

Developer Guide

Underground Developments

Choice of Service Provider for Design and Construction Elements

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Responsibilities

This document is the responsibility of the Customer Connections Team, Tasmanian Networks Pty Ltd, ABN 24 167 357 299 (hereafter referred to as "TasNetworks").

Please contact the Customer Connections Team with any queries or suggestions (newsupply.applications@tasnetworks.com.au).

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1. Purpose

The purpose of this guide is to provide Developers with practical information about TasNetworks' Connection Choice initiative, assist Developers to understand the options available to them and make them aware of some of the possible costs and requirements that may be associated with the electricity connection for a new development.

Connection Choice is allowing Developers to choose who they engage to undertake the design and construction of electrical reticulation and public lighting in Underground Developments.

The process spans from the point where the Developer submits a connection application with us through to vesting the newly designed, constructed, tested and certified assets to TasNetworks for energisation, by connection to existing network assets.

This document is an overview only, and should be read in conjunction with TasNetworks' Developer's Toolkit, located online at www.tasnetworks.com.au/developers-toolkit.

2. Summary of Connection Choice

Through our customer engagement activities, customers have asked us if they are able to choose which company can undertake the design and construction elements of their new connections.

From January 2016, Connection Choice provides choice for certain aspects of the Design and Construction of connection elements of new Underground Developments.

Contestable Works, which are defined in Appendix A, include the following elements within an Underground Development:

- High voltage underground networks;
- Low voltage underground networks;
- Kiosk substations and switching stations; and
- Public lighting.

Where a project is eligible for Connection Choice, Developers are able to choose who they engage to undertake the contestable design and construction elements. This may be us, or a private contractor from a list of Accredited Electrical Designers (**AED**) and Accredited Electrical Constructors (**AEC**).

In order to ensure safe, reliable and efficient supply to all customers, any work done by private contractors must still conform to all of our design, safety and operational standards. For that reason, there are some processes that will apply where Developers choose to engage private contractors. These requirements include the following:

- Only contractors from TasNetworks' list of AEDs and AECs may be used for Contestable Works (see Section 9 for more details);
- All materials referenced in designs or used in construction must be in accordance with our Approved Materials and Assemblies List (see Section 13 for more details);

- All design and construction works must be in accordance with our scopes, standards and specifications (see Sections 10 and 11 for more details), Australian Standards and Laws; and
- All design and construction works must be audited by TasNetworks (see Sections 10 and 11 for more details).

TasNetworks will remain responsible for undertaking, at the cost of the Developer, any alterations required to our shared network to accommodate your new development and for connection of your development to the live distribution network (Non-Contestable Works).

Developers must lodge an application to us through the existing application process regardless of who undertakes the design and construction works.

A high level process indicating the Contestable Works aspects of an Underground Development can be found illustrated in the figure below:

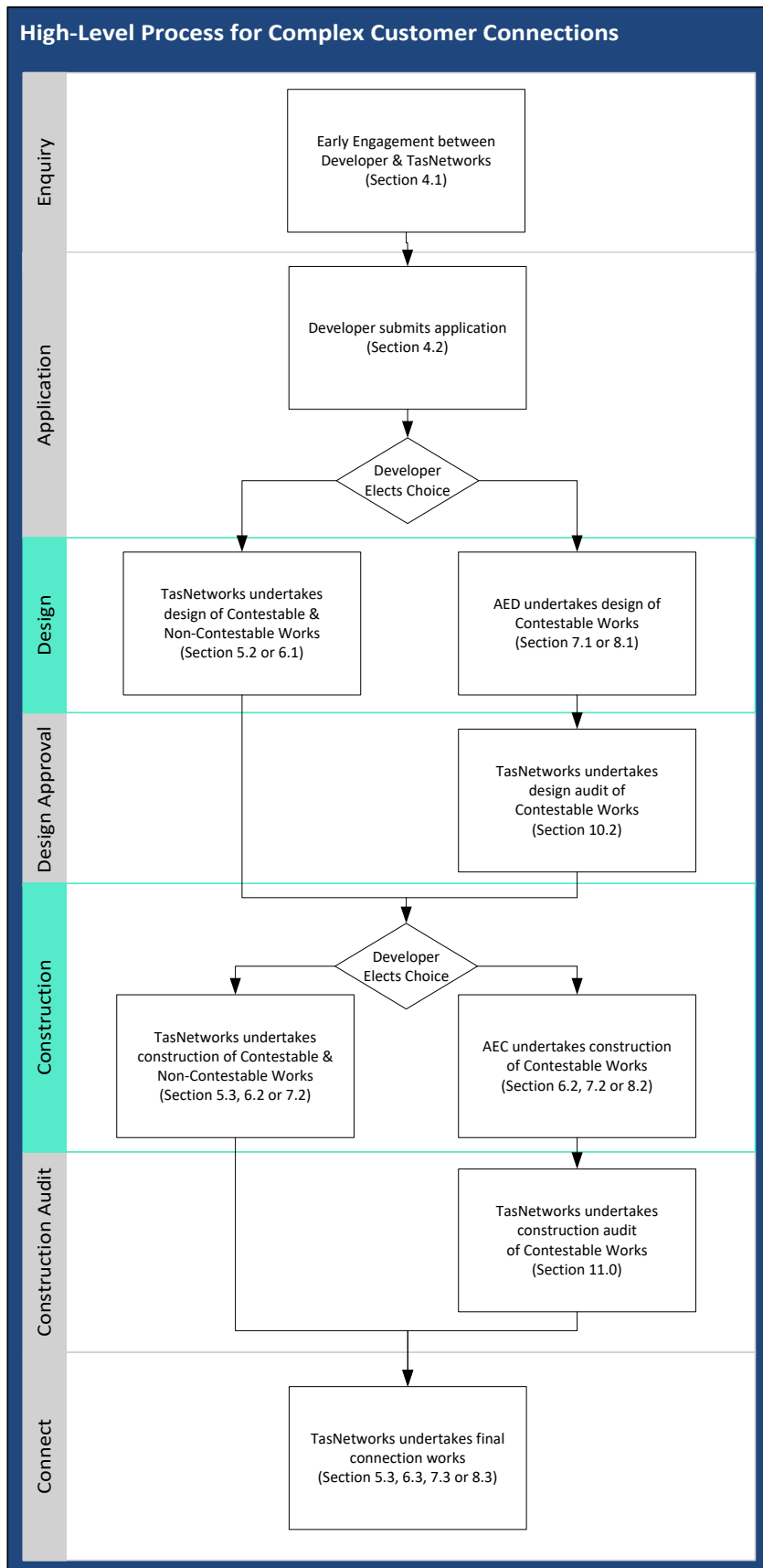


Figure 1 - The High-Level Connection Choice Process

3. Summary of Responsibilities

The intent of this section is to provide high-level details of the responsibilities of the parties involved in providing electrical reticulation to Underground Developments.

The exact responsibilities of the Developer and TasNetworks will depend on the particular Underground Development and the choices made by the Developer under Connection Choice.

This Developer Guide is for information only. A Developer choosing to engage in the Connection Choice process will be asked to accept detailed terms and conditions containing applicable responsibilities and obligations of the Developer and TasNetworks.

3.1 TasNetworks Responsibilities

Where applicable:

- Undertaking of pre-design technical assessment and formulating development scopes;
- Auditing and acceptance of external designs;
- Auditing and acceptance of constructed Contestable Works;
- Preparation (where one does not already exist) or update of required development plans;
- Design of commercial and industrial subdivisions;
- Design and construction of Non-Contestable Works, such as augmentation and completion of network extensions along public roads; and
- Design and construction of final connection works and energisation.

3.2 Developer's Responsibilities

Where applicable;

- Submitting an application for new connection to TasNetworks;
- Selection of AED and/or AEC;
- Procurement of TasNetworks approved materials (where Developers choose an AEC);
- Complying with TasNetworks standards and specifications;
- Complying with relevant legislative requirements and local government conditions, including seeking the necessary approvals and permits (for example environmental approvals);
- Acquiring easements as required; and
- All further responsibilities and obligations contained in applicable terms and conditions of Connection Choice.

4. Making an Application to Connect

There are four options available to Developers to choose from which will dictate the steps they must follow to arrange the connection of their development to our electricity network.

Common to each of the options to Developers is the opportunity to discuss their proposed Development with TasNetworks through the early engagement process and the completion of an application form explained further below.

Following the completion of the application form TasNetworks will specify the options that are available and request the Developer to indicate the option they wish to proceed with.

4.1 Early Engagement

TasNetworks has implemented an early engagement model that assists prospective customers and Developers to understand connection requirements and potential options.

This initiative has proved particularly beneficial for Developers and large customers contemplating a new development and assists in understanding considerations as appropriate to their proposed development.

It is strongly encouraged that Developers considering exercising Connection Choice of design and/or construction book an early engagement meeting to discuss the process and expectations.

The TasNetworks website has more information regarding the Early Engagement process and appointment times. To arrange a meeting please contact TasNetworks via early.engagement@tasnetworks.com.au or telephone the Customer Supply Team on 03 6324 7583.

4.2 Application

To initiate the connection process, regardless of the chosen designer or constructor, Developers will need to complete the application form located on TasNetworks website. TasNetworks will then assess the application and respond to the Developer within ten business days, unless otherwise negotiated. The Application Response will indicate the options available to the Developer, the fee(s) payable, and other important information. Upon receipt of the Application Response, the Developer then has 90 days, unless otherwise agreed, to indicate the option they wish to proceed with and pay the applicable fee(s). A comparison of the fees payable under each option is provided under Section 14.5 of this document.

Please note that the application will not proceed to the next stage (technical assessment) until receipt of the applicable fee(s).

4.3 TasNetworks Technical Assessment and Preparation of Scopes

The reticulation of electrical infrastructure within a subdivision and connection to the network requires the preparation of a formal design to be approved prior to construction. In order for a design to be prepared, either by TasNetworks or another service provider,

TasNetworks has to prepare technical scopes regarding the proposed project and high level requirements, which will take into account any preliminary technical assessments for the proposed development.

If a Developer elects to use an AED then following the receipt of required information and payment of the applicable fee(s), TasNetworks will develop a scope for the extension works which will be supplied to the Developer. In addition, TasNetworks may also prepare another scope relating to augmentation and connection works that are required to the existing network to accommodate the new connection. The augmentation and connection scope of works will be designed and constructed by TasNetworks (at the cost of the Developer).

The purpose of the two scopes is to set out the general design considerations and operating requirements for the works required to allow connection to the distribution network, including:

- Connection Voltage;
- Minimum asset sizes (where non-standard);
- Any other technical details or equipment requirements; and
- Details of any additional work required (e.g. provisions for future developments).

These scopes are based on TasNetworks Technical Requirements and Standards which can be found in the Developer's Toolkit.

We will generally supply the scope of the extension works relating to the Developer's request within ten business days of receiving the Request for Progression to Scope and Offer. To achieve these timeframes the application submitted to us must have sufficient information to avoid delays. If additional time is required to process the application then the Developer will be notified as soon as possible.

In addition to the scope of the Contestable Works, TasNetworks will also supply, where relevant, upstream protection data, GIS data, materials lists, and a breakdown of the Contestable and Non-Contestable Works that form the development.

4.3.1 Additional Requirements

There may be occasions where TasNetworks request a larger transformer to be installed with a greater capacity than that which is required by the particular subdivision or stage of the subdivision. There may also be occasions where only low voltage internal reticulation is required within the subdivision or stage, and this can be supplied from a previously installed transformer, funded by another Developer.

It is appropriate therefore that the installation cost of new transformers is shared equitably between Developers. TasNetworks has developed unit rates that will guide the payment applicable to a Developer to reimburse installed costs associated with sourcing a larger transformer.

Please refer to Appendix D for more information on cost sharing.

4.3.2 Development Plan

A Development Plan is a conceptual layout of the HV and LV infrastructure (including substation locations and LV circuit ‘open points’) that will be installed within the underground development. It will represent the ultimate infrastructure arrangement of the underground development, and consider both the Developer’s proposed staging, and future expansion of the distribution network through the underground development.

A Development Plan is required to be used to ensure the most efficient use of network resources to supply the underground development.

A Development Plan for Commercial and Industrial Underground Subdivisions may only be produced by TasNetworks.

A Development Plan for Underground Residential Developments (URD) must be produced or updated by TasNetworks where one does not already exist.

4.4 Options Available to the Developer

Where the development is eligible for Connection Choice, the Developer can choose to proceed in one of four ways as detailed in the following diagram, and the subsequent sections of this document.

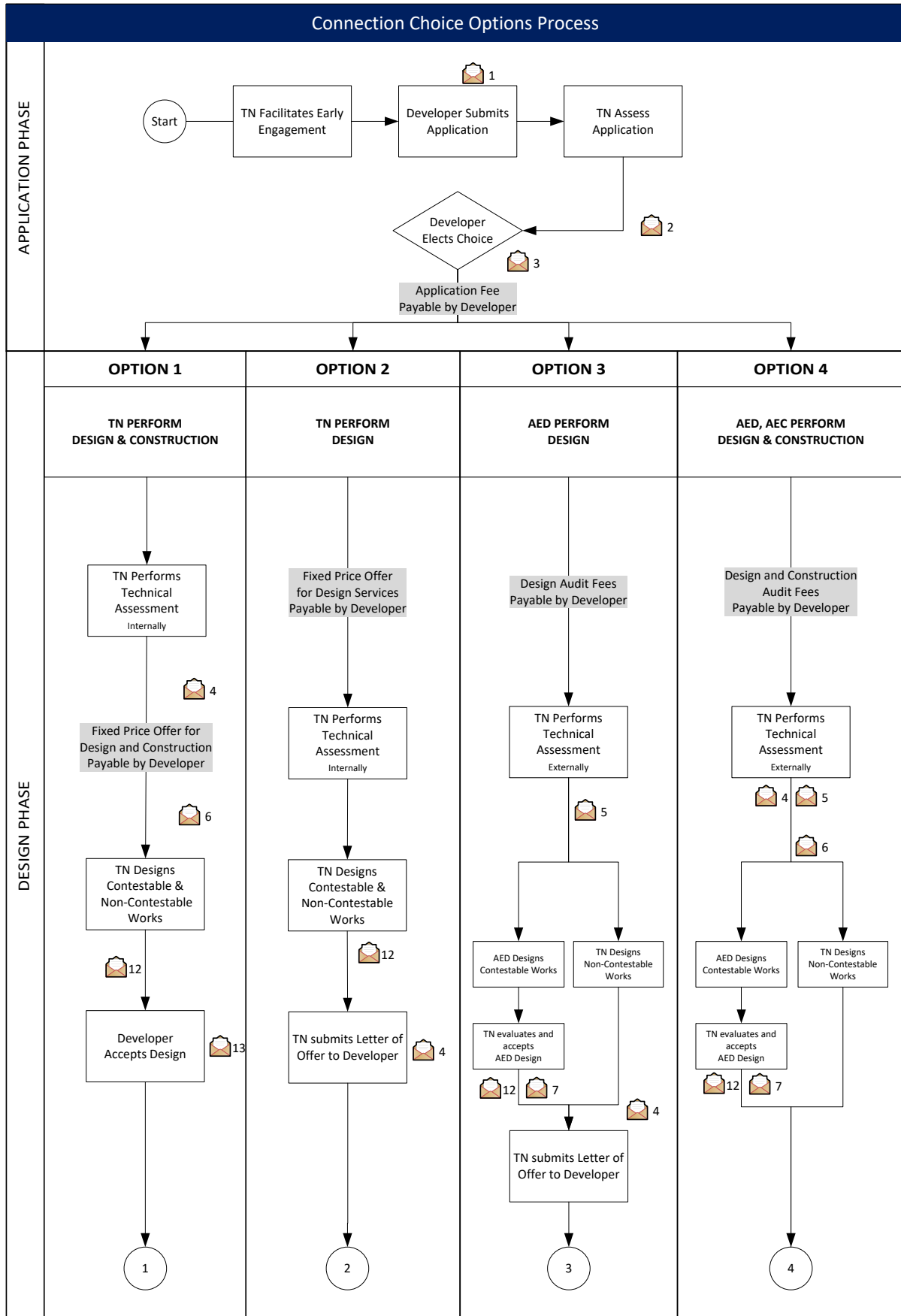


Figure 2 - Connection Choice - Design Options

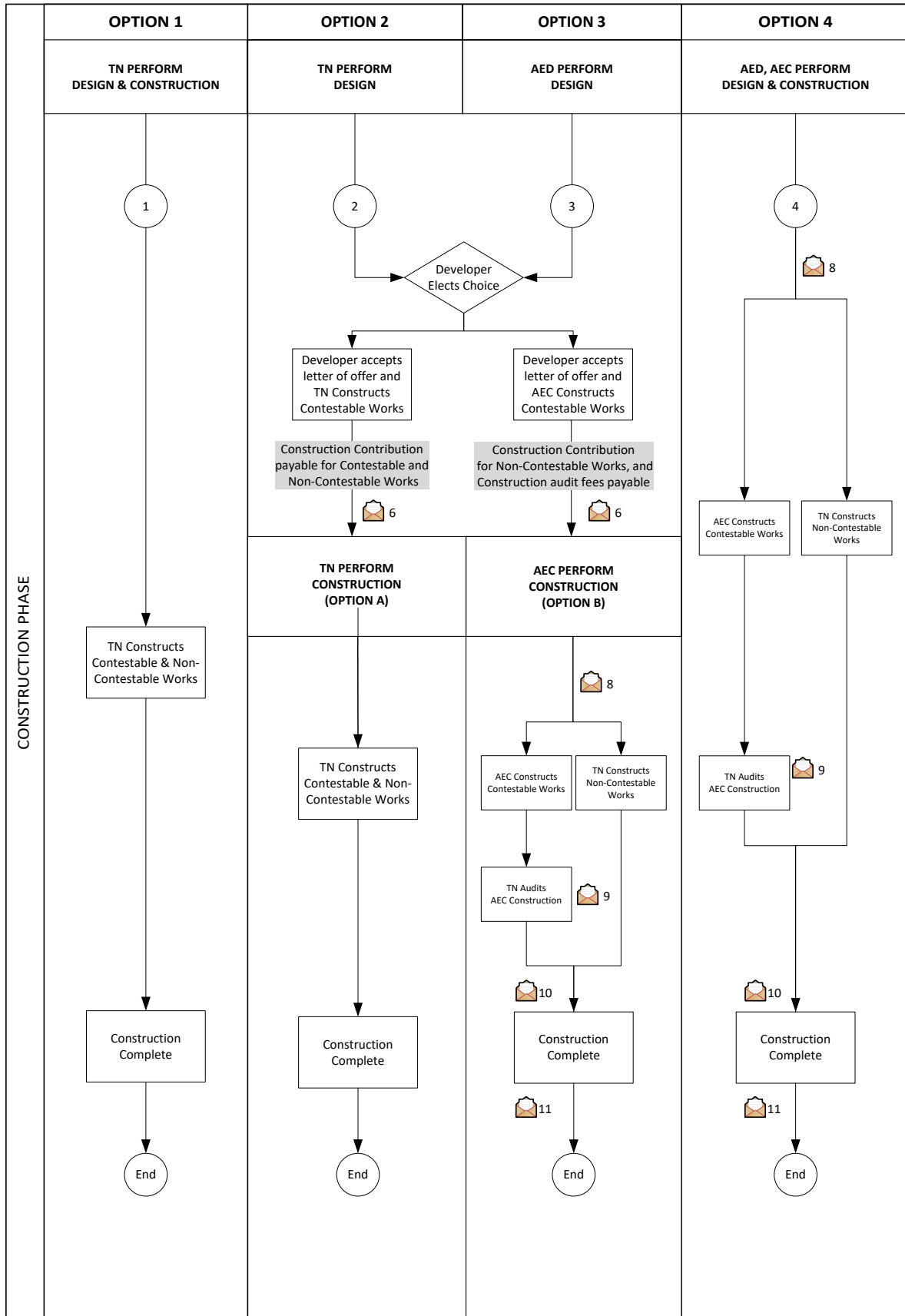


Figure 3 - Connection Choice Construction Options

4.4.1 Process Map References

Process Reference	Document(s)	Party Responsible
1	Application Form	Developer
2	Application Response Letter	TasNetworks
3	Request for Progression to Scope and Offer	Developer
4	Letter of Offer	TasNetworks
5	Scopes are provided to Developer	TasNetworks
6	Offer Acceptance	Developer
7	Certificate of Acceptance – Design	TasNetworks
8	Notice to Commence	TasNetworks
9	Audit Gate Reports	TasNetworks
10	Certificate of Completion	Developer
11	Certificate of Acceptance	TasNetworks
12	Easement Deed	Developer

5. Option 1 – Engage TasNetworks for Entire Connection

This option involves engaging TasNetworks to undertake the design and construction of both the Contestable and Non-Contestable portions of work for developments not requiring any upstream augmentation to the existing network. An upfront unit price quote will be provided by TasNetworks for this option in the Application Response Letter, and should this option be selected, a formal offer to connect will be presented to the Developer prior to the design commencing.

This option is not available to Commercial and Industrial Underground Subdivisions.

5.1 Fixed Price Quote Process – Upfront Connection Offer

To support pricing predictability for Developers, TasNetworks has introduced a fixed price quote process.

Generally the service requirements for residential housing are similar allowing the standardisation of servicing arrangements and backbone infrastructure, provided suitable infrastructure adjoins your development.

This means TasNetworks can use standard rates for the design and construction of a proposed subdivision and provide an upfront quote in the Connection Offer to a Developer.

There are developments with circumstances that fall outside this standard where for example, the terrain may be undulating, rocky, thick with vegetation, the proposed development is remote from our electricity network, or that part of the network is relatively weak requiring upgrading of the lines or a substation that will supply your subdivision. If the proposed location of your subdivision matches these circumstances we may be unable to offer the fixed price quote process under Option 1.

Developers are encouraged to attend an early engagement session (Section 4.1 of this document) to find out more and we will confirm with you if this is available as part of our application response.

5.2 TasNetworks Technical Assessment and Design

TasNetworks will undertake a technical assessment and prepare a design relating to the new extension works and alteration of the existing shared network to facilitate the development. Prior to the commencement of construction, TasNetworks will request acceptance from the Developer for the design.

5.3 Construction Stage

Following acceptance of the design, TasNetworks will construct the Contestable and Non-Contestable Works as per the connection offer. Construction of the Contestable Works under this option will be audited at the cost of the Developer. Further detail regarding the construction audit process can be found in Section 11.3 of this document.

6. Option 2 – Engage TasNetworks for Design Only

Developers may choose to engage TasNetworks to initially undertake the design of the new connection only.

As detailed below under this process TasNetworks will provide a quote for undertaking the design with the Application Response Letter. TasNetworks will undertake a technical assessment of the proposed development, and prepare designs for both the Contestable and Non-Contestable Works. Once completed, the Developer can then choose to engage TasNetworks to undertake the construction of the Contestable Works, or opt to select an AEC.

6.1 TasNetworks Technical Assessment, Design and Offer

TasNetworks will undertake a technical assessment and prepare a design relating to the new extension works and alteration of the existing shared network to facilitate the development.

TasNetworks will then prepare a design and offer relating to the Contestable and Non-Contestable Works to facilitate the development. TasNetworks will generally take six weeks to design and prepare the connection offer.

This timeframe may be reduced or extended depending on the complexity of the augmentation works and size of the extension works within the subdivision.

6.2 Construction Stage

The Developer has the choice to proceed with the construction in one of two ways:

Option A - TasNetworks Constructs - Under this option TasNetworks will construct the Contestable and Non-Contestable Works portions of the development. Construction of the Contestable Works under this option will be audited in accordance with TasNetworks' quality assurance processes. Further detail regarding the construction audit process can be found in Section 11.3 of this document.

Option B - AEC Constructs – Under this option the Developer's chosen AEC will construct the Contestable Works, whilst TasNetworks will construct the Non-Contestable Works, as well as audit the works undertaken by the AEC at the cost of the Developer. Further detail regarding the external construction process can be found in Section 11 of this document.

6.3 Assets Vested to TasNetworks

Any assets constructed by an AEC will need to be vested to TasNetworks following the successful completion of Final Commissioning – refer Section 11.4.

7. Option 3 – Engage an AED for Contestable Works

Developers can engage an AED to undertake the design of the Contestable Works portion of the new connection. Under this option, TasNetworks will undertake a technical assessment of the proposed development and provide the Developer a scope of Contestable Works. In parallel with the design of the Contestable Works being undertaken by the Developer's chosen AED, TasNetworks will design the Non-Contestable Works. Upon completion of the designs, the Developer can then choose to engage TasNetworks to undertake the construction of the Contestable Works, or opt to select an AEC.

This option is not available to Commercial and Industrial Underground Subdivisions.

7.1 External Design - AED Design Contestable Works

The AED will prepare a design of the Contestable Works which must satisfy the scope for extension works provided by TasNetworks. The AED will need to submit the design to TasNetworks for auditing as per Section 10.2.

TasNetworks will prepare a design and offer relating to the Non-Contestable Works required to facilitate the development. TasNetworks will generally take six weeks to design and prepare the connection offer. This timeframe may be reduced or extended depending on the complexity of the augmentation works and size of the extension works within the subdivision.

Since the Developer has elected for an AED to prepare the Contestable Works design for the subdivision, TasNetworks will be unable to provide an offer to connect, until the completed design has been received.

Following acceptance of the designs and acceptance of TasNetworks Offer to Connect the Developer may progress to the Construction Stage.

7.2 Construction Stage

The Developer has the choice to proceed with the construction in one of two ways:

Option A - TasNetworks Constructs - Under this option TasNetworks will construct the Contestable and Non-Contestable Works portions of the development.

As TasNetworks did not prepare the initial design, a construction estimate would be required which would be contained in a new letter of offer to the Developer.

Construction of the Contestable Works under this option will be audited in accordance with TasNetworks' quality assurance processes. Further detail regarding the construction audit process can be found in Section 11.3 of this document.

Option B - AEC Constructs – Under this option the Developer's chosen AEC will construct the Contestable Works, whilst TasNetworks will construct the Non-Contestable Works, as well as audit the works undertaken by the AEC at the cost of the Developer. Further detail regarding the external construction process can be found in Section 11 of this document.

7.3 Assets Vested to TasNetworks

Any assets constructed by an AEC will need to be vested to TasNetworks following the successful completion of Final Commissioning – refer Section 11.4.

8. Option 4 – Engage an AED and AEC for Contestable Works

The Developer can elect to engage an AED and AEC from the outset to undertake the Contestable Works for developments not requiring any upstream augmentation to the existing network. Should this option be selected, a formal offer will be presented to the Developer prior to the technical assessment commencing for the entire connection.

This option is not available to Commercial and Industrial Underground Subdivisions.

8.1 External Design - AED Design Contestable Works

The AED will prepare a design of the Contestable Works which must satisfy the scope for extension works provided by TasNetworks. In addition to the scope of the Contestable Works, TasNetworks will also supply details of the connection of the underground development to the electricity network.

The AED will need to submit the design to TasNetworks for auditing as per Section 10.2.

TasNetworks will prepare a design relating to the Non-Contestable Works required to facilitate the development. TasNetworks will generally take six weeks to undertake this design.

Following acceptance of the designs by TasNetworks the Developer may progress to the Construction Stage.

8.2 Construction Stage

Under this option the Developer's chosen AEC will construct the Contestable Works for auditing by TasNetworks at the cost of the Developer. Following the successful completion of Final Commissioning tests TasNetworks will complete the connection of Contestable Works to the electricity network.

Further detail regarding the external construction process can be found in Section 11 of this document.

8.3 Assets Vested to TasNetworks

Any assets constructed by an AEC will need to be vested to TasNetworks following the successful completion of Final Commissioning – refer Section 11.4.

9. Accredited Electrical Designers and Accredited Electrical Constructors

Where a new development is eligible for Connection Choice and the Developer chooses to engage an external party for the design and/or construction of the required electricity reticulation within the subdivision, only Accredited Electrical Designers (AED) and/or Accredited Electrical Constructors (AEC) can be engaged.

Accredited Electrical Designer An external service provider accredited by TasNetworks to undertake the design of Contestable Works.

Accredited Electrical Constructor An external service provider accredited by TasNetworks to undertake the construction of Contestable Works.

The Developer has the responsibility of ensuring its AED and/or AEC meets TasNetworks requirements in regard to design, construction, and material specifications.

TasNetworks manages the accreditation process for external service providers to attain accreditation in design, construction, or both. For construction, there are levels of accreditation which determine the activities that may be undertaken by an AEC;

- Civil work: Excavation and reinstatement of trenches prepared for cable installation. Surface alterations in preparation for the installation of electrical infrastructure.
- High voltage electrical work: Installation of high voltage cables, substations and associated infrastructure including substations, cable jointing and terminations.
- High voltage electrical testing: Electrical testing of high voltage cables, substations and associated infrastructure.
- Low voltage electrical work: Installation of low voltage cable and associated infrastructure including cabinets and turrets, jointing and terminations.
- Low voltage electrical testing: Electrical testing of low voltage cables, substations and associated infrastructure.

Please refer to the TasNetworks Developers Toolkit for further information, or contact us by phone for a list of AED and AECs.

9.1 Choosing an AED and/or AEC

Developers can choose to engage an AED and/or AEC directly or run their own tender process for the design and construction of the Contestable Works. Any tender process undertaken will be the responsibility of the Developer, and TasNetworks will in general not bid for any private tenders.

The Developer is responsible for ensuring that their contractual arrangement with the AED and/or AEC appropriately addresses TasNetworks requirements set out in the relevant terms and conditions.

10. External Design Process

The following section is relevant for Developers who have elected to utilise an AED for the design of the Contestable Works of their connection.

The external design process is not available to commercial and industrial underground subdivisions.

10.1 Non-Contestable Works Design

TasNetworks will prepare a design and offer relating to the Non-Contestable Works required for connecting the Contestable Works and altering/upgrading the existing shared network to facilitate the development. TasNetworks will generally take six weeks to design and prepare the connection offer. This timeframe may be reduced or extended depending on the complexity of the augmentation works required, and TasNetworks will make best endeavours to align with design of the extension works within the subdivision. There may need to be collaboration on the two designs to ensure compatibility with our network.

10.2 Design Submission

The AED must submit a design that satisfies the scope for extension works provided by TasNetworks.

There are a number of TasNetworks standards, specifications and documents that will need to be referenced and used and it is the Developers responsibility to ensure the latest version is being used by their chosen AED. The relevant standards, specifications and documents can be found in the Developer's Toolkit.

The Developer must also ensure all documentation and/or data supplied is to be in PDF or CAD format, unless otherwise agreed with TasNetworks. If the format is not approved by TasNetworks the documentation/data may not be accepted.

All design of the Contestable Works undertaken by the Developer must also be completed in accordance with, and conform in all respects to, all relevant Australian Standards, Laws, relevant Statutory Requirements and Electrical Supply Industry best practice.

10.2.1 Easement Information

Where required, the Developer, at their own cost, must provide and obtain registered easements for electrical infrastructure where the responsibility for the infrastructure will be vested to TasNetworks.

Easements need to be clearly indicated on all drawings.

10.2.2 Environment and Heritage Approvals

The construction of new electrical infrastructure may create an environmental impact both during the construction phase and ongoing whilst operated and maintained by TasNetworks.

The Developer is responsible for undertaking appropriate environmental risk assessments and obtaining necessary environmental approvals and permits relating to their proposed subdivision.

Issues commonly requiring consideration are:

- Aboriginal and European Cultural Heritage;
- Threatened Species, Communities and Habitat;
- Forest Practices – Vegetation Clearance; and
- Waterway and Water Quality Protection.

Environmental considerations need to be addressed in the design phase, for example, to ensure reasonable attempts have been made to avoid environmentally sensitive sites and threatened species.

All risk assessments and approvals as part of the Developer’s environmental due diligence must be cited and released to TasNetworks as part of the vesting process.

The TasNetworks Environment Heritage Design and Construction Standard prescribe the type of environmental risk assessment that is appropriate. These documents can be found in the Developer’s Toolkit.

10.3 Design Audit

TasNetworks conducts audits to assess the general compliance of the proposed design. Acceptance by TasNetworks does not relieve the AED of responsibility for suitability or correctness of the design.

The audit will be undertaken within ten business days, unless otherwise agreed, and will assess compliance with the following:

- Offer of Network Connection Services;
- Original project plan submitted by the Developer (unless otherwise agreed with TasNetworks);
- The scope(s) for Contestable Works as provided by TasNetworks;
- TasNetworks design and/or planning standards and criteria;
- The Specification for Underground Residential Subdivision Design document;
- This Developer’s Guide;
- Environmental, safety, operability and maintainability considerations;
- Correct referencing to Construction Standards;
- Drawing Drafting Standard; and
- TasNetworks materials specifications and requirements, including TasNetworks Materials and Assemblies Document (Please note that the use of the correct and/or specified materials will also be subject to site audit during construction).

Should the design not comply with TasNetworks requirements, a report detailing the non-compliance(s) will be given to the Developer and the AED. All non-compliances must be rectified at the cost of the Developer. A re-audit will be undertaken to ensure the non-compliance(s) have been rectified prior to commencing construction. TasNetworks will apply a charge for each re-audit as per the hourly rates outlined in Appendix – B: Indicative Process Costs.

Further information regarding the External Design Process can be found within the Specification for Underground Residential Subdivision Design document in the Developer’s Toolkit.

10.4 Approved Design and Offer to Connect

TasNetworks will prepare a design and offer relating to the scope for connecting the new extension works and alteration of the existing shared network to facilitate the development.

TasNetworks will generally take six weeks to design and prepare the connection offer. This timeframe may be reduced or extended depending on the complexity of the augmentation works required and fitting in with the design of the extension works within the subdivision.

Collaboration may be required on the two designs to ensure compatibility on our network. Therefore in most cases the connection offer from TasNetworks will be included with the design approval.

TasNetworks will use reasonable endeavours to provide you with the result of the design audit by the later of:

- a) Two weeks after submission of your AED design for review; or
- b) Completion of the design of the Non-Contestable Works by TasNetworks.

In some circumstances conditional approval may be given where minor aspects of a design still require sign off. Conditional approval will allow the applicant to proceed to the next stage provided the matter is resolved prior to the pre-commencement phase of construction.

10.5 Acceptance Time Frame

If the Connection Offer from TasNetworks is not accepted within 20 business days, or an agreed period, it will lapse and be withdrawn (i.e. not be capable of being accepted by the Developer). The Developer may be required to pay a new application fee to reinitiate the Project.

10.6 Modification to a Design

If at any stage after TasNetworks has approved a design the Developer requests that it be amended, they must stop all works and discuss their request with TasNetworks.

If TasNetworks considers that the request represents a substantial change and the development requires re-scoping, a new scope will be prepared and charged to the Developer.

The Developer will be responsible for the costs for preparing a new design and any costs incurred by TasNetworks revising the design for the shared network and connection or re-reviewing the design. There will be no refund for costs incurred.

TasNetworks reserves the rights to request alterations to an approved design, and will negotiate the funding of reasonable additional costs to accommodate our changed requirements.

11. External Construction Process

The details in this section relate more specifically to developments where a Developer has elected to engage an AEC for the construction of the Contestable Works.

11.1 TasNetworks Construction Specifications

The construction of the Contestable Works undertaken by the Developer must comply with the latest issue of our publications current at the time of the approval of the Design. These are available in the Developer's Toolkit.

The development must also be completed in accordance with, and must conform in all respects to, all relevant Australian Standards, Laws, relevant statutory requirements and Electrical Supply Industry best practice.

11.2 Pre-Commencement of Construction

11.2.1 Notice to Commence

At least one week prior to the anticipated pre-commencement meeting, the Developer must submit a Notice to Commence form.

Where a design has been given conditional approval, outstanding matters will need to be resolved prior to the pre-commencement phase of construction.

11.2.2 Preliminary Meeting

At least one week prior to the anticipated commencement of works, the nominated representatives from each party must meet to discuss the works. The Developer must provide TasNetworks with a copy of the Developer's proposed program of works prior to this meeting. TasNetworks and the Developer must agree an audit schedule and process, taking into account:

1. Alignment with the proposed program of works;
2. TasNetworks resourcing requirements; and
3. Any audit requirements specific to the project.

11.3 Construction Audit Process

Construction of the Contestable Works will be evaluated by TasNetworks to ensure alignment with:

- Approved Designs;
- Construction Standards and Manuals;
- Hazards and Operability Guidelines;
- Safety in Design Guidelines; and
- Environment and Heritage Design and Construction Standards.

The audit process agreed between TasNetworks and the Developer will be based around seven 'Gates', each relating to a different stage of construction:

1. Site Establishment Pre-Construction Audit;
2. Civil Works Commencement;
3. Conduit, Bore and Cable Audit;
4. Street Furniture Audit;
5. Reinstatement and Restoration Audit;
6. Substation/HV Switchgear/Transformer Audit; and
7. Terminations, Labelling and Pre-Commissioning Testing Audit, comprised of:
 - a. Field Audit; and
 - b. Design and/or Engineering Audit.

Where a Developer has elected to engage an AEC for the construction of the Contestable Works the Developer is required to give TasNetworks at least two days' notice prior to an anticipated audit gate.

11.3.1 Audit Results

After each Gate, TasNetworks will issue the Developer with a report indicating whether the works have passed the audit, with one of three results:

- **Pass and Proceed** - The Developer may continue with construction until the next inspection point set out in the Audit Program.
- **Conditional Proceed** - TasNetworks will provide the Developer with details of the defect identified and the rectification requirements. The Developer may proceed with construction until the next inspection point set out in the Audit Program; however the defects must be corrected before the next Gate can be passed.
- **Hold** - TasNetworks will provide the Developer with details of the defect identified and the rectification requirements. The Developer must cease construction of networks until the defects have been rectified.

11.4 Final Commissioning and Asset Vesting

- After the successful completion of Gate 7, the AEC must allow our project managers at least 20 working days prior to the final commissioning process to schedule the necessary resources to connect the site.
- Prior to final commissioning, TasNetworks requires the receipt of a Certificate of Completion, including all Inspection Test Plans (ITPs), materials warranties and required certificates of compliance (including Electrical Work Certifications).
- The Developer must also provide details of the corresponding performance security prior to final commissioning and asset vesting commencing as per the construction terms and conditions.

- Commissioning tests will be conducted prior to staged energisation of the assets. The purpose of the commissioning tests is to confirm critical tests are completed on the day of the scheduled energisation and also confirm our technical requirements have been met with respect to reverse polarity and phasing.
- TasNetworks requires the Developer's AEC to complete both commissioning tests and staged energisation during final commissioning. The Developer is also required to be onsite.
- While staged energisation is occurring, the Developer will still own the assets. If a problem is found, TasNetworks will disconnect the supply (and issue an Apparatus Interface Statement – a notification indicating how the development has been isolated to assist with safe work practices), and the defect can be rectified by the AEC.
- Defects found during the commissioning checks that cannot be resolved on the day, will result in the final commissioning date being rescheduled. The AEC must contact our project managers at least 20 working days prior to the final commissioning date to reschedule the connection.
- After any outstanding defects have been rectified to the satisfaction of TasNetworks AND the site has been energised successfully, AND all contract Terms and Conditions have been met, TasNetworks can issue a Certificate of Acceptance.
- TasNetworks must receive all 'As Built' drawings no more than four weeks after the Certificate of Acceptance has been issued.

For further information regarding the final connection and asset vesting process, please refer to the Construction Audit Process in the Developer's Toolkit.

11.4.1 Defect Liability Period

For all externally constructed assets, a defects rectification period will be in place as follows:

- For any electrical works, a period of 24 months; and
- For civil works, a period of 12 months.

This time period commences once TasNetworks has issued the Certificate of Acceptance.

If any defects are found during the defects rectification period, TasNetworks will rectify the defect and recover the costs of doing so from the Developer.

11.5 Modification During Execution of the Works

If the position of any proposed TasNetworks asset (i.e. transformer, switching cubicle, cable, service pillar, public light, power lines) is to be altered at any time during the execution of the works, approval will be required from TasNetworks.

12. Energisation of Lots Within Subdivision

Regardless of the option selected by the Developer, TasNetworks provides final connection services for connecting customers. This typically entails connecting a customer's underground mains to fuses located within a turret in an underground development and installing a meter.

Individual customers requesting a connection will need to submit a Basic Connection Application form to initiate these works.

13. Materials

13.1 Approved Materials List

All materials for installation and construction work are to be procured by the Developer or its contractors and must be in accordance with TasNetworks Materials and Assemblies document. All materials and goods must be new, free from defects, of merchantable quality, fit for the specified purpose, and conform fully to the requirements of TasNetworks.

To ensure the maintenance of appropriate reliability and safety standards during the transition period to Connection Choice, TasNetworks Materials List will have the following three categories of materials:

1. **Prescribed Materials** – These items must be from the specified manufacturer and have the listed part number in TasNetworks Materials and Assemblies document. Example items include kiosk substations.
2. **Approved Materials** – For each type of material or good in this category, product details including manufacturer and part number are specified together with a known supplier. A process will be developed for TasNetworks to assess the suitability of additional products. If a product is assessed as meeting TasNetworks requirements (including being of sufficient quality and compatible with the distribution network), they will be added to the Approved Materials category in TasNetworks Materials List.
3. **Consumable Materials** – Any product that complies with the listed specification or standard (e.g. Australian Standards) may be used. Example items include PVC electrical insulation tape, nuts, bolts and washers.

TasNetworks is committed to assessing the suitability of alternative suppliers regarding Approved and Prescribed Materials; however we must appropriately investigate and test any alternate suppliers before inclusion within the Approved and Prescribed Materials List.

TasNetworks acknowledges that the lead times for substations and transformers can be significant. These assets are developed bearing in mind site specific and network requirements that prevent TasNetworks or another provider from holding stock of such assets. Early engagement with TasNetworks may help alleviate this issue, allowing informed project planning and where possible identifying mitigation measures.

TasNetworks will not “free issue” any materials. TasNetworks Sale of Materials Policy can be found in the Developer’s Toolkit.

13.2 Supplier of Last Resort

TasNetworks will only procure materials on behalf of the Developer where the Developer is unable to do so, on their own. Developers should refer to TasNetworks Sale of Materials Policy in the Developer’s Toolkit for further information.

The Developer is responsible for all costs associated with TasNetworks providing the requested materials.

13.3 Material Lead Times

As indicated there may be long lead times for some materials, particularly substations and transformers. Where TasNetworks is engaged to design and construct, TasNetworks will have clear visibility of the resource requirements and can immediately submit an order for materials or make appropriate arrangements.

Material lead times may be longer where the Developer engages an AED and/or AEC for the design and/or construction element(s) of their connection. Under such scenarios where TasNetworks has no visibility of material requirements and procurement issues by either the Developer or their chosen provider, TasNetworks will not be responsible for any delays this may cause.

13.4 Asset Labelling

Prior to installation of any new infrastructure asset labels will be issued to allow TasNetworks to identify assets on our network. Asset labels will need to be requested during the design phase.

13.5 Material Warranties

TasNetworks is responsible for the operation and maintenance of equipment accepted onto our network. To protect TasNetworks and the broader customer base against faulty equipment or poor workmanship associated with the installation of new infrastructure TasNetworks requires adequate material warranties to be handed over to TasNetworks at completion of construction.

Further information regarding the materials warranties can be found in the applicable terms and conditions as well as the Approved and Prescribed Materials List within the Developer's Toolkit.

14. Costs

14.1 Developer Costs

Costs will depend on an individual development and more detailed cost information will be provided once we have received a Connection Application and specific details about a project.

In general, however, a Developer will be responsible for the following costs:

- The relevant Application Fee;
- Non-Contestable Costs, including connection costs and the cost of TasNetworks designing and constructing any augmentation works required;
- The provision of a performance security in the form of a cash deposit, bank guarantee or other form of security acceptable to TasNetworks. The performance security is required for two aspects:
 - To ensure the provision of all relevant as-built documentation within four weeks following the final commissioning and handover of the assets to TasNetworks; and
 - To cover the defects liability period as described in Section 11.4.
- Contestable design costs in accordance with the Developer’s design contract with either TasNetworks or an AED of choice; and
- Contestable construction costs in accordance with the Developer’s construction contract with either TasNetworks or an AEC of choice.

Other factors that may affect the cost to the Developer of either the Contestable or Non-Contestable Works in relation to a development may include:

- Fees and charges applicable to the option chosen by a Developer (e.g. design and/or construction audit fees);
- Tax liability incurred by TasNetworks on vesting of assets (which may be reimbursable by the Developer in accordance with the terms of the Connection Contract);
- Costs incurred by TasNetworks for the removal and/or relocation of any TasNetworks infrastructure (which the Developer is responsible for);
- Any costs incurred in relation to acquiring easements and permissions;
- Where an easement, or easements, are required by TasNetworks in relation to your development, TasNetworks will lodge a caveat over the relevant land until such time as the easement is registered. The Land Title Office fees associated with lodging, and withdrawing, the caveat will be invoiced to you at the time when the caveat is required to be lodged. The caveat will be withdrawn by TasNetworks once the easement is registered on title. The current cost of lodging a caveat with the Land Titles Office is \$164.30 and the withdrawal fee is \$132.52 (fees current as at July 2017 – you should check the Land Titles Office webpage for up to date fee information).

- Site specific conditions (e.g. undulating land, access issues, complex digging due to rock, distance from existing power lines, vegetation clearing, traffic management issues and the amount of power required);
- Liaison with, and requirements of, local government and road authorities;
- A Developer Main Contribution, where other customers have previously contributed to the cost of building a line that the underground development connects to (see TasNetworks Developer Mains Procedure, available at www.tasnetworks.com.au);
- Environmental impacts and compliance with any applicable environment legislation; and
- Other legal or regulatory requirements specific to the development.

Please note that the above lists are not exhaustive. Costs will depend on the specifics of each project and the relevant contractual arrangements.

For further information relating to costs please refer to Appendix – B: Indicative Process Costs,

14.2 TasNetworks Costs

In some cases the scope of the Contestable Works will provide for certain works required by TasNetworks to support predicted increases in electricity demand or allow for future expansion of the network. Where these requirements are included in the scope, they must be incorporated into the Developer's design. The Developer may be entitled to a reimbursement for any increased cost to design and/or construction, as calculated by TasNetworks.

TasNetworks reserves the rights to request alterations to an approved design, and will negotiate the funding of reasonable additional costs to accommodate our changed requirements.

In circumstances where it is deemed that TasNetworks' actions have caused material delays to a development, customers are able to make a claim by filling out a claim form on our website www.tasnetworks.com.au or by calling us on 1300 137 008.

14.3 Payment Terms

Developers are responsible for the payment of all applicable fees and charges to TasNetworks.

Where possible, TasNetworks will advise up front the amount of fees and charges prior to work or services being undertaken (Refer to Appendix B for indicative process costs).

Where TasNetworks undertakes the construction of the Contestable and/or Non-Contestable Works, all financial components of the construction charge (the customer capital contribution) should be paid as a single up-front amount, or the Developer must provide security to the value of the customer capital contribution.

Where an AED and/or AEC undertakes the Contestable Works elements the Developer is responsible for negotiating payment terms with them directly.

14.4 Cancellation of a Project

If a project is cancelled during design or construction, TasNetworks will invoice the Developer for all costs incurred (which may include design costs) and may refund any unused audit fees and/or charges for works that have not and will not be incurred.

14.5 Summary of Process Costs Payable to TasNetworks – by Option

The table below demonstrates the process costs payable to TasNetworks under each of the options.

Design	Application Fee	Design Services Fee	Design Audit Fee
Option 1	Yes		
TasNetworks Design and Construction	\$2,201.94 Payable with Request for Progression to Scope and Offer	The costs of the design are included in the unit price offer that will be estimated after receipt of the application.	No
Option 2	Yes	Yes	
TasNetworks Design	\$2,201.94 Payable with Request for Progression to Scope and Offer	\$TBA Design of both the Contestable and Non-Contestable components of the development based on the hourly rate	No
Option 3 & Option 4	Yes	Yes	Yes
External Design	\$2,201.94 Payable with Request for Progression to Scope and Offer	\$TBA Will cover the cost of designing the Non-Contestable component of the development based on the hourly rate	\$TBA (as per indicative process costs) Covers the cost of auditing the Contestable design. Payable with Request for Progression to Scope and Offer
Construction	Construction Contribution	Construction Audit Fee	
Option 1		Yes	
TasNetworks Design and Construction	The costs of the construction are included in the unit price offer that will be estimated after receipt of the application.	\$TBA (as per indicative process costs)	Will cover the cost of auditing the construction of the Contestable Works.
Option 2	Yes	Yes	
TasNetworks Construct	\$TBA Will cover the cost of constructing both the Contestable and Non-Contestable components of the development	\$TBA (as per indicative process costs)	Will cover the cost of auditing the construction of the Contestable Works.
Option 3 & Option 4	Yes	Yes	
External Construct	\$TBA Will cover the cost of constructing the Non-Contestable component of the development	\$TBA (as per indicative process costs)	Will cover the cost of auditing the construction of the Contestable Works.

15. Dispute Resolution Process

Any disputes between TasNetworks and a Developer will be managed in accordance with the dispute resolution terms in the relevant terms and conditions.

Where a connection applicant has a dispute with an AED and/or AEC, this is a matter between those parties; TasNetworks is not responsible for managing the dispute or arbitrating.

Appendix – A: Definitions

Term	Definition
AEC	Accredited Electrical Constructor - An external service provider accredited by TasNetworks to undertake the construction of Contestable Works.
AED	Accredited Electrical Designer - An external service provider accredited by TasNetworks to undertake the design of Contestable Works.
As-Builts	Refer to “As-Constructed” definition within TasNetworks Standard Construction Terms and Conditions.
Audits	Check for compliance with the applicable TasNetworks specifications, drawings and safety requirements
Connection Point	The point where a new subdivision is connected to TasNetworks Distribution Network.
Contestable Works	The works that relate to the Design Scope being that portion of the overall works required to connect the Customer Site and the works within the underground development to TasNetworks existing distribution network, which works can be built in isolation from TasNetworks distribution network. These are works eligible to be undertaken by an AED and/or AEC.
Contractor	Includes but is not limited to licensed subcontractors, consultants and sub consultants engaged by the Applicant.
Design Standard	The standard of design required by TasNetworks – please refer to the Developer’s Toolkit.
Developer	Any entity that enters into an agreement with TasNetworks for Electrical Reticulation works. Also referred to as applicant or customer.
Developer’s Toolkit	A TasNetworks developed resource located online at www.tasnetworks.com.au which contains further resources to assist and guide Developers in the development of electrical reticulation and public lighting of their underground development.
Development	The development proposed by the Developer in the new connection application.
Developer Main	An existing power line where other customers have contributed to the cost of building that line
Electrical Reticulation	Any works within the Development directly associated with the supply of electricity to that Project.
Energisation	The act of providing energy through electrical infrastructure.
High Voltage (HV)	A voltage greater than 1000 volts but less than 66,000 volts alternating current.
Low Voltage (LV)	A voltage 1,000 volts or less alternating current.
NECF	National Electricity Customer Framework
Non-Contestable Works	That portion of the overall works required to connect the Contestable Works to TasNetworks existing distribution network, which works must be built by TasNetworks.
UD	Underground Development. This includes underground residential subdivisions, stratum title developments and commercial and industrial underground subdivisions.
URD	Underground Residential Development. This includes underground residential subdivisions and stratum title developments

Appendix – B: Indicative Process Costs

Item Amount

Incl. GST

The following costs are individually quoted for each project and detailed in our response to your connection application. The following costs are indicative of how your quote will be developed.

Item	Cost 20/21	Comment	Payment Due
Application Fee	\$2,201.94	The Application Fee for a standard development to accompany each Developer application. Covers assessment of application, development plans, network assessment and preparation of scopes for design and construction.	Payable prior to technical assessment
Design Cost (Consultancy Hourly Rate)	\$144.46		Payable prior to commencement of construction
Design Audit Fee (Min)*			Payable prior to technical assessment
Small	\$577.84	LV only subdivisions	
Large	\$866.76	HV & LV subdivision	
Major	\$1,155.69	HV & LV Subdivision with Substation	
Design Audit Fee (Max)			Payable prior to technical assessment
Small	\$1,924.65	LV only subdivisions	
Large	\$2,502.49	HV & LV subdivision	
Major	\$3,849.30	HV & LV Subdivision with Substation	
Construction Audit Fee (Min)*			Payable prior to commencement of construction
Small	\$1,242.89	LV only subdivisions	
Large	\$2,485.77	HV & LV subdivision	
Major	\$4,469.13	HV & LV Subdivision with Substation	
Construction Audit Fee (Max)			Payable prior to commencement of construction
Small	\$6,214.43	LV only subdivisions	

Item	Cost 20/21	Comment	Payment Due
Large	\$7,768.04	HV & LV subdivision	
Major	\$11,172.82	HV & LV Subdivision with Substation	
Construction Cost/Estimate (Consultancy Rate)			
	\$162.32		Payable prior to commissioning
Miscellaneous Fees			
Design Consultancy Hourly Rate	\$144.46	Design Checks - If the design does not comply with standards and/or specifications this fee will be incurred to re-submit the design.	
Construction Review Hourly Rate	\$162.32	Re-reviewing construction - If construction does not comply with audit requirements – This fee will be incurred to re-audit the site.	
Materials Evaluation Flat Fee	\$649.29	Evaluation of non-standard materials	
Accreditation Fees for AECs and AEDs			
Accredited Electrical Designer Application Fee	\$2,311.37	Cost of processing applications to be an AED	Payable on submission of application
Accredited Electrical Designer Renewal Fee	\$577.84	Annual Accreditation Renewal Fee	
Accredited Electrical Constructor Application Fee	\$2,597.18	Cost of processing applications to be an AEC	Payable on submission of application
Accredited Electrical Constructor Renewal Fee	\$649.29	Annual Accreditation Renewal Fee	
As Builts Security	\$5,000	Security to cover the cost of surveying and recording AEC newly constructed infrastructure.	Payable prior to commissioning
Performance Security	10% of the	Security to cover	Payable prior to

Item	Cost 20/21	Comment	Payment Due
	estimated contestable works. Cost provided in offer to connect.	performance failure during the bond period.	commissioning

*During the initial introduction of Connection Choice, all audit fees will be charged at the minimum rate.

Appendix – D: Transformer and/or Substation Cost Sharing

There may be occasions where TasNetworks request a larger transformer to be installed with a greater capacity than that which is required by the particular subdivision or stage of the subdivision.

There may also be occasions where only Low Voltage internal reticulation is required within the subdivision or stage, and this can be supplied from a previously installed transformer.

It is appropriate therefore that the installation of new Transformers is shared equitably between Developers.

TasNetworks has developed unit rates that will guide the payment applicable to a Developer to reimburse installed costs associated with sourcing a larger transformer.

These unit rates will also be applicable should a subsequent Developer seek to connect from a transformer and/or substation supplied by another Developer.

The payments are calculated using a Transformer Capacity Standard for a distribution substation and an Amps Allowance per lot allowed in the design of the electrical reticulation for the underground residential subdivision or stage.

In general a standard 6kVA capacity will be used per lot and this may reduce to 4kVA for strata developments.

Example 1: A 30 lot first stage of an underground residential subdivision designed with the installation of a 315 kVA distribution transformer in New Town.

In this situation, the maximum allowable loading of the 315 kVA transformer is 420 amps. This transformer is capable of supplying a total of 45 lots.

As the stage only requires supply to 30 lots, the Developer may be entitled to a reimbursement amount up to the maximum of an extra 15 lots. This reimbursement however is on the proviso that the spare capacity can be used to supply subsequent lots or by TasNetworks for supply to foreseeable infrastructure.

If, for example, the spare capacity could supply 15 lots in the next stage of the subdivision, then the Developer would receive a reimbursement for the unused capacity calculated for 15 lots.

Shared Transformer for TasNetworks System Use:

- 315 kVA Transformer = 420 Amps (full load)
- 30 Lots @ 6kVA per lot = 275 Amps (after diversity and unbalance factors applied)
- Developer to pay for $(275/420) \times$ Transformer cost (\$) – this would be a cost if utilising an existing transformer or a $(145/420 \times \$)$ reimbursement where installing their own transformer.
- 145 Amps reserved for TasNetworks system use

If no further development was possible outside of this stage and the spare capacity could not be used there would be no re-imburements in this situation.

For a Dedicated Transformer (No Reserved Capacity for TasNetworks System Use Identified):

- 315 kVA Transformer = 420 Amps (full load)
- 30 Lots @ 6kVA per lot = 275 Amps (after diversity and unbalance factors applied)
- Developer to pay for $(420/420) \times$ Transformer cost (\$)

Example 2: Transformer outside Subdivision

In Underground Residential Developments where only Low Voltage reticulation is required, the Developer must pay for the costs involved in providing the High Voltage infrastructure that was installed in a previous subdivision or stage.

In these situations, an additional payment is due to TasNetworks. This can be calculated by multiplying the kVA per lot figure for the area by the Transformer unit rate.

For more information regarding cost sharing please book in an Early Engagement appointment with our representatives.