



Design Information

General Terms and Conditions

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1 INTRODUCTION

The Design Information details the Ausgrid specifications for an 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 invoices or receives payment of the design information ancillary service charges. 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).

1.3 Design Information - Attachments

The ASP/3 designer intending to undertake the design must obtain and use the electronic format of the relevant design information attachments.

1.3.1 Design Information Attachments located on the Ausgrid Website

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

- Design Information – General Terms and Conditions document.
- Design Certification Check Sheet.
- Asset Number Request Spreadsheet.
- Asset Valuation Spreadsheet (AVS).
- Street Lighting Acceptance Form(s).
- Network Earthing Information Sheet.

1.3.2 Design Information Attachments provided from other Ausgrid sources.

The AS/3 must obtain the following.

- A translated GIS extract of the proposed work area in DWG.
- Relevant system diagram(s). **NOTE – Loads and ratings shown on system diagrams is for internal Ausgrid use only.**
- Environmental – Env GIS Analysis report.

1.3.3 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 Ausgrid's requirements.
 - ~ A clear understanding of the scope of works to be undertaken by the customer.

Note: the intended audience for the design information documents is the 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)** – refer to Ausgrid document *Contract for Design Related Services* for definition.
- **Accredited Service Provider (ASP/3)** – refer to Ausgrid document *Contract for Design Related Services* for definition.
- **Augmentation** – refer to document *Connection Policy – Connection Charges* for definition.
- **Connection Works** – refer to document *Connection Policy – Connection Charges* for definition.
- **Design Information** – refer to Ausgrid document *Contract for Design Related Services* for definition.
- **Design Plan** – refer to Ausgrid document NS104 for definition.
- **Designer** – refer to Ausgrid document NS104 for definition.
- **Extension** – refer to document *Connection Policy – Connection Charges* for definition.
- **WebGIS** – application that provides information from Ausgrid's Geographic Information System.
- **Network Standards** – various documents prepared by Ausgrid that detail design and construction requirements.
- **Point of Attachment (POA)** - refer to *Service and Installation Rules of New South Wales* for definition.
- **Point of Common Coupling (PCC)** - refer to *Service and Installation Rules of New South Wales* for definition.
- **Point of Supply (Connection Point)** - refer to *Service and Installation Rules of New South Wales* for definition.
- **PrjTrak** – refer to Ausgrid document NS104 for definition.
- **Rural Customer** – refer to document *Connection Policy – Connection Charges* for definition.
- **Rural Network** – refer to document *Connection Policy – Connection Charges* for definition.
- **SAP** – refer to Ausgrid document NS104 for definition.
- **TDMS** – refer to Ausgrid document NS104 for definition.
- **Urban Network** – refer to document *Connection Policy – Connection Charges* for definition.

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 ASP3 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 ASP3 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. All of the 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 Technical Publications Section. Charges do apply for the provision of these documents. Enquiries should be directed to the Administration Officer – Publications at techdocsubscriptions@ausgrid.com.au, or by Phone (02) 9272 3757 or on Fax (02) 9272 3748.

The following subsections are only applicable if the construction component/method is proposed and/or detailed on the design.

3.6.1 Network Extension Connection Point

The network extension connection point is generally the closest point on the Ausgrid existing network that provides the required operating voltage needed for the extension. The network extension connection point is to be selected by the ASP/3 designer. Ausgrid reserves the right to determine the final network extension connection point for the development.

3.6.2 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.

3.6.3 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 a monopoly function and the works that will need to be done by the ASP/1. 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.

3.6.4 Overhead Mains Construction

Use of bare 11kV conductors is subject to environmental conditions and CCT (covered conductor) may be required in accordance with NS 0126 - Specification for HV Overhead Conductors.

In rural areas where the ASP/3 designer chooses, for overhead mains, to use a high voltage conductor other than CCT, the ASP/3 designer must provide photographs of the proposed overhead route as evidence that vegetation is not likely to interfere with the mains. Where CCT conductor is used, the position of surge arrestors and earth point covers must be indicated on the plan. The minimum surge arrester interval should not exceed 400m.

Heavy vehicle access is required to all pole positions. If not available, an access track must be constructed. Any part of the track that is required to be built up should be filled with crushed rock and road-base if necessary.

The ASP/3 designer assumes full responsibility for verification that existing poles requiring new assets are suitable for that purpose, when submitting a design for certification by Ausgrid.

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.

3.6.5 Underground Mains Construction

Underground cables detailed in the Design Information need to be jointed and terminated in accordance with Ausgrid Network Standards. These joints and terminations generally require short lengths of cables of different configurations as detailed in the relevant Ausgrid Network Standard and therefore are generally not specified in the design information (e.g. the cable needed to facilitate the underground to overhead transition joint when using 11kV 400 AL3 XQ MB CU (WS) Z YQ/ISC will not be specified).

Approval from Ausgrid is required prior to the use of 11kV high voltage stub tee joints (HV3-43) on any project.

3.6.5.1 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 by Ausgrid's WebGIS CAD export.

3.6.5.2 Low Voltage Pillar Types

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

3.6.5.3 Shared Trench

Should the developer elect to invoke the "Underground Services in a Shared Trench" NSW 1998 agreement, then the Developer is responsible for confirming the servicing and coordination requirements of all Authorities and Utilities involved with the shared trench. The contestable electrical design submitted for certification must clearly and accurately define the start and finish points of the shared trench including all dimensions and cable layout of the service utilities involved. Where trenches are shared with other Utilities, the Developer is responsible for coordinating the laying of other Utilities' services.

3.6.5.4 Conduits

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

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

Where Ausgrid agree to the use of spare conduits, the ASP/1 must verify that the depth of cover over the entire length complies with current Ausgrid Network Standards.

Existing Ausgrid spare conduits are determined from plans only and Ausgrid in no way warrants or guarantees that apparently spare conduits are available for use or are fit for the ASP/3 designer's intended 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.

3.6.5.5 Spare Conduit Requirements

Spare 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. The ASP3 designer may need to contact Ausgrid for determination.</p> <p>One (1) spare HV conduit to be installed for each 11kV underground cable.</p> <p>URD: one (1) spare LV conduit is to be installed with any LV underground cable.</p> <p>Commercial Subdivision: two (2) spare LV conduits on both sides of the roadway.</p> <p>Other: two (2) spare LV conduits to be installed along an LV underground cable route.</p> <p>Chamber substation – refer to conduit table in NS113.</p> <p>Kiosk substations located within the development property but is remote from the property frontage: the cable route on private property requires a minimum of four (4) HV conduits (2 cable+2spare), eight (8) LV conduits and if applicable one (1) fibre optic cable conduit.</p> <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>
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3.6.6 Minimum Cable/Conductor Type

Ausgrid reserves the right to amend the following cable specifications at any time e.g. for connections or relocations classified as "simple" where Design Information - Site Specific has not been issued. If the ASP/3 has any doubt about the appropriate cable to be used, please contact Ausgrid.

Unless negotiated otherwise or advised by Ausgrid the minimum cable size for use on any new Ausgrid network extension or relocations is to be the larger of the following cables.

- The cable specified in the following table.
- Equivalent size of the existing cable at the proposed network connection. Note that the existing cable must be an Ausgrid approved standard cable.
- An Ausgrid approved standard cable size that provides the necessary electrical capacity if the existing cable is non-standard.

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 transition to single core cables).</p> <p>For NSA1420 approved locations: 11KV 300CU1 triplex cable</p>
Low Voltage	Refer to NS112
Street Lighting	Refer to NS112 & 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	<p>60 Optical Fibre ADSS PE cable - (selection of cable type bases on longest span length between splices 100m, 150m, 250m, 400m, 600m.</p> <p>OPGW - (railway crossings & bushfire areas)</p>

3.6.7 Low Voltage Links

3.6.7.1 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.

3.6.7.2 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.

3.6.7.3 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

3.6.8 Street Lighting

Unless approved by the street lighting customer (i.e. Local Council) 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 needs to liaise with the street lighting customer 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).
- Obtain the street lighting customer acceptance of annual charges and PDV charges for the street light installation in writing during the design phase.
- Submit completed street lighting acceptance forms.

- **AUSPL CON F01A:** to be returned to Ausgrid for any changes to public lighting.
- **AUSPL CON F02:** to be returned to Ausgrid if any public street lighting asset is being removed (even if it is being replaced).

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 make reference to the structural engineer and the associated report(s).

3.6.9 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 in regards to the substation site selection and construction.

Should the substation be located other than adjacent to the property line 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 to provide a clear, level and an unencumbered substation site(s) that meets Ausgrid Network Standards.

3.6.9.1 Substation Equipment

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

3.6.9.2 Pole Mounted Substation

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

3.6.9.3 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.

3.6.9.4 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.

Customer is to procure the whole LV board including components funded by Ausgrid (note: lead times are in the order of 24 weeks).

3.6.9.4.1 Standard Single Transformer Surface Chamber Substation

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

3.6.9.4.2 Multi Transformer Chamber Substations

There are no standard layout and/or construction drawings available for these chamber substations. Preparation of a 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.

3.6.9.5 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 VRN6a within a Chamber – site specific drawing

3.6.9.6 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.

3.6.9.6.1 Pole Mounted Substations

Pole Mounted Substations	High Voltage Fuse	Maximum Low Voltage Fuse
1ph (11kV/500-250) - 16KVA	10 NGK Fuse Link	100amp GEC / DS-Siem / MEM / Eaton
1ph (11kV/500-250) - 25KVA	10 NGK Fuse Link	200amp GEC / DS-Siem / MEM / Eaton
1ph (11kV/500-250) - 63KVA	16 NGK Fuse Link	300amp DS-Siem or 315amp MEM / Eaton
3ph (11kV/433) - 25KVA	10 NGK Fuse Link	100amp GEC / DS-Siem / MEM / Eaton
3ph (11kV/433) - 63KVA	10 NGK Fuse Link	200amp GEC / DS-Siem / MEM / Eaton
3ph (11kV/433) – 100kVA	16 NGK Fuse Link	200amp GEC / DS-Siem / MEM / Eaton
3ph (11kV/433) – 200kVA	31.5 NGK Fuse Link	400amp GEC / DS-Siem / SIBA / MEM / Eaton
3ph (11kV/433) - 400KVA	63 NGK Fuse Link	600amp GEC / DS-Siem / MEM / Eaton (see note)
SWER 12.7kV: 5-10kVA	3 S&C SMU Fuse Link	100amp MEM / Eaton
SWER 12.7kV: 15-25kVA	6 S&C SMU Fuse Link	100amp MEM / Eaton

Note: in accordance with NS109 the maximum rating fuse on an overhead low voltage network or distributor is 400amps.

3.6.9.6.2 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

3.6.9.7 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 contact Ausgrid (refer to contact details in the design information) and provide necessary information needed for Ausgrid to complete the study. 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 to satisfy spacing requirements).

3.6.10 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

3.6.11 Return Points for Redundant Equipment

If required, the design is to detail the closest return point for the redundant equipment from the following table.

Depot	Address	Telephone Numbers	
Chatswood	337-355 Mowbray Rd, Chatswood	02 94105268	0408 605 534
Oatley	33-45 Judd St, Oatley	02 9585 5814	0412 170 781
Homebush	25-27 Pomeroy St, Homebush	02 9394 6804	0412 413 402
Zetland	130 Joynton Ave, Zetland	02 9663 9435	0418 815 714

Ourimbah	Creek Rd, Ourimbah	02 4325 8513	0408 288 946
Maitland	84 Green St, Rutherford	0407 896 061	

3.6.12 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.

3.6.13 Environmental Impact Assessment

The ASP/3 designer is responsible for the preparation and/or submission of an Environmental Impact Assessment of the electrical works (Refer to Ausgrid Network Standard NS104 and NS174).

3.6.14 Other Authorities or Parties

The ASP/3 designer must obtain any necessary consents or comments from other interested parties (Refer to Ausgrid Network Standard NS104 and NS174).

3.6.15 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 Ausgrid Network Standards contain general information on possible asbestos material relative to underground mains and ducts.

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 by the ASP/3 designer as part of the contestable project's Environmental Impact Assessment submitted with the Design for certification and in any consequent Environmental Management Plan.

CCA poles may be present in the Ausgrid assets. The identification, handling and disposal of CCA poles must be included by the ASP/3 designer as part of the contestable project's Environmental Impact Assessment submitted with the Design for certification and in any consequent Environmental Management Plan.

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).

3.7 Valuation of Customer Contributed Assets

In line with CIA 1273, 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 is to accompany the design. The latest version can be found on the Ausgrid web site.

3.8 Subsequent Discussions & Consultations

Subsequent to the issue of design information and during design certification Ausgrid reserves the right to charge for any additional time involved in attending site visits, and for providing consultation, advice or discussion on matters relating to the design in accordance with the Connection Policy – Connection Charges.

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 Real Estate Development - Subdivision

4.1.1 Multistage Subdivision Masterplan

Preparation and submission of a masterplan is compulsory for multi-stage 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

4.1.2 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. Refer to Real Estate Developments – Single Point of Connection(s).
- The customer must own, operate and maintain all LV reticulation (including street lighting) other than on dedicated public roadways (refer to NS110).

4.1.3 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. Refer to Real Estate Developments – Single Point of Connection(s).

4.1.4 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
Note 1: Whilst it is not necessary to supply the nominated voltage to the proposed allotment the design may result in this voltage being available to the allotment. The Customer can also direct the designer to provide the nominated voltage to the proposed		

allotment.

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).

4.2 Real Estate Development – 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 “KJ” or “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 Real Estate Development – Rural Residential 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 light customer.
- Install low voltage interconnection(s) from the proposed substation(s) to the existing low voltage network reticulation.

4.4 Real Estate Development – 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 light 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 Real Estate Development - Single Point of Connection(s)

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.

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.
- 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 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 K 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 arrangement (i.e. radial connection 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 within a dedicated roadway to the development property.

4.6 Retail Customer – Urban Area – Single Point of Connection(s)

4.6.1 General Design Criteria

- Extend low voltage mains from the proposed network connection point to the development property within dedicated public roadways. Note that dedicated low voltage extensions through private properties **are not permitted**.

4.7 Retail Customer – Rural Area – Single Point of Connection(s)

These types of developments consist of the following

- Individual or a group connection to rural residential properties.

4.7.1 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.

4.7.1.1 Extension Works

- Install a substation on the development or within a dedicated public roadway.
- Extend high voltage mains from the proposed network connection point to the proposed substation location.
- 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**.

4.8 Relocation Works

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.

4.9 Apportionment of Costs

The Ausgrid document *Connection Policy – Connection Charges* is used in determining funding arrangements.

Generally, Ausgrid funds the following.

- Supply and installation of any new and/or altered Rate 1 street light components. Note that a PDV payment is applicable for removed and/or altered Rate 1 street light components.
- The installation of fibre optic pilot cable conduit along the high voltage underground cable and/or conduit route(s).
- Low voltage mains components within dedicated public roadways and/or the substation property rights area(s) used for supplying network loads and are beyond the development property. Note: when a substation is not located at the road property boundary that the Customer funds the additional low voltage mains and all necessary conduits.
- Trenching for the installation of Ausgrid funded cable and/or conduit installations that have only Ausgrid funded components installed.

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 and the amount to be paid by Ausgrid on the Schedule to the Certified Design.

4.10 Preliminary Designs

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

4.11 Design Submission

The ASP3 designer is to submit the completed design suitable for certification along with all supporting documentation to Ausgrid via email only.

Ausgrid's response to a complete design submission will be in accordance with the standard design certification process.

Appendix A - Design Information categories

The following is a general outline of the categorisation of design information for contestable projects*. 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.

Simple

DIP 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)

- Suburban or rural LV extension.
- Suburban 1 x LV pillar.
- Suburban or rural 2 spans LV re-conductoring.
- Streetlighting – infill, new or upgrade.
- Subdivision stage in accordance with approved master-plan.
- Minor relocations (LV pole, LV pillar, LV cable, streetlight).

Standard

DIP 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 and a valid design contract acceptance.

Examples of standard design information projects (excludes Sydney CBD)

- Single kiosk or pole mounted substation – new or uprate.
- Direct distributor.
- Standard single transformer chamber substation.
- Suburban or rural high voltage customer (non-chamber).
- Subdivision stage without master-plan.
- Intermediate relocations (single kiosk or PT substation, multiple poles or streetlights, multiple overhead spans, suburban undergrounding projects).

Complex

DIP 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 a valid design contract acceptance.

Examples of complex design information projects

- Multiple kiosk substations (excluding subdivisions).
- Suburban chamber substations (multi transformer).
- Chamber type HVC's.
- Sydney CBD substation or CBD mains works.
- Major relocation works (associated with major infrastructure projects or undergrounding of commercial districts).

*Note: 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