement (TDA)	C	I	A	S	R	S	S	S	S	I	I
Customer's construction	A	R	I	C	I	I	I	I		C	I
TP Design and Construction	I	C	A	S	I	I	I	I		R	C
Review and approval of key Cust lead construction components	I	I	I	R	I	I	I	C		A	C
Acceptance of assets into service	I	C	I	I	I	I	I	I		A	R
Sale and Purchase Agreement	C	I	A	S	R	S	S	S	S	I	I

Appendix 2 Technical Scope items retained by Transpower

The following technical design items must be made by Transpower for all customer-led projects

i. Conformation of the connection type – H-bus, breaker-and-a-half, etc, including the proposed ownership boundary.

iii. The RASCI which governs the roles and responsibilities related to completion of the Property, Consenting and Environmental parameters for the project.

iv. System planning confirm the following:

- capacity constraints
- harmonic allocations
- confirm harmonic disturbance will not present a risk of non-compliance once commissioned (based on customer's study results)
- grid voltage impact (based on customer's study results)
- equipment ratings, fault levels and short-circuit ratio (based on customer's study results).

v. Specifications for assets Transpower will end up owning operating and maintaining.