



APPLICATION OF CHAPTER 3 OF THE ELECTRICITY DISTRIBUTION CODE

ELECTRICITY INDUSTRY GUIDELINE NO. 13

July 2005

ELECTRICITY

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AMENDMENT RECORD

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1. INTRODUCTION

1.1. Purpose and Structure of this Guideline

Chapter 3 of Part A of the Electricity Distribution Code (“Chapter 3”) specifies procedures for establishing new connections or modifying existing connections, to the electricity distribution network operated by ETSA Utilities, where a network extension and/or augmentation is required.

This Guideline outlines certain detailed arrangements to apply in relation to

- ▲ augmentation charges to be applied to a customer who has made a connection enquiry pursuant to Chapter 3, and
- ▲ the application of Chapter 3 to certain types of residential, commercial and industrial developments.

Section 1 sets out the background, purpose and authority for this Guideline along with some administrative matters. Section 2 outlines certain detailed arrangements for calculation of augmentation charges, and Section 3 provides detailed arrangements for developments.

1.2. Compliance with this Guideline

ETSA Utilities holds a licence, issued by the Commission pursuant to Part 3 of the *Electricity Act 1996*, authorising operation of the main electricity distribution network in South Australia. A condition of that licence is that ETSA Utilities comply with the terms of the Electricity Distribution Code made by the Commission. Both the distribution licence held by ETSA Utilities, and the Electricity Distribution Code, may be obtained from the Commission website, www.escosa.sa.gov.au.

Clause 3.6 of Chapter 3 (“Customer’s Allocation of Augmentation”) specifies the means by which ETSA Utilities will calculate a customer contribution (if any) towards augmentation of the distribution network for the customer connection. Clause 3.6.1 specifies that the distributor will comply with detailed arrangements approved by the Commission from time to time relating to the interpretation and detailed application of clause 3.6. This Guideline specifies such detailed arrangements.

Clause 3.11 of Chapter 3 (“Developments”) provides that the distributor will deal with a developer that is seeking to develop a site for future use by customers, and which has made a connection enquiry in relation to that site, as if the developer were a customer for the purpose of Chapter 3 and clause 1.4 of the Electricity Distribution Code. Clause 3.11(c) specifies that the distributor will comply with detailed arrangements approved by



the Commission from time to time relating to specific types of developments. This Guideline specifies such detailed arrangements.

The Commission has made this Guideline under Section 8 of the *Essential Services Commission Act 2002*.

The compliance obligation on ETSA Utilities in relation to the provisions of this Guideline commences on 1 July 2005.

1.3. Purpose and Principles

1.3.1. Purpose

The purpose of this Guideline is to provide clarity on the application of certain of the provisions of Chapter 3 of the Electricity Distribution Code, thus providing greater certainty to ETSA Utilities and to customers making connection enquiries.

1.3.2. Principles

This Guideline has been produced in accordance with the outcome of a review of Chapter 3 completed by the Commission in 2004 (refer “Review of Chapter 3 of the Electricity Distribution Code: Supplementary Determination”, July 2004, available from the Commission website). A key principle underlying the Commission’s determinations in relation to that review has been to ensure that the augmentation charging regime established by Chapter 3 provides some price signal to customers regarding augmentation costs while being as simple and transparent as possible.

1.3.3. Information provision

This Guideline requires ETSA Utilities to provide to the Commission, and to make public, certain information regarding augmentation matters.

ETSA Utilities must ensure that the information it publishes or provides in response to the requirements of this Guideline is as accurate as is reasonably possible. ETSA Utilities must also take steps to ensure that any forecasts or projections are supported by clear and transparent explanations of any assumptions made to derive that information. Historic information must be presented accurately and in as complete a form as is possible.

1.4. Interpretation

In this Guideline the words “shall” and “must” indicate mandatory requirements, unless the overall meaning of the phrase in which one of these words appears is otherwise.

This Guideline seeks to provide definitions consistent with those given in the *Electricity Act 1996*, *Essential Services Commission Act 2002* and industry Codes.

Explanations in this Guideline as to why certain information is required are for guidance only. They do not limit in any way the Commission's objectives, functions or powers.

1.5. Processes for Revision

The Commission may amend and expand this Guideline from time to time where this may be necessary to meet the needs of ETSA Utilities, or customers.

Before making any significant revisions to this Guideline the Commission will consult with ETSA Utilities and other stakeholders as appropriate.

For all revisions to this Guideline a commencement date will be nominated on the Amendment record. The Commission intends to give ETSA Utilities no less than 45 days notice prior to the commencement of any significant revisions to this Guideline.

1.6. Input from Interested Parties

The Commission welcomes comments, discussion, or suggestions for amendments to this Guideline, from any interested party. Any contribution in this regard should be addressed to:

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1.7. Version History and Effective Date

An Issue Number and Commencement Date will identify every version of this Guideline. This version (Issue No. 1.0) of this Guideline will become effective on 1 July 2005.

2. AUGMENTATION CHARGING

2.1. Compliance

ETSA Utilities must comply with the provisions of this section 2 of the Guideline in accordance with the requirements of clause 3.6.1 of Chapter 3.

2.2. Key objectives

The primary objectives of the methodology to determine augmentation capital contributions are:

- ▲ to provide a consistent, logical, reasonably transparent and predictable approach for determining customer augmentation charges without incurring excessive administrative costs, and
- ▲ to determine augmentation charges that provide an appropriate balance between economic efficiency and other pricing objectives.

Augmentation charges will apply to only a small proportion of new connections or modifications of existing connections. In such situations, the augmentation charge will generally be determined using a published unit cost, but in some cases an individual assessment of actual augmentation costs will be required and may determine the customer charge.

2.3. Distribution network planning data

Before augmentation charges can be calculated, the fundamental initial requirements are:

- ▲ a current distribution network plan which identifies local network capabilities, local demand levels and the projected needs for network augmentation, and
- ▲ the definition of customer locations based on the distribution substation providing supply.

2.4. Customer demand (D) subject to an augmentation charge

For a new customer, the customer demand “D” subject to an augmentation charge is the customer’s estimated maximum demand at times corresponding to network design conditions, less a specified augmentation allowance. The allowance will be set by the Commission from time to time, and from 1 July 2005 is 90 kVA except for locations supplied by 19 kV SWER lines where the allowance is 25 kVA.



For an upgrade at an existing site, the customer demand “D” is the lesser of the customer’s total maximum demand after the upgrade minus the augmentation allowance or the additional demand due to the upgrade.

In principle, it is the customer’s responsibility to specify the maximum demand of a connection, based on knowledge of the loads to be supplied. However, the customer must satisfy ETSA Utilities that the specified maximum demand is a reasonable estimate for network design conditions and is based on reliable data. If customers do not have the necessary information to carry out their own maximum demand assessment, values can be based on ETSA Utilities’ experience for existing customers with similar demand characteristics.

If specific demand data are unavailable, the use of data based on ETSA Utilities’ experience would also apply to determine maximum demands for each allotment in a development with serviced allotments, where the developer is responsible for augmentation payments. When considering a number of similar customers, the average customer demand under network design conditions is commonly referred to as a diversified average demand value.

In some circumstances the customer and ETSA Utilities may not be able to agree on a reasonable estimate of maximum demand for augmentation charging purposes. In such cases, it will be necessary to determine a provisional value for initial charging purposes. After three years of actual experience the appropriate demand value will be reconsidered, with a corresponding refund or additional charge based on the actual demand and the actual DUOS revenue.

2.5. Substation capacity

For the purpose of this guideline a substation is a 3 phase, High Voltage to High Voltage transformation point and does not include regulator or small transformer stations.

There are a number of network components, including the line exits, and also associated sub-transmission lines and high voltage feeders, which limit total demand that may be supplied from a substation.

For augmentation charges, “substation capacity” is the maximum aggregate demand that can be supplied through all line exits under design conditions taking all existing component limits into account and recognising requirements to meet security standards.

2.6. Method for calculating augmentation charge

When demand is subject to an augmentation charge, the appropriate charge will be based on either a published standard unit charge or local costs determined by an individual assessment of augmentation impacts if specified conditions are met.

An individual assessment is required if:

- ▲ with the new demand, augmentation is required within 10 years and the new demand advances the need for augmentation by at least 2 years, and
- ▲ the new load is greater than 5% of local substation capacity, or the new load is located at least 15 km in a straight line from the substation.

The augmentation charge will be based on this assessment of local costs if the resulting charge is at least 10% more than a charge based on the published standard unit charge.

The criteria for an individual assessment require that augmentation will be needed within 10 years and that the new demand advances augmentation by at least 2 years. Any required augmentation that increases total aggregate demand that can be supplied from the substation under design conditions is relevant and the distributor is to assume that all demand, including the new demand, will grow at the projected long term growth rate for the location.

The magnitude of 5% of substation capacity for network design conditions for each substation is to be included in the published information (refer requirements in section 2.9 below).

2.7. Determination of standard unit augmentation charge

In clause 3.6 of Chapter 3, the variable “f” is the standard unit augmentation charge, which is to be based on the average unit augmentation cost for the metropolitan area as approved by the Commission from time to time.

The standard unit cost will be determined through consideration of the augmentation costs associated with four components:

- ▲ sub-transmission lines,
- ▲ substation,
- ▲ high voltage feeder exit, and
- ▲ high voltage feeder.

In the case of sub-transmission lines, the meshed nature of the network makes it difficult to assess the incremental network capacity attributable to specific augmentation works. Consequently, the incremental cost of augmentation capacity will be assumed to be equal



to the average cost, at current prices, of the 66 kV metropolitan network capacity needed to meet customer demand. This average value will be determined by calculating the total cost of the metropolitan 66 kV network at current prices, subtracting the proportion of that cost attributable to spare capacity, and dividing the remaining cost by the aggregate peak demand in the metropolitan area.

Augmentation expenditures related to each of the other components and the corresponding capacity increases provided will be determined using recent cost data for the metropolitan area. The total expenditures will then be divided by the total capacities to give a unit cost in \$/kVA for each component.

The four component unit costs will then be added to give an aggregate average unit cost for all augmentation in the metropolitan area. The standard unit augmentation charge is then determined by discounting this average value in current dollar terms for the average period before future augmentation expenditures will be required. The discount rate to be used in this calculation will be as specified by the Commission from time to time. From 1 July 2005 the value will be 8.5% per annum.

Pursuant to clause 3.6.4.1 of Chapter 3, the Commission has approved a value for f of \$120/kVA to apply from 1 July 2005 (the commencement date of the five year regulatory period ending on 30 June 2010) until 30 June 2006, calculated in accordance with the above method. For successive financial years of the regulatory period, the applicable standard unit augmentation charge will be determined through a CPI adjustment of the applicable charge for the previous year. The CPI value will be calculated in accordance with the electricity price determination issued by the Commission for the regulatory period. The standard unit augmentation charge will not be reviewed until a value to apply for the regulatory period commencing July 2010 is to be determined.

2.8. Individual evaluation of augmentation costs

When a new demand meets the criteria for an individual evaluation of augmentation costs, a component-based approach similar to that used to develop the standard unit charge will be used. However, in this case the relevant components will be limited to the components that require augmentation within 10 years in the specific local circumstances.

The Code requires the calculation of a customer allocation “A2” as follows:

$$A2 = \sum(D \times F)$$

where $A2$ = sum of allocations for all elements requiring augmentation within 10 years

D = demand subject to an augmentation charge as defined in clause 3.6.3 of Chapter 3

F = unit cost for a network element requiring augmentation within 10 years.

The value of “F” for each component is the cost, in current dollar terms, of required future component augmentation divided by the corresponding additional component capacity provided, and discounted for the period before the expenditure will be needed. The discount rate to be used in this calculation will be as specified by the Commission from time to time. From 1 July 2005 the value will be 8.5% per annum. This value will apply until 30 June 2010.

The component augmentation allocation to the new demand is then (D x F) and the total customer allocation is the sum of all the component allocations.

2.9. Augmentation information to be published

Augmentation information required to be published by ETSA Utilities includes:

- ▲ “f”, the standard unit charge currently applying, and
- ▲ 5% of substation design capacity for each substation.

If a new load exceeds 5% of substation capacity, or is located at least 15 km in a straight line from the relevant substation, a customer will know that an individual augmentation assessment may be required.

However, as augmentation of the four network components will be assessed separately in individual evaluations, the magnitude of a new load needed to bring augmentation expenditures within 10 years and advance augmentation by at least 2 years may depend on its location within a substation supply area. The customer will need to make an application to ETSA Utilities for advice as to whether or not this is the case for a specific proposal. ETSA Utilities is required to provide such advice in response to an application from a customer on such a matter within 5 business days. ETSA Utilities is required to inform the customer of the actual augmentation cost within 15 business days of providing the above advice, that is, within 20 business days of receiving the customer’s application¹

Published augmentation information is to be updated annually. The format and timing of publication of this information will be as specified by the Commission from time to time. As specified in section 2.7 above, the value of f to apply from 1 July 2005 will be \$120/kVA. That value will be adjusted by an applicable CPI figure for each successive

¹ An application in this instance must be a connection enquiry in accordance with clause 3.3.2 of Chapter 3.



year of the five-year regulatory period ending in June 2010. The adjustments will be based on the March CPI (all cities index). The first such adjustment will be for the 2006/07 financial year.

ETSA Utilities must prepare the information and submit it, together with any appropriate evidence, for approval by the Commission before publication.

3. DEVELOPMENTS

3.1. Compliance

ETSA Utilities must comply with the provisions of this section 3 of the Guideline in accordance with the requirements of clause 3.11(c) of Part A of the Electricity Distribution Code.

3.2. Additional principles applying to developments

Additional general principles for applying the Chapter 3 provisions to developments are:

- ▲ Developers will only be required to pay an augmentation charge and be entitled to a rebate when a development provides connections to individual customer supply points. In that case, the calculation of charges and rebates will be based on the estimated combined maximum demand, and resulting DUoS revenue, for the relevant end use customers.
- ▲ If individual customers must apply to the distributor for connection assets between the assets provided by the developer and the customer's supply point, the customer will be required to pay any augmentation charge and entitled to any rebate against capital charges based on the customer's estimated maximum demand and DUoS revenue. The developer will have no augmentation charge obligations or rebate entitlements relating to such customers.
- ▲ A development may include a combination of customers with their supply points connected by the developer and other customers required to apply to the distributor for connection assets to provide their supply. In this situation the above principles will be applied to the different categories of customers separately using the relevant end use customer demands and DUoS revenue.
- ▲ If an end use customer requires a greater supply than that available through a connection point provided by a developer, the customer must apply to the distributor for an upgrade in supply. Augmentation charges and rebates will be determined based on the full increase in demand involved, in accordance with the provisions of clauses 3.6 and 3.7.

3.3. Requirements for specific development possibilities

A development may proceed in total, or in stages. Augmentation charges and rebate entitlements will be based on the projected demand and DUoS revenue of the total development unless requirements specified in clause 3.11 (b) of the Code are satisfied.

Requirements for the more common development options are:

3.3.1. Industrial Developments – serviced allotments

Depending on Council requirements, these developments may be either underground or overhead but the same general principles apply.

In this case, land is developed into allotments for use by industrial or commercial customers. Transformers, cables or overhead lines and service points are installed to provide each allotment with a service point for connecting a pre-determined maximum load, generally an 80 Amp, 3 phase service, rated at about 57 kVA.

The developer will be treated as a single customer for the purpose of augmentation charges and rebates, which will be based on the projected aggregate maximum demands and DUoS revenue for the whole development (or development stage if the Code requirements for treatment in stages are met).

A customer requiring a larger supply will have to apply separately to ETSA Utilities for an upgrade to cover the increase in demand.

3.3.2. Industrial Developments – serviceable allotments

Again, depending on Council requirements, these developments may be either underground or overhead but the same general principles apply.

In this case, the land is also developed into allotments for industrial or commercial customers but service point assets are not provided. This approach may be favoured if individual customer characteristics are unknown initially, or if individual customer loads may vary significantly.

The developer only provides a backbone electrical infrastructure comprising the high voltage cables or overhead lines, and associated infrastructure and public lighting in accordance with Council and the distributor's requirements. The developer will not pay any augmentation charges or receive any rebates.

Each allotment purchaser will make an individual application to the distributor for a connection to a service point, with the appropriate connection assets, to suit the specific demand involved. The purchaser will have to pay for connection assets and any augmentation charges associated with the specific service requirements and maximum demand and will receive the corresponding rebate in accordance with Chapter 3 provisions on an individual customer basis. Provided that the "backbone" infrastructure installed by the developer has adequate capacity, the purchaser will not pay for any network extension costs.

3.3.3. Industrial Developments – serviced and serviceable allotments

If a development includes both serviced and serviceable allotments, the different categories of allotment will be treated separately. The developer will make augmentation payments and receive rebates related to the aggregate demands and DUoS payments for serviced allotments. Allotment purchasers will make individual customer contributions and receive rebate entitlements for the serviceable allotments.

3.3.4. Underground Residential Developments (URD)

In this case, the development is primarily to provide serviced allotments, with connection or service points for a pre-determined maximum load, for the sole purpose of building a domestic residence. However, there may also be allotments for non-domestic customers such as schools, shops and taverns.

Supply arrangements for non-domestic customers may also include connection or service points for pre-determined maximum loads, but the provision of serviceable allotments requiring additional connection assets, as discussed above for industrial developments, is also a possibility.

Demands and estimated DUoS revenue for all serviced allotments, with connections or service points for pre-determined maximum loads, will be aggregated to determine a developer's augmentation charge and rebate entitlement. Customers on serviceable allotments will make individual applications to the distributor for connections and the Chapter 3 provisions will apply on an individual basis.

3.3.5. Rural Residential Development

In this case, the developer may only provide a backbone overhead or underground electrical infrastructure with serviceable allotments. As with serviceable allotments in an industrial development discussed above, individual customers will have to apply to ETSA Utilities for connection. The customer will pay for connection assets and augmentation charges and receive a rebate in accordance with Chapter 3 provisions.

The developer will not pay augmentation charges or receive a rebate.

3.3.6. Multi-tenanted and community title developments

These developments include apartment blocks and retirement villages where a community corporation may be responsible for the low voltage service mains from



the service points to individual residences. In other community title developments, ETSA Utilities is responsible for the low voltage service infrastructure.

In all cases the developer will make contributions and receive a rebate consistent with Chapter 3 provisions based on the aggregate demand and estimated DUoS revenue for the development.

3.3.7. Re-developments

Re-developments are developments on previously developed land that have existing supply arrangements based on the requirements of the previous customers.

The provisions of Chapter 3 will be applied in the same way as for an application for an upgrade by an existing customer. The developer will pay an augmentation charge and receive a rebate based on the relevant demand, determined in accordance with clause 3.6.3 of the Code and section 2.4 of this Guideline, and additional DUoS revenue associated with the re-development.