



Design Information

General Terms and Conditions

10 December 2019



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1 INTRODUCTION

The Design Information details the Ausgrid specifications for a contestable connection or alteration to the Ausgrid Network.

1.1 *Design information - General Terms and Conditions*

This document details the general terms and conditions that relate to all contestable projects.

In certain circumstances, as advised by Ausgrid an ASP/3 designer will only require the Design Information – General Terms and Conditions document to undertake a design (refer Appendix A). In all other cases a Design Information – Site Specific document will be issued to supplement the Design Information – General Terms and Conditions.

Whilst the Design Information – General Terms and Conditions document is readily available from the Ausgrid web site, its validity period for use on a contestable project commences on the date that Ausgrid provides the connection applicant with a design offer. The ASP/3 is to ensure that the latest version is obtained prior to undertaking a design.

1.2 *Design information – Site Specific Terms and Conditions*

The Design Information – Site Specific Terms and Conditions document details the additional requirements related to a development's specific site and the associated connection application. If issued, this document must be read in conjunction with the Design Information – General Terms and Conditions document. This document is only issued by Ausgrid when deemed necessary by Ausgrid (refer Appendix A).

1.2.1 **Design Information located on the Ausgrid Website**

The following documentation is readily available and can be found on our website www.ausgrid.com.au

- Contracts and Deeds.
- Proposed Design Scope.
- Design Information – General Terms and Conditions.
- Environmental Planning.
- Asset Number Request.
- Network Earthing Information Sheet.
- PDV Request Form.
- Street Lighting Acceptance Form.
- Asset Valuation Spreadsheet (AVS) External.
- Procedures and Information regarding upgrading and augmenting existing Schneider Kiosk substations.
- Suggested ISMP Format and Guide for Inspection of High Voltage Customer Installations.
- Design Certification Check Sheet.
- ASP/3s – How to use Ausgrid's Connection Portal.
-

The authorised ASP/3 must obtain the following from the WebGIS:

- A translated extract of the proposed work area in DWG format.
- Relevant system diagram(s).
- Environmental Report from the Environment Layers.
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1.2.2 **OBJECTIVES**

The objectives of the Design Information are:

- To provide ASP/3 designers with information for the preparation of a design that meets the requirements of Ausgrid.
- To ensure all information is presented in a standard, consistent and easily interpreted format which will lead to a clear understanding of the scope of works being undertaken.

Note: the intended audience for the design information documents is the authorised ASP/3 designer for the project.

2 DEFINITIONS

The following terms used in the design information documents have the meanings indicated, unless specified otherwise:

- **Accredited Service Provider (ASP/1)** - as defined in Ausgrid's Standard Connection Services for Contestable ASP/1 Premises Connections no greater than 11kV Offer.
- **Accredited Service Provider (ASP/3)** - as defined in Ausgrid's *Contract for Design Related Services*.
- **Authorised ASP/3** - as defined in Ausgrid's *ES4 Accredited Service Provider Authorisation*.
- **Connection Point** - as defined in the Service and Installation Rules of New South Wales.
- **Connection Works** - as defined in Ausgrid's *Connection Policy*.
- **Design Information** - as defined in Ausgrid's *Contract for Design Related Services*
- **Design Plan** - as defined in Ausgrid's NS104 Specification For Electrical Network Project Design Plans.
- **Designer** - as defined in Ausgrid's NS104 Specification For Electrical Network Project Design Plans.
- **Extension** - as defined in Ausgrid's *Connection Policy*.
- **WebGIS** - application that provides information from Ausgrid's Geographic Information System.
- **Network Standards** - technical documents prepared by Ausgrid that detail design and construction requirements.
- **Point of Attachment (POA)** - as defined in the Service and Installation Rules of New South Wales.
- **Point of Common Coupling (PCC)** - as defined in the Service and Installation Rules of New South Wales.
- **Relocation Works** - as defined in Ausgrid's *Policy - Asset Relocations*.

3 GENERAL TERMS AND CONDITIONS

3.1 *Disclaimer*

The Design Information is prepared using information available from Ausgrid Geographic Information System, Ausgrid Network Standards and other available sources. Particular conditions, projects or localities may require special or different specifications to that detailed in the Design Information. Any proposed deviation from the issued Design Information must be approved by Ausgrid before it is implemented.

Customers and Accredited Service Providers are cautioned against relying on quotations provided prior to certification of the design by Ausgrid. Quotations for connection works are generally dependent on the extent of the Ausgrid funding. While the document may contain a section headed "Apportionment of Costs" the information the section contains is based on assumptions. Acceptance of a design that does not conform to such assumptions may require revision of the Apportionment of Costs and this may require re-assessment of any quotations issued prior to Design Certification.

Ausgrid will not accept any liability for work carried out using Design Information that has been superseded or is out of date. Ausgrid may not accept a design which is not in accordance with a current Design Information.

3.2 *Interpretation*

In the event that any user of any Ausgrid Network Standard and/or the Design Information considers that any of its provisions is uncertain, ambiguous or otherwise in need of interpretation, the user should request Ausgrid to clarify the provision. Ausgrid's interpretation shall then apply as though it was included in the Network Standard and/or Design Information and is final and binding. No correspondence will be entered into with any person disputing the meaning of the provision published in the Network Standard or the Design Information or the accuracy of Ausgrid's interpretation.

3.3 *Validity Period*

Design information is valid for a maximum period of 12 months from the date of provision by Ausgrid to the date of submission to Ausgrid of a design for certification. If an ASP/3 designer is using design information that is older than 6 months, the ASP/3 designer needs to check with Ausgrid that the Network connection information is still valid. The Design Information is subject to amendment by Ausgrid at any time. It is the user's responsibility to ensure that the Design Information being used is current and includes any amendments issued since the issue date of the document.

3.4 *Details of Ausgrid Network in Vicinity of the Development*

Recorded details of the Ausgrid network, including cable codes, soil codes, etc., are shown in Ausgrid's WebGIS. The ASP/3 designer must login to WebGIS to obtain relevant information. The ASP/3 designer is required to contact Ausgrid for any clarification or if information appears to be missing. Note: Ausgrid's WebGIS information has not been verified against actual site assets. The ASP/3 designer is responsible for the accuracy of information on designs and it is strongly advised that the ASP/3 designer verifies WebGIS asset details on site prior to undertaking the design.

3.5 *Details of Other Proposed Projects in the Vicinity of the Development*

The WebGIS will generally indicate any known project in the vicinity of the proposed development that has a completed design; however, the data within WebGIS is not exhaustive. Works shown may or may not be in construction. Where the other projects works are in construction and the works will be completed prior to the proposed development works the submitted design should show the other project as completed works.

Obtaining information about other projects is as follows.

- **Other Contestable Works:** The ASP/3 designer will need to obtain information directly from the Customer or the Applicant associated with the other project. Ausgrid will not provide contact information. However, Ausgrid will advise the ASP/3 if the project is the construction phase.
- **Ausgrid Capital Works:** Ausgrid will provide a copy of the design (PDF format) and advise the ASP/3 designer of the likely construction timeframe of the works.

3.6 *General Design Criteria*

Design and construction is to be done in accordance with all relevant Ausgrid Network Standards (current editions as amended) and if applicable Network Project Design Plans. Ausgrid Network Standards, including all relevant amendments (Customer Installation Advice and Network Standard Advice) can be found on the Ausgrid website at www.ausgrid.com.au. The Network Standards are correct at time of issue only and Ausgrid may issue further amendments at any time.

Ausgrid drawings and other documents can be obtained via the Ausgrid website. The following subsections are only applicable if the construction component/method is proposed and/or detailed on the design.

3.6.1 *Connection Point*

The connection point is generally the closest point on the Ausgrid existing network that provides the required operating voltage needed for the extension. The connection point is initially selected by the Connection Applicant. However, Ausgrid reserves the right to determine the final connection point.

3.6.2 N Rated Connections

This type of connection is made in agreement with a connecting customer, the connection is made on the assumption that under network contingency events, the proposed supply is subject to load shedding without notice in scenarios where capacity on the network is insufficient to maintain or restore supply to customers supplied under an 'N-1' connection.

Subject to required notice being under the National Energy Customer Framework (NECF), Ausgrid may require an interruption of supply to carry out planned works on its network.

3.6.3 Route Information

It is generally the responsibility of the ASP/3 designer to select an appropriate route. However, Ausgrid reserves the right to require variation(s) of any proposed overhead mains and/or underground cable route.

Ausgrid makes no warranty expressed or otherwise that any proposed route(s) depicted in the design information by Ausgrid is suitable for the intended purpose.

3.6.4 Ausgrid Fibre Optic Network

The ASP/3 designer needs to contact Ausgrid early in the design phase should any of the proposed works require an alteration and/or extension to the Ausgrid fibre optic network. Ausgrid will then advise the ASP/3 designer of the scope of fibre optic network works that needs to be undertaken by Ausgrid as non-contestable work and the works that will need to be completed by the ASP/1 as contestable work. The fibre optic network design review is on a case by case basis. Generally, Ausgrid only undertakes the final terminations and commissioning of the fibre optic network installation.

3.6.5 Overhead Mains Construction

Heavy vehicle access is required to all pole positions. If not available, a suitable access track must be constructed. The ASP/3 designer assumes full responsibility for verification that existing poles requiring new assets are suitable for purpose.

Where HV overhead conductors are being removed and LV overhead conductors remain on poles, the design must cater for the lopping and capping of the HV pole to ensure its height is reduced to the appropriate LV pole height.

3.6.6 Underground Mains Construction

3.6.6.1 Low Voltage Schematic Representation

The *schematic* representation of the low voltage network shall be in LV geo-schematic form, based on the LV_SCHEM layers and symbology provided via Ausgrid's WebGIS extraction.

3.6.6.2 Low Voltage Pillar Types

Low voltage pillars (new or altered) within Commercial areas must comply with NS224. All other underground areas must comply with NS110.

3.6.6.3 Footpath Allocations

Must comply with NS130.

3.6.6.4 Conduits

All new conduits are to be installed in accordance with Ausgrid Standards.

If during the design, use of existing Ausgrid conduits comes into consideration please contact Ausgrid for our detailed conditions.

Where Ausgrid agree to the use of spare conduits, the depth of cover over the entire length must comply with current Ausgrid Network Standards.

Existing Ausgrid spare conduits are determined from plans only and Ausgrid in no way warrants or guarantees that apparent spare conduits are available for use or are fit for purpose. Such conduits may have already been used and the plans not updated, or the conduits may have been damaged, may have insufficient cover or for any other reason may be unavailable or unusable. In such a case Ausgrid shall not be responsible to any party(ies) for delays, additional costs or penalties.

3.6.6.5 Conduit Requirements

Conduits to be laid as part of this project	<p>If the development is within an Ausgrid nominated strategic area that requires the installation of fibre optic cable then one (1) spare 63mm conduit is to be installed in association with all 11kV underground cable trenches. Ausgrid to advise requirements for spare 63mm conduit as part of the site specific design information.</p> <p>One (1) spare HV conduit to be installed for each 11kV underground cable. Additional spare conduits may be specified in the High Voltage Connection requirements by Distribution Planning.</p> <p>URD: One (1) spare LV conduit is to be installed with any LV underground route.</p> <p>Commercial Subdivision: Two (2) spare LV conduits on each side of the roadway.</p> <p>Other e.g. future URD extension/interconnection: Two (2) spare LV conduits to be installed along a future LV underground cable route.</p> <p>Chamber substation – Refer to conduit table in NS113.</p> <p>Kiosk substations located within the development property remote from the property frontage: The cable route on private property requires the following:</p> <ul style="list-style-type: none"> • HV Conduits: minimum four (4) conduits - 2 cable + 2 spare. • LV Conduits: <ul style="list-style-type: none"> ~ Low voltage distributors to be installed in conduit, plus ~ One (1) spare conduit for each potential low voltage distributor based on the substation low voltage panel configuration, plus ~ One(1) spare conduit in addition to the above total. • Fibre Optic Cable Conduits: if applicable one (1) conduit. <p>Note 1: Sydney CBD area use 125mm HV conduits. All other areas use 150mm HV conduits.</p> <p>Note 2: Minimum size LV conduit is 125mm.</p> <p>Note 3: Ausgrid reserves the right to vary conduit requirements at any time.</p>
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3.6.7 Minimum Cable/Conductor Type

Unless negotiated otherwise or advised by Ausgrid, the minimum cable size for use on any new Ausgrid network extension or relocations is to be as specified in the following table.

Note: where the existing cables are larger than the minimum specified, an equivalent to the existing sized cable is to be used.

Underground Cables	
11kV	<p>Minimum:</p> <p>11kV 400 AL3 polymeric cable - refer to NS177 for details on cable termination requirements (ie the cable size for the transistion to single core cables).</p> <p>For NSA1420 approved locations: 11KV 300CU1 triplex cable</p>
Low Voltage	Refer to NS110 and NS112
Street Lighting	Refer to NS110, NS112 and NS119
SCADA / Telecontrol	UGFO - 60 Fibre Nylon Jacketed Dry Core Cable
Auxiliary Earth	Black PVC insulated 70mm ² copper cable
Overhead Cables	
11kV – Urban Areas	Mercury 7/4.50 AAC
11kV - Rural Areas	Apple 6/1/3.00 ACSR
11kV – Fire Prone Areas	CCT180
Low Voltage	LV ABC 95AL
Street Lighting	LV 25sqmm twisted aluminium aerial service cable

SCADA / Telecontrol	60 Optical Fibre ADSS PE cable - (selection of cable type bases on longest span length between splices 100m, 150m, 250m, 400m, 600m). OPGW - (railway crossings and bushfire areas)
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3.6.8 Low Voltage Links

3.6.8.1 Overhead to Underground Transition Points

Any LV underground to overhead transition point that connects directly to a kiosk or chamber substation (i.e. the first LV network connection on the LV distributor cable) requires the installation of pole mounted LV links.

3.6.8.2 Overhead Reticulation - Link Usage and Asset Numbering

All pole mounted LV links are allocated individual asset numbers that must be shown on the design and be numbered in the field.

3.6.8.3 Underground Reticulation - Link Usage and Asset Numbering

Area	Link numbers required on Design	Link numbers required in Field	LV1-61 K & N switch pillar usage
Upper Hunter	All single link switch pillars (excluding those installed as the first pillar on any low voltage distribution feeder from a kiosk or chamber substation), double switch link pillars and NS224 Pillars require an asset number for each link/distributor.	YES	Not Permitted
Hunter	All single link switch pillars (excluding those installed as the first pillar on any low voltage distribution feeder from a kiosk or chamber substation), double switch link pillars, NS224 Pillars and LV1-61 (K&N pillars) require an asset number for each link/distributor.	YES	YES – (URD only)
Central Coast	NO	Only normally open LV links within single and double link switch pillars are allocated an additional asset number for the link(s).	Not Permitted
Sydney - North	Only normally open LV links within single and double link switch pillars are allocated an additional asset number for the link(s).	Only normally open LV links within single and double link switch pillars are allocated an additional asset number for the link(s).	Not Permitted
Sydney - South	NO	Only normally open LV links within single and double link switch pillars are allocated an additional asset number for the link(s).	Not Permitted

3.6.9 Street Lighting

The ASP/3 designer needs to liaise with the street lighting customer (i.e. Local Council) to:

- Determine the level of lighting to be achieved and preferably to obtain the lighting design layout from the street lighting customer's lighting consultant.
- Determine which of the Ausgrid approved street light equipment is to be used for the street light installation, such as lamp types, lamp sizes, luminaire types, street light standards and any other requirements for street lighting assets.
- Determine the preferred method of street light electrical reticulation (overhead or underground).
- Submit to Ausgrid a completed street lighting acceptance form **AUSPL CON F01A** for any changes to public lighting. Note that a PDV payment may be applicable for removed and/or altered previously installed Rate 1 street light components.

Unless approved by the street lighting customer the existing street light lighting levels must be maintained if the existing street light installation is affected by any of the proposed electrical works.

Street lighting must be designed in accordance with NSW Public Lighting Code, Ausgrid Network Standards and if required by the street light customer AS/NZ 1158.1.

The ASP/3 designer is required to provide a structural report of the proposed foundation for any steel street lighting column footing that varies from that detailed in Ausgrid Network Standards. The design should clearly reference the structural engineer and the associated report(s).

3.6.10 Substations

Acceptance of a substation site is subject to Ausgrid's access and design requirements being met and, on the understanding that the Customer is responsible for any measures which may become necessary to meet statutory noise control requirements including those specified under 'NSW Industrial Noise Policy' of the Environment Protection Authority.

Building details (plan views and cross sections) for all facets of the building(s) or other structures within 10 metres of a substation must be submitted with and be detailed on the contestable design. This information must clearly show that buildings and other structures comply with Ausgrid Network Standards regarding the substation site selection and construction.

Should the substation be located other than adjacent to the property frontage/boundary then an easement for cables/mains and Right of Way for 24-hour access will be required. The Right of Way must permit vehicle access and parking on the Right of Way.

It is the responsibility of the developer and property owner to provide a clear, level and unencumbered substation site(s) that meets Ausgrid Network Standards.

3.6.10.1 Substation Equipment

Ausgrid Network Standards provide sufficient information for the ASP/3 designer to select the appropriate equipment for a proposed substation.

3.6.10.2 Labelling of Distribution Centres

In order to safely and appropriately operate and manage the electricity network, distribution centres must be labelled in accordance with Ausgrid's Network Standard NS158 and Electrical Safety Rules. From an operational perspective this requires the high voltage feeders to be physically labelled left to right using suffix /A, /B, /C etc. added to the distribution centre number, and the low voltage distributors to be physically labelled numerically left to right.

The ASP/3 designer must obtain prior clarification from Ausgrid for any variation in the labelling sequence, e.g. the insertion of an additional LV distributor between two existing distributors.

Schematic diagrams and the physical/electrical layout of cables and equipment detailed on the design plan must be compliant with equipment labelling.

3.6.10.3 Pole Mounted Substation

The ASP/3 designer is required to select the appropriate NS122 master list option(s) during the design process and detail the selection on the design.

3.6.10.4 Kiosk Substation

Should a kiosk substation site need vehicle protection or construction of retaining wall/s then an appropriate increase in the easement area dimensions is required so that the vehicle protection and retaining wall/s is included within the increased substation easement area. Note that the vehicle protection or retaining walls must be placed external to the kiosk substation area (typically 3.3m x 5.3m) depicted in Ausgrid Network Standards.

3.6.10.5 Chamber Substation

The Customer is required to have Ausgrid approved architectural drawings that detail the construction of the substation civil works prior to the construction of the building. For the developer to finalise these architectural drawings Ausgrid requests that the ASP/3 designer undertaking the electrical design submit the proposed electrical design for Ausgrid approval as soon as possible.

3.6.10.5.1 Standard Single Transformer Surface Chamber Substation

Ausgrid drawings 224407 and 224408 provide detail on the layout of this type of chamber.

3.6.10.5.2 Multi Transformer Chamber Substations

There are no standard layout and/or construction drawings available for these chamber substations. Preparation of a multi transformer chamber design will require the ASP/3 designer to refer to the Ausgrid Network Standards NS113, NS114 and NS153 that provide design criteria and specifications.

3.6.10.6 HVC Substation

The customer must provide a HVC as detailed in NS195. HVC options are as follows:

Pole mounted 33KV - NU-LEC N38-ACR-SF6-38-16-170 Recloser – Ausgrid drawing: 127318.

Pole mounted 11kV S&C Intellirupter – Ausgrid drawing: 220251

Schneider Electric RM6 RMICB HVC kiosk unit – Ausgrid drawing: 202496

Lucy Sabre RMICB within a Chamber – site specific drawing prepared by ASP/3 designer.

3.6.10.7 Substation Fusing

If substation fusing cannot be determined during the design phase, Ausgrid will determine the required fusing and advise the ASP/1 during the commissioning stage of the works.

3.6.10.7.1 Pole Mounted Substations

Pole Mounted Substations	High Voltage Fuse	Maximum Low Voltage Fuse
1ph (11kV/500-250) - 16KVA	10KA NGK Fuse Link	100amp GEC / DS-Siem / MEM / Eaton
1ph (11kV/500-250) - 25KVA	10KA NGK Fuse Link	200amp GEC / DS-Siem / MEM / Eaton
1ph (11kV/500-250) - 63KVA	16KA NGK Fuse Link	300amp DS-Siem or 315amp MEM / Eaton
3ph (11kV/433) - 25KVA	10KA NGK Fuse Link	100amp GEC / DS-Siem / MEM / Eaton
3ph (11kV/433) - 63KVA	10KA NGK Fuse Link	200amp GEC / DS-Siem / MEM / Eaton
3ph (11kV/433) – 100kVA	16KA NGK Fuse Link	200amp GEC / DS-Siem / MEM / Eaton
3ph (11kV/433) – 200kVA	31.5KA NGK Fuse Link	400amp GEC / DS-Siem / SIBA / MEM / Eaton
3ph (11kV/433) - 400KVA	63KA NGK Fuse Link	600amp GEC / DS-Siem / MEM / Eaton *
SWER 12.7kV: 5-10kVA	3KA S&C SMU Fuse Link	100amp MEM / Eaton
SWER 12.7kV: 15-25kVA	6KA S&C SMU Fuse Link	100amp MEM / Eaton
The upper case "K" beside the HV fuse rating denotes the speed characteristic and applies to High Voltage dropout fuses only.		
* In accordance with NS109 the maximum rating fuse on an overhead low voltage network or distributor is 400amps.		

3.6.10.7.2 Kiosk Substations

Kiosk Substation - High Voltage Fuse	
400kVA with 400amp LV fuses	40amp SIBA 300.20.93
400kVA with 600amp LV fuses	50amp SIBA 300.20.93
600kVA	80amp SIBA 300.20.93.80
800kVA	100amp SIBA 300.20.93.100
1000kVA	100amp SIBA 30.020.93.100
Kiosk Substation - Low Voltage Fuse	
Schneider SAIF - LV Fuse Distributor – 400amp	LV fuse elements: 400amp 92mm centres Bell / MEM "J"
Schneider SAIF - LV Fuse Distributor – 800amp	LV fuse elements: 400amp 92mm centres Bell / MEM "J" LV fuse elements: 630amp 92mm centres Bell / MEM "J" LV fuse elements: 800amp 92mm centres Bell / MEM "J"
Schneider SAIF - LV Fuse Distributor – 2000amp switch with "T" type bolt-in 1000 - 1600amp fuses	LV fuse elements: 1000amp 160mm centres Alstom LV fuse elements: 1200amp 165mm centres Alstom LV fuse elements: 1600amp 160mm centres Alstom

3.6.10.8 Earthing

Ausgrid Network Standard NS116 requires a site specific earthing design (SSER) for each new item of equipment identified in the standard. The ASP/3 designer is required to submit a completed Network Earthing Information Sheet and soil resistivity readings for Ausgrid to complete the SSER. The submitted design plan must clearly detail the construction needed to meet the requirements of the SSER (e.g. detail the actual locations of earthing electrodes and cabling).

3.6.11 Asset Number Allocation

To obtain Ausgrid asset numbers the ASP/3 designer needs to email a completed Asset Number Request to contestability@ausgrid.com.au

3.6.12 Return of Redundant Reusable Equipment

If required, the design is to include an inventory of all redundant reusable material to be returned to Ausgrid, plus the following notations on the design plan:

- The customers ASP/1 is responsible for the recovery and return of the redundant equipment.

- The ASP/1 is to contact Ausgrid via ASPreturns@ausgrid.com.au to arrange any equipment returns to Ausgrid.

3.6.13 Ausgrid Interest in Property

Property interest(s) in favour of Ausgrid will be required over any part of private property that is affected by proposed, augmented and/or existing Ausgrid assets. It is the developers' (or their agents') responsibility to obtain all necessary consents.

Refer to Ausgrid Network Standard NS104 and NS143.

3.6.14 Environmental Impact Assessment

The ASP/3 designer is responsible for the preparation and/or submission of a Summary Environmental Report (SER) of the electrical works (Refer to Ausgrid Network Standard NS104 and NS174).

3.6.15 Other Authorities or Parties

The ASP/3 designer must obtain any necessary written consents or comments from other interested parties such as Local Councils, Telecommunication, Water and Gas Companies, etc. (Refer to Ausgrid Network Standard NS104 and NS174). Where Consent(s) require alterations to other third-party assets, proof of arrangement of these asset transfer works must be submitted 6 weeks minimum prior to electrification. These related works are fully funded by the Customer. The ASP/3 designer is to liaise with the Customer and/or ASP/1 to co-ordinate these works during and/or prior to the construction of the contestable works.

3.6.16 Other Conditions

Asbestos or asbestos-containing material may be present in the Ausgrid network assets. Information on specific equipment that may contain asbestos will be issued when the connection works design has been approved.

The ASP/1 is required to comply with the correct procedure(s) for working with and/or near asbestos material (refer to Ausgrid NS 211 – Working with Asbestos Products).

Material containing PCB's may be present in the Ausgrid oil filled assets. The handling and transportation of oil filled equipment to the Ausgrid depot must be included in the SER by the ASP/3 designer.

CCA poles may be present in Ausgrid's network assets. The identification, handling and disposal of CCA poles must be included in the SER by the ASP/3 designer.

3.7 Valuation of Customer Contributed Assets

The design is to be accompanied by the Asset Valuation Spreadsheet (AVS) when submitted for certification. The AVS enables the ASP/3 designer to record the type and quantity of assets being contributed by the customer for the contestable connection project. Only the latest version of the AVS (available from the Ausgrid web site) is to accompany the design.

3.8 Subsequent Discussions and Consultations

Subsequent to the issue of design information and/or during the design certification stage, Ausgrid reserves the right to charge for any additional time involved in attending site visits, consultation, advice or discussion on matters relating to the design in accordance with the AER approved Connection Policy and Network Prices documents.

4 Network Extension Requirements

The network extension requirements vary depending on the type of development.

Refer to the Ausgrid document *Policy for ASP/1 Premises Connections* for the types of development definitions and examples.

4.1 Subdivision Types

4.1.1 Community Title

- The Network extension connection point is either high voltage or low voltage.
- A single point of connection from the Ausgrid network, unless electrical load capacity exceeds the dedicated customer substation capacity. The customer must own, operate and maintain all LV reticulation (including street lighting) other than on dedicated public roadways (refer to NS110).

4.1.2 Strata Title

- The Network extension connection point is either high voltage or low voltage.
- A single point of connection from the Ausgrid network, unless electrical load capacity exceeds the dedicated customer substation capacity.

4.1.3 Torrens Title

The customer must provide the following reticulation (point of connection) to each proposed allotment within the subdivision.

Non-Urban and Rural Area		
Proposed allotment size	Low Voltage Mains Reticulation to service proposed allotment	High Voltage Mains Reticulation to service proposed allotment
When the proposed allotment or building envelop is less than or equal to 4Ha	Yes	Optional (Note 1)
When the proposed allotment or building envelope is greater than 4Ha and less than or equal to 40Ha	Optional (Note 1)	Yes
When the proposed allotment or building envelop is greater than 40Ha	Optional (Note 1)	Optional (Note 1, Note 2)
Urban Area		
Type of Subdivision	Low Voltage Mains Reticulation to service proposed allotment	High Voltage Mains Reticulation to service proposed allotment
URD	Yes	No
Commercial / Industrial	Yes	Yes
<p>Note 1: Whilst it is optional to supply the nominated voltage to the proposed allotment, the design may result in this voltage being made available to the allotment. The Customer can also direct the designer to provide the nominated voltage to the proposed allotment.</p> <p>Note 2: Where access to the existing Ausgrid network is not available via dedicated public roadway to the proposed allotment, the customer is to provide Ausgrid property rights over private lands (including proposed allotments within the development) over a viable mains route to the allotment(s).</p>		

4.1.4 Multi Staged Subdivision Masterplan

Preparation and submission of a masterplan is compulsory for multi staged URD, rural residential or commercial/industrial subdivisions. In conjunction with the initial stage of a subdivision, the ASP/3 must prepare a master plan of the entire multistage subdivision and submit it, along with the stage 1 design or PDS, to Ausgrid for review and approval.

Ausgrid will not certify the initial stage of a subdivision until an approved master plan is in place.

A master plan shall be a geographically based subdivision HV reticulation layout accompanied by a system diagram.

Masterplans are to be prepared electronically and must be submitted in PDF format.

Masterplans shall show:

- HV cable routes and substation locations.
- Proposed subdivision and HV staging to achieve a HV loop in at each stage.

- Proposed connection(s) to the existing Ausgrid network at each stage.
- Associated relocations/temporary works.
- Approximate timeframes and number of lots at each stage.

4.2 URD Subdivision

4.2.1 General Design Criteria

- Install kiosk substation(s) within the development to meet the load requirements of the proposed subdivision allotments.
- If a kiosk substation is required only “KL” types are permitted.
- Reticulate high voltage mains throughout the development to suit the new substation location(s).
- Reticulate low voltage mains throughout the development to service each allotment.
- Install street lighting throughout the subdivision development that complies with the needs of the street light customer.
- Install low voltage interconnection(s) from the proposed substation(s) to the existing low voltage network reticulation.
- Kiosk positioning must take into account building setback and the likely future building site(s). A restriction on the land may be required to ensure a safe kiosk location is achieved.

4.2.2 URD Subdivision - After Diversity Maximum Demand (ADMD) Value

These values are only applicable to Underground Residential Developments (i.e. not rural, commercial or industrial subdivisions).

Area	ADMD Value
Upper Hunter	5.0kVA
Hunter	3.5kVA
Central Coast	3.5kVA
Sydney – North	3.5kVA
Sydney - South	3.5kVA

4.3 Rural Subdivision

4.3.1 General Design Criteria

- Install substation(s) within the development to meet the load requirements of the proposed subdivision allotments.
- Reticulate high voltage throughout the development to suit the new substation location(s).
- Depending on lot size or building envelop, reticulate high voltage mains throughout the development to service applicable allotments.
- Depending on lot size or building envelop, reticulate low voltage mains throughout the development to service applicable allotments.
- Install street lighting throughout the subdivision development that complies with the needs of the street lighting customer.
- Install low voltage interconnection(s) from the proposed substation(s) to the existing low voltage network reticulation.

4.4 Commercial Industrial Subdivision

4.4.1 General Design Criteria

- Install kiosk substation(s) within the development to meet the load requirements of the proposed subdivision allotments.
- If a kiosk substation is required to supply multiple customers only a “KL” type is permitted.
- “KK” type kiosk substation will only be permitted where it connects a dedicated single customer only.
- Reticulate high voltage mains throughout the development to suit the new substation location(s).
- Reticulate high voltage mains throughout the development to service each allotment.
- Reticulate low voltage mains throughout the development to service each allotment.
- Install street lighting throughout the subdivision development that complies with the needs of the street lighting customer.
- Install low voltage interconnection(s) from the proposed substation(s) to the existing low voltage network reticulation.
- For a commercial/ industrial subdivision, design must comply with NS112.

4.5 **Single Point of Connection**

These types of developments consist of the following.

- Multi-tenanted residential developments such as community title subdivisions, strata developments, etc.
- Non-residential individual or multiple customer connections such as workshops, warehouses, shopping centres, etc.
- Individual development property (e.g. rural or urban residential property).

4.5.1 **General Design Criteria**

The following works details potential options that the ASP/3 designer needs to explore when determining an extension of the Ausgrid network.

4.5.1.1 **Substation Works**

- Upgrade the capacity of an existing substation, including the installation of any additional LV distributor.
- When Ausgrid's existing network is not capable of providing the necessary capacity install substation(s) on the development property. For rural areas only, pole mounted substations can be established either on the development property or within a dedicated public roadway.
- A chamber substation must be established when the number of kiosk substations (existing or proposed) exceeds two. This may also require the removal of existing substations with the transfer of all electrical loads to the new chamber substation(s).
- For an 11kV high voltage customer install HVC unit on the development property that complies with Ausgrid Network Standard NS195.
- Note that KK type kiosks, single transformer high voltage circuit breaker controlled substations and High Voltage Customer (HVC) substations are only permitted when connecting a single dedicated industrial or commercial customer (i.e. no other tenants within the development). Intending customers should be made aware of the regular supply interruptions required for maintenance of these substations.

4.5.1.2 **Mains Extension Works**

- Extend high voltage mains from the proposed network connection point to the proposed substation location(s). Note that kiosk and chamber substations high voltage reticulation is a loop in and out arrangement (i.e. radial connections are not permitted unless approved by Ausgrid prior to undertaking a design).
- Install a low voltage interconnection from the proposed substation to the existing low voltage network.
- Install a low voltage direct distributor from an existing Ausgrid substation.
- Extend low voltage mains from the proposed network connection point on the existing network or proposed substation to the development property. Note that dedicated low voltage extensions through private properties **are not permitted**.

4.6 **Relocation Works**

Relocation works are processed in accordance with Ausgrid's *Asset - Relocation Policy*.

The ASP/3 designer in conjunction with the proponent is responsible for obtaining written agreement to any relocation works from all affected parties, including all residents whose underground or overhead services are intended to be relocated and/or undergrounded as a result of the proposed design. Evidence needs to be provided to Ausgrid as part of the design submission and included in the Summary Environmental Report (SER) - this is a prerequisite to certification and the project proceeding to the construction phase.

Relocation works not directly related to the connection of the development are subject to a separate application and for major relocation works it is generally considered to be out of scope for the Design Information – General Terms and Conditions document.

4.7 **Apportionment of Costs**

Ausgrid's **Connection Policy** and **Price List** are used in determining Ausgrid services and how these charges are calculated.

The full extent of the Ausgrid funded works is determined when a design is submitted by the ASP/3 designer for certification. Ausgrid will detail the final funding arrangements on the Schedule to the Certified Design.

4.8 **Preliminary Designs**

Ausgrid does not review, approve or provide comments on any preliminary design as a prelude to design certification, including those attached to the proposed design scope, environmental assessment, site specific earthing request, etc.

4.9 **Design Submission**

The ASP/3 designer is to submit the completed design suitable for certification along with all supporting documentation via the Ausgrid CRM web portal.

5 Appendix A - Design Information Categories

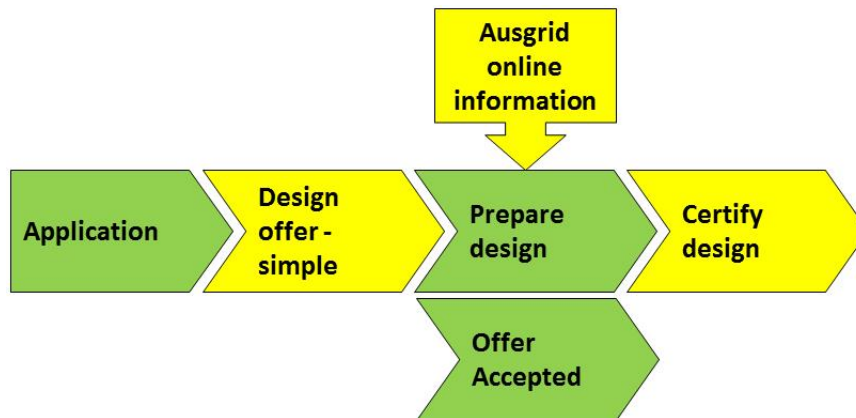
The categorisation of design information for contestable projects is detailed below*. Each project will be assessed individually by Ausgrid and categorised on a case by case basis. Customers and ASP/3's who categorise projects incorrectly and undertake works on this basis do so at their own risk. The submission of a **Proposed Design Scope (PDS)** is encouraged at submission stage for all applications to assist in classification.

5.1 Simple

Comprises: Design Information General Terms and Conditions (on website) only. A Design Information Site Specific document will not be issued.

Examples of simple design information projects (excludes Sydney CBD)

- LV extension including additional LV pillars.
- Street lighting – infill, new or upgrade.
- Subdivision stage in accordance with approved master-plan.
- Asset relocations/reconductoring with no connectivity changes (includes single or multiple, suburban or rural, HV/LV/SL, reconductoring, pole, pillar, cable, streetlight and suburban undergrounding projects)
- Direct distributors
- Projects that meet the self-assessed HV Connections criteria



Simple design flowchart

5.2 Standard

Comprises: Design Information General Terms and Conditions (on website) PLUS Design Information Site Specific document (condensed).

Ausgrid will issue the Design Information Site Specific document only in response to an ASP/3's submission of a **Proposed Design Scope (PDS)** and a valid design contract acceptance.

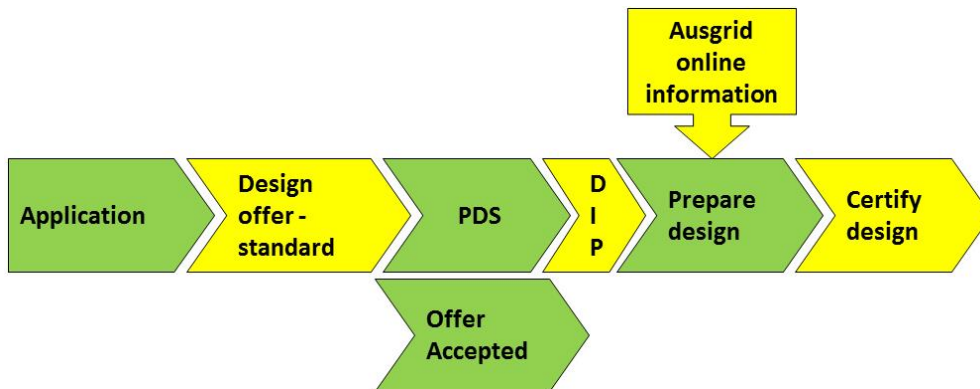
Examples of standard design information projects (excludes Sydney CBD)

- Single or multiple, kiosk or pole mounted substations – new or uprate (excluding subdivisions)
- Standard single or multi transformer chamber substation (except CBD).
- Suburban or rural high voltage customer substations (kiosks and chambers).
- Subdivision initial stage or subdivision without master-plan.
- Decommissioning/relocation of PTs, Kiosk, chambers substations (except CBD).

Initial Letters for Simple and Standard Projects

To enable the simple and standard processes, ASP/3s will need additional technical information and guidance within the initial letters LT02A and LT02B. Ausgrid Staff assessing applications will need to include more specific information in these letters so that ASP/3s can effectively deliver simple designs and standard PDS's. For example:

- Direct distributor from Substation S01234, LV panel 4
- LV extension from pole SU12121



Standard design flowchart

5.3 Complex

Comprises: Design Information General Terms and Conditions (on website) PLUS Design Information Site Specific document.

Ausgrid will issue the Design Information Site Specific document only in response to an ASP/3's submission of a **Proposed Design Scope** and a valid design contract acceptance.

Examples of complex design information projects

- Sydney CBD chamber substation or CBD underground works.
- Major relocation works and relocations with connectivity changes (associated with major infrastructure projects or undergrounding of commercial districts).



Complex design flowchart

* Ausgrid Major Connections Projects (typically sub-transmission) are outside the scope of this document including the above design information categories and are subject to Ausgrid's Major Connections process requirements.