Envestra

Pricing Modelling Paper

South Australia and Queensland

2011-2012

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CONTENTS

1 Overview of Compliance Obligations

The table below provides an overview of how this paper addresses the relevant requirements of the National Gas Rules (NGR) and the AER's Regulatory Information Notice (RIN) in relation to reference tariffs.

Table 1 - Demonstration of Compliance

NGR/RIN Clause	Compliance Obligations	Compliance
NGR Clause 93(1)	A full access arrangement must include a mechanism (a reference tariff variation mechanism) for variation of a reference tariff over the course of an access arrangement period.	Section 2.13
NGR Clause 92(2)(a)	The reference tariff variation mechanism must be designed to equalise (in terms of present values) forecast revenue from reference services over the access arrangement period	Section 2.3
NGR Clause 92(2)(b)	The reference tariff variation mechanism must be designed to equalise (in terms of present values) the portion of total revenue allocated to reference services for the access arrangement period	Section 2.3
NGR Clause 93(2)(a)	Costs directly attributable to reference services are to be allocated to those services	Section 2.4
NGR Clause 93(2)(b)	Costs directly attributable to pipeline services that are not reference services are to be allocated to those services, and Clause 93(2)(c) of the NGR requires that other costs are to be allocated between reference and other services on a basis (which must be consistent with the revenue and pricing principles) determined or approved by the AER	Section 2.5
NGR Clause 93(3)	The AER may permit the allocation of the costs of rebateable services, in whole or part, to reference services if the AER is satisfied that the service provider will apply an appropriate portion of the revenue generated from the sale of rebateable services to provide price rebates (or refunds) to the users of reference services; and any other conditions determined by the AER are satisfied	Section 2.6
NGR Clause 94(1)	For the purpose of determining reference tariffs, network users for reference services provided by means of a distribution pipeline must be divided into tariff classes.	Section 2.1
NGR Clause 94(2)(a)	A tariff class must be constituted with regard to the need to group network users for reference services together on an economically efficient basis	Section 2.9
NGR Clause (94)(2)(b)	Each tariff class must be constituted with regard to the need to avoid unnecessary transaction costs	Section 2.10
NGR Clause 94(3)	For each tariff class, the revenue expected to be recovered should lie on or between (a) an upper bound representing the stand alone cost of providing the reference service to network users who belong to that class; and (b) a lower bound representing the avoidable cost of not providing the reference service to those network users	Section 2.7.3
NGR Clause 94(4)(a)	A tariff, and if it consists of 2 or more charging parameters, each charging parameter for a tariff class, must take into account the LRMC for the reference service or, in the case of a charging parameter, for the element of the service to which the charging parameter relates	Section 2.8
NGR Clause (94)(4)(b)	A tariff, and if it consists of 2 or more charging parameters, each charging parameter for a tariff class must be determined having regard to whether network users belonging to the relevant tariff class are able or likely to respond to price signals	Section 2.11
NGR Clause 94(4)(b)(i)	A tariff, and if it consists of 2 or more charging parameters, each charging parameter for a tariff class, must be determined having regard to the transaction costs associated with the tariff or each charging parameter	Section 2.10
NGR Clause 94(5)	if, as a result of the operation of subrule (4), Envestra may not recover the expected revenue, tariffs must be adjusted so as to ensure recovery of expected revenue with minimum distortion to efficient patterns of consumption	Section 2.12
RIN Clause 2.6.1	Provide the details contained in pro forma 8 to demonstrate that the net present value of the proposed revenue stream is equal to the net revenue stream generated from the building block approach for each reference service	Section 2.3
RIN Clause 2.6.2(a)	Reconcile total revenue for pipeline services allocated to reference services and other services	Section 2.4.4
RIN Clause 2.6.2(b)	Provide in its Access Arrangement proposal submission an outline of the nature of the allocation keys used to allocate relevant cost pools, explain why these allocation provide the best estimate and provide analysis to support their derivation	Section 2.4.3
RIN Clause	Provide supporting information and derivation for any allocation key used to allocate total revenue	Section 2.4.3

NGR/RIN Clause	Compliance Obligations	Compliance
2.6.2(c)		
RIN Clause 2.6.2(d)	For rebateable services, a description be provided of the mechanism that Envestra will use to apply an appropriate portion of the revenue generated from the sale of rebateable services to price rebates (or refunds) to users of reference services	Section 2.6
RIN Clause 2.6.2.1	In circumstances where expected revenue across all tariff classes for a reference service is lower than total revenue allocated to that reference service, Envestra must quantify the difference in revenue by reference to the expected revenue for each reference service and total revenue allocated to each reference service. In addition, Envestra must demonstrate how the shortfall for each reference service is allocated across each tariff class and where relevant across each charging parameter in a tariff class for that reference service and how this was done with minimum distortion to efficient patters of consumption	Section 2.12
RIN Clause 2.6.2.1(a)	Provide a description of each tariff class for each reference service in its Access Arrangement proposal submission	Section 2.2
RIN Clause 2.6.2.1(b)	Explain how tariff classes identified in 2.6.2.1(a) are comprised for each reference service	Section 2.1
RIN Clause 2.6.2.1(c)	In explaining the response in 2.6.2.1(b), provide information about the basis for grouping network users in a tariff class and how this grouping is economically efficient	Section 2.9
RIN Clause 2.6.2.1(d)	In explaining the response in 2.6.2.1(b) the Service Provider needs to provide information about the type of transaction costs it has considered in determining tariff classes, what transaction costs are relevant to the proposed tariff classes and what transaction costs have been avoided. This explanation may include a quantification of the transaction costs that relate to the tariff class and those transaction costs avoided	Section 2.10
RIN Clause 2.6.2.1(e)	The Access Arrangement proposal submission, Envestra must define the stand-alone cost for each tariff class of each reference service which should outline what costs comprise the stand-alone cost of providing each reference service to network users in each tariff class	Section 2.7.1
RIN Clause 2.6.2.1(f)	In the Access Arrangement proposal submission, Envestra must define the avoidable cost for each tariff class of each reference service which should outline what costs comprise the avoidable cost of providing each reference service to network users in each tariff class. In addition, Envestra must demonstrate that expected revenue recovered for each tariff class for each reference service lies on or between stand-alone and avoidable cost	Section 2.7.2 and Section 2.7.3
RIN Clause 2.6.2.1(i)	Define long run marginal cost for each reference service or for each element of the service to which the charging parameter relates, whichever is relevant. The definition of long run marginal cost needs to outline what costs comprise Long Run Marginal Cost	Section 2.8
RIN Clause 2.6.2.1(j)	Demonstrate how the relevant LRMC has been taken into account in determining a tariff for a tariff class or the charging parameters within a tariff class. This may include a quantification of the LRMC (and its components) that relate to the reference service or element of the reference service to which the charging parameters relate	Section 2.8
RIN Clause 2.6.2.1(k)	explain how the tariff or charging parameters that comprise a tariff have been determined with regard to relevant transaction costs. In doing so, Envestra needs to provide information about the type of transaction costs associated with the tariff or charging parameter of the tariff. This explanation may include a quantification of the transaction costs that relate to the tariff class and those transaction costs avoided	Section 2.10
RIN Clause 2.6.2.1(l)	explain how the tariff or charging parameters that comprise a tariff have been determined with regard to how network users may respond to price signals. This explanation should include analysis (preferable quantified) about network users' responsiveness to price signals relevant to the tariff or charging parameters	Section 2.11

2 Compliance with Regulatory Obligations

2.1 Envestra's Tariff Classes

Clause 94(1) of the NGR requires that for the purpose of determining reference tariffs, customers for reference services provided by means of a distribution pipeline must be divided into tariff classes.

Clause 2.6.2.1(b) of the RIN requires that Envestra explain how tariff classes identified in 2.6.2.1(a) are comprised for each reference service.

In accordance with Clause 94(1) of the NGR, Envestra groups network users for reference services provided by means of its distribution pipeline into a number of tariff classes according to:

- Haulage Reference Service; and
- Geographical Zone.

These segregations are discussed in further detail below.

2.1.1 Haulage Reference Service Segregation

Network users are divided into tariff classes based on the type of Haulage Reference Service provided at the network user's delivery point. The method of segregation for South Australia and Queensland is detailed below:

South Australia

As set out and defined in Section 2.2 of the South Australian 2007 Access Agreement, there are three main types of Haulage Reference Service:

- Demand Haulage Service;
- Domestic Haulage Service; and
- Commercial Haulage Service.

Envestra's South Australian tariff classes are directly based on these Haulage Reference Services. Network users that receive Demand Haulage Services are further segregated by geographic region, as discussed in the following section.

Queensland

As set out and defined in Section 2.2 of the Queensland 2006 Access Agreement, there are two main types of Haulage Reference Services:

- Demand Haulage Service; and
- Volume Haulage Service.

Whilst Envestra has broadly established the Queensland tariff classes based on these Haulage Reference Services, there are no Queensland tariff classes directly based on the Volume Haulage Service. Instead, for consistency with South Australia, Envestra has based its Queensland tariff classes on the South Australian tariff classes as set out above.

By taking this approach, the network users who receive Volume Haulage Services in Queensland are now segregated into domestic and commercial network users, in recognition of the differences in consumption and demand patterns between the two types of network users.

2.1.2 Geographical Zone Segregation

South Australia

For the purposes of developing tariff classes, Envestra further segregates network users that receive Demand Haulage Services into geographical regions, namely:

- "Adelaide North";
- "Adelaide Central";
- "Adelaide South";
- "Port Pirie";
- "Petersborough";
- "Riverlands";
- "South East"; and
- "Whyalla".

Network users that receive Domestic or Commercial Haulage Services are not distinguished by geographical region.

Queensland

Similarly for Queensland, for the purposes of developing tariff classes, Envestra further segregates network users that receive Demand Haulage Services into the geographical regions, namely:

- "Brisbane";
- "Riverview"; and
- "Northern".

However, unlike South Australia, network users that receive Domestic or Commercial Haulage Reference Services are also distinguished by geographical region, namely "Brisbane and Riverview" and "Northern".

2.1.3 Complete List of Tariff Classes

Envestra's complete list of tariff classes for South Australia, based on the Haulage Reference Service and geographical zone segregations, are set out in the table below:

Table 2 – South Australian Tariff Classes

Tariff Class	Haulage Reference Service	Geographical Zone
Tariff D – Northern	Demand	Adelaide North
Tariff D – Central	Demand	Adelaide Central
Tariff D – Southern	Demand	Adelaide South
Tariff D – Petersborough	Demand	Petersborough
Tariff D – Port Pirie	Demand	Port Pirie
Tariff D – Riverland	Demand	Riverland
Tariff D – South East	Demand	South East
Tariff D – Whyalla	Demand	Whyalla
Tariff R – Residential	Domestic	N/A
Tariff C – Commercial	Commercial	N/A

Envestra's complete list of tariff classes for Queensland, based on the Haulage Reference Service and geographical zone segregations, are set out in the table below:

Table 3 – Queensland Tariff Classes

Tariff Class	Haulage Reference Service	Geographical Zone
Tariff D – Brisbane	Demand	Brisbane
Tariff D – Riverview	Demand	Riverview
Tariff D – Northern	Demand	Northern
Tariff R – Brisbane and Riverview	Domestic	Brisbane and Riverview
Tariff R – Northern	Domestic	Northern
Tariff C – Brisbane and Riverview	Commercial	Brisbane and Riverview
Tariff C– Northern	Commercial	Northern

2.2 Tariff Class Definitions

Clause 2.6.2.1(a) of the RIN requires that Envestra provide a description of each tariff class for each reference service in its Access Arrangement proposal.

In accordance with this requirement, the definitions of Envestra's tariff classes are set out below.

2.2.1 Demand Tariff Classes

For the purposes of this paper, "Demand Tariff Classes" refers to the set of tariff classes applicable to network users that receive Demand Haulage Services.

Each tariff class constitutes one reference tariff. For the purposes of this paper, the reference tariffs that constitute these tariff classes are referred to as "Tariff D" tariffs.

The structure of the Tariff D tariffs that comprise the Demand Tariff Classes consist of a number of banded MDQ charging parameters (in dollars per GJ of MDQ per day), with the first band effectively representing a fixed charge.

South Australia

For each of the Demand Tariff Classes in the Adelaide region, Tariff D contains four MDQ bands as follows:

- MDQ of 50GJ or less;
- next 50GJ of MDQ;
- next 900GJ of MDQ; and
- additional GJ of MDQ.

For each of the Demand Tariff Classes in the other South Australian regions, Tariff D contains five MDQ bands as follows:

- MDQ of 50GJ or less;
- next 50GJ of MDQ;
- next 400GJ of MDQ;
- next 500GJ of MDQ; and
- additional GJ of MDQ.

Queensland

For each of the Demand Tariff Classes, Tariff D contains seven MDQ bands as follows:

- MDQ of 50GJ or less;
- next 75GJ of MDQ;

- next 150GJ of MDQ;
- next 250GJ of MDQ;
- next 500GJ of MDQ;
- next 10,000GJ of MDQ; and
- additional GJ of MDQ.

In both South Australia and Queensland, the MDQ charges are capacity charges which are intended to recover the shared high pressure (HP) ring costs and provide economic signals to network users on their use of the shared network.

In addition, the tariffs are structured as "declining block tariffs", i.e. the charges within each band become progressively smaller as the MDQ increases. Charges only apply to the MDQ, not the actual consumption of gas consumed on any given day. In this way, the Tariff D tariff structure incentivises network users for Demand Haulage Services to:

- commit to consuming larger quantities of gas;
- consume at least the MDQ, which in turn provide Envestra with a degree of certainty in relation to pipeline demand on any given day; and
- adopt gas as the preferred fuel of choice by not penalising network users for exceeding the MDQ.

2.2.2 Domestic and Commercial Tariff Classes

For the purposes of this paper, "Domestic and Commercial Tariff Classes" refers to the set of tariff classes applicable to network users that receive Domestic or Commercial Haulage Services, regardless of the geographical region.

Each tariff class constitutes one reference tariff. For the purposes of this paper, the reference tariffs that constitute the Domestic and Commercial Tariff Classes are referred to as "Tariff R" and "Tariff C" respectively.

Both Tariff R and Tariff C comprise the following charging parameters:

- a Base Charge (in dollars per day); and
- banded Actual Volume Charges (in dollars per GJ per day).

These are discussed below.

Base Charges

The base charge is a fixed daily charge that applies to all network users. Different Base Charges apply to domestic and commercial network users, and are designed to:

- provide signals to network users about their connection costs, having regard for the size, location and type of network user; and

- inform a network user's decision to connect to Envestra's network by providing a constant and predictable cost.

Banded Actual Volume Charges – South Australia

Both Tariff R and Tariff C consist of a number of volumetric consumption charging parameters (in dollars per GJ per day). These charging parameters have been designed to recover any residual allocated costs that are relative to the "size" of the network user but not specifically their network demand.

Tariff R contains three volumetric consumption bands as follows:

- a charge for the first 0.0274GJ of Gas Delivered ($/GJ);
- a charge for the next 0.0219GJ of Gas Delivered ($/GJ); and
- a charge for Additional Gas Delivered ($/GJ).

Tariff C contains four volumetric consumption bands as follows:

- a charge for the first 0.9863GJ of Gas Delivered ($/GJ);
- a charge for the next 4.274GJ of Gas Delivered ($/GJ);
- a charge for the next 11.178GJ of Gas Delivered ($/GJ); and
- a charge for Additional Gas Delivered ($/GJ).

Similar to the Tariff D tariffs, Tariff R and Tariff C are structured as "declining block tariffs". However, unlike the Tariff D tariffs, the volumetric charging parameters apply to the actual gas consumed on any given day, not the MDQ. In this way, the Tariff R and Tariff C tariff structures incentivise network users to consume larger quantities of gas, thereby encouraging network users to shift their consumption into the higher consumption bands to avoid the higher per unit consumption charges of the lower bands.

Banded Actual Volume Charges – Queensland

Tariff R and Tariff C in Queensland have been developed in a consistent manner to Tariff R and Tariff C in South Australia. The only material differences are the structure of Tariff C, and the threshold at which the volumetric consumption bands have been set for both tariffs.

Tariff R contains three volumetric consumption bands as follows:

- a charge for the first 0.008GJ of Gas Delivered ($/GJ);
- a charge for the first 0.019GJ of Gas Delivered ($/GJ); and
- a charge for Additional Gas Delivered ($/GJ).

Tariff C contains six volumetric consumption bands (consistent with the previous "Tariff V" tariff structure) as follows:

- a charge for the first 0.2GJ of Gas Delivered ($/GJ);

- a charge for the next 0.3GJ of Gas Delivered ($/GJ);
- a charge for the first 0.5GJ of Gas Delivered ($/GJ);
- a charge for the next 1GJ of Gas Delivered ($/GJ);
- a charge for the next 5GJ of Gas Delivered ($/GJ); and
- a charge for Additional Gas Delivered ($/GJ).

2.3 Revenue Equalisation

Clause 92(2)(a) of the NGR requires that the reference tariff variation mechanism must be designed to equalise (in terms of present values) forecast revenue from reference services over the access arrangement period.

Clause 92(2)(b) of the NGR requires that the reference tariff variation mechanism must be designed to equalise (in terms of present values) the portion of total revenue allocated to reference services for the access arrangement period.

Clause 2.6.1 of the RIN requires that Envestra provide the details contained in pro forma 8 to demonstrate that the net present value of the proposed revenue stream is equal to the net revenue stream generated from the building block approach for each reference service.

Consistent with the above requirements, the reference tariff variation mechanism implemented in the Post Tax Revenue Model (PTRM) for both South Australia and Queensland equalises (in terms of present values):

- the forecast revenue from reference services over the access arrangement period; and
- the portion of total revenue allocated to reference services for the access arrangement period.

2.4 Cost Allocation Methodology for Costs Directly Attributable to Reference Services

Clause 93(2)(a) of the NGR requires that costs directly attributable to reference services are to be allocated to those services.

The method by which Envestra has allocated costs directly attributable to the reference services provided to network users within each tariff class is set out in the following sections.

2.4.1 Cost Pools

Envestra allocates costs, which are set equal to the building block revenues from the AER's PTRM, to cost pools which correspond to each tariff class. Consequently, the Cost Allocation Model allocates the building block revenue components from the AER's South Australian and Queensland PTRMs for 2011-12 to the cost pools for South Australia and Queensland as set out in the table below:

Table 4 – Cost Pools

South Australia	Queensland
Tariff D – Northern Cost Pool	Tariff D – Brisbane Cost Pool
Tariff D – Central Cost Pool	Tariff D – Riverview Cost Pool
Tariff D – Southern Cost Pool	Tariff D – Northern Cost Pool
Tariff D – Petersborough Cost Pool	Tariff R – Brisbane and Riverview Cost Pool
Tariff D – Port Pirie Cost Pool	Tariff R – Northern Cost Pool
Tariff D – Riverland Cost Pool	Tariff C – Brisbane and Riverview Cost Pool
Tariff D – South East Cost Pool	Tariff C– Northern Cost Pool
Tariff D – Whyalla Cost Pool	
Tariff R – Residential Cost Pool	
Tariff C – Commercial Cost Pool	

2.4.2 Cost Components

Within each cost pool, the total revenue requirement for 2011-12 from the AER's PTRM is further allocated to cost components associated with each building block, namely:

- Return On Capital;
- Return Of Capital;
- O&M;
- Carry-Over Amounts; and
- Benchmark Tax Liability.

2.4.3 Cost Allocators

Clause 2.6.2(b) of the RIN requires that Envestra provide in its Access Arrangement proposal an outline of the nature of the allocation keys used to allocate relevant cost pools, explain why these allocations provide the best estimate and provide analysis to support their derivation.

Clause 2.6.2(c) of the RIN requires that Envestra provide supporting information and derivation for any allocation key used to allocate total revenue.

Costs are allocated to each cost pool, and each cost component within each cost pool, based on one of four different types of allocators:

1. Asset Values;

2. Customer Numbers;

3. Volume Consumption (GJ); and

4. A combination of Customer Number and Volume Consumption.

These allocators are discussed below.

Asset Values

The Asset Value cost allocators are derived in the Cost Allocation Model from:

- South Australia - the replacement cost (in 1999 dollars) for the following connection assets for each individual network user that receives Demand Haulage Services within each geographical zone in South Australia:

    - Mains;

    - Inlets;

    - Meters and RDLs; and

    - Gate Stations.

    Queensland - the replacement cost (in 1999 dollars) for the following connection assets within each geographical zone in Queensland:

    - Mains;

    - Inlets;

    - Meters;

    - Telemetry;

    - Gate Stations; and

    - Regulators.

- the opening Regulatory Asset Base (RAB) for South Australia and Queensland as at 1 July 1999; and

- the forecast RAB for South Australia and Queensland as at 1 July 2010.

The methodology used to calculate the Asset Value cost allocators is as follows:

1. South Australia - the opening 1999-2000 connection asset replacement costs for each network user that receives Demand Haulage Services in South Australia are converted to an opening 2011-12 value. This is achieved by pro-rating the 2011-12 opening RAB according the proportion of the 1999-2000 value of each network user that receives Demand Haulage Services' connection assets to the total 1999-2000 opening RAB;

Queensland - the opening 1999-2000 connection asset replacement costs are converted to an opening 2011-12 value. This is achieved by pro-rating the 2011-12 opening RAB according to the proportion of the 1999-2000 value of each connection asset to the 1999-2000 opening RAB;

2. South Australia - the pro-rated 2011-12 connection asset replacement costs for each individual network user that receives Demand Haulage Services in South Australia are summed by geographical zone to obtain a total 2011-12 replacement cost for each geographical zone.

   Queensland - the pro-rated 2011-12 connection asset replacement costs are summed by geographical zone to obtain a total 2011-12 replacement cost for each geographical zone;

3. The Asset Value cost allocator for each geographical zone is then calculated based on the proportion of that geographical zone's total 2011-12 replacement cost to the total 2011-12 opening RAB; and

4. The Asset Value cost allocator for each Demand Tariff Class cost pool is the Asset Value cost allocator for the corresponding geographical zone.

Note that the Asset Value cost allocator is only applied to the cost pools for the Demand Tariff Classes. Consequently, there are no Asset Value cost allocators for the Domestic and Commercial Tariff Class cost pools.

Customer Numbers

The source data used in calculating the Customer Numbers cost allocators are derived from the Cost Allocation Model as follows:

- the actual number of network users for 2006-07, 2007-08 and 2008-09, and the forecast number of network users in 2009-10 and 2010-11, that receive Demand Haulage Services in each geographical zone in South Australia and Queensland;

- the actual number of network users for 2006-07, 2007-08 and 2008-09, and the forecast number of network users in 2009-10 and 2010-11, that receive Domestic Haulage Services in each geographical zone in South Australia and Queensland; and

- the actual number of network users for 2006-07, 2007-08 and 2008-09, and the forecast number of network users for 2009-10 and 2010-11, that receive Commercial Haulage Services in each geographical zone in South Australia and Queensland.

This data is used to calculate the Customer Numbers cost allocators as follows:

1. The average number of network users that receive Demand Haulage Services for each geographical zone are calculated based on the forecast and actual number of network users that receive Demand Haulage Services within that geographical zone during the 2006-07 to 2010-11 regulatory control period;

2. The average number of network users that receive Domestic Haulage Services are calculated based on the forecast and actual number of network users that receive Domestic Haulage Services during the 2006-07 to 2010-11 regulatory control period;

3. The average number of network users that receive Commercial Haulage Services are calculated based on the forecast and actual number of network users that receive Commercial Haulage Services during the 2006-07 to 2010-11 regulatory control period;

4. The Customer Numbers cost allocator for each Demand Tariff Class cost pool is calculated based on the proportion of each geographical zone's average number of network users that receive Demand Haulage Services to the averaged total customer numbers from 2006-07 through to 2010-11;

5. The Customer Numbers cost allocator for the Domestic Tariff Class cost pools is calculated based on the proportion of the average number of network users that receive Domestic Haulage Services to the averaged total customer numbers from 2006-07 through to 2010-11; and

6. The Customer Numbers cost allocator for the Commercial Tariff Class cost pools is calculated based on the proportion of the average number of network users that receive Commercial Haulage Services to the averaged total customer numbers from 2006-07 through to 2010-11.

Volume

The source data used in calculating the Volume cost allocators are derived from the Cost Allocation Model as follows:

- the actual volumes for 2006-07, 2007-08 and 2008-09, and the forecast volumes in 2009-10 and 2010-11, for all network users that receive Demand Haulage Services in each geographical zone in South Australia and Queensland;

- the actual volumes for 2006-07, 2007-08 and 2008-09, and the forecast volumes for 2009-10 and 2010-11, for all network users that receive Domestic Haulage Services in each geographical zone in South Australia and Queensland; and

- the actual volumes for 2006-07, 2007-08 and 2008-09, and the forecast volumes in 2009-10 and 2010-11, for all network users that receive Commercial Haulage Services in each geographical zone in South Australia and Queensland.

This data is used to calculate the Volume cost allocators as follows:

1. The average volumes for all network users that receive Demand Haulage Services in each geographical zone are calculated based on the forecast and actual volumes by geographical zone during the 2006-07 to 2010-11 regulatory control period;

2. The average volumes for all network users that receive Domestic Haulage Services are calculated based on the forecast and actual volumes during the 2006-07 to 2010-11 regulatory control period;

3. The average volumes for all network users that receive Commercial Haulage Services are calculated based on the forecast and actual volumes during the 2006-07 to 2010-11 regulatory control period;

4. The Volume cost allocator for each Demand Tariff Class cost pool is calculated based on the proportion of each geographical zone's average volumes to the averaged total volumes from 2006-07 through to 2010-11;

5. The Volume cost allocator for the Domestic Tariff Class cost pools are calculated based on the proportion of the average volumes to the averaged total volumes from 2006-07 through to 2010-11; and

6. The Volume cost allocator for the Commercial Tariff Class cost pools are calculated based on the proportion of the average volumes to the averaged total volumes from 2006-07 through to 2010-11.

A combination of Customer Number and Volume Consumption

The combination of Customer Numbers and Volume Consumption cost allocators are derived based on a weighted average of the Customer Number and Volume Consumption allocators for each tariff class. A 50% weighting is applied to the Customer Number Allocator, and a 50% weighting is applied to the Volume Consumption allocator.

2.4.4 Allocation of Revenue to Cost Pools

Clause 2.6.2(a) of the RIN requires that Envestra reconcile total revenue for pipeline services allocated to reference services and other services.

Envestra has reconciled the total revenue to be recovered, based on the 2011-12 PTRM revenue requirement, in allocating revenue to the tariff class cost pools. The methodology for allocating this revenue to each tariff class cost pool is as follows:

1. The total revenue by building block (i.e. cost component) for the Demand Tariff Class cost pools are calculated differently for each building block as follows:

    a. For the Return On Capital, Return Of Capital and Benchmark Tax Liability building blocks, the total revenue by building block for the Demand Tariff Classes cost pools is multiplied by the Assets cost allocator; and

    b. For the O&M and Carry-Over Amounts building blocks, the total revenue by building block for the Demand Tariff Classes cost pools is multiplied by the combination of Customer Numbers and Volume Consumption cost allocator.

2. The total revenue by building block for all Demand Tariff Class cost pools (combined) are calculated by summing the total revenue by building block for each Demand Tariff Class cost pool;

3. The total revenue by building block for the Domestic and Commercial Tariff Classes cost pools (combined) in both South Australia and Queensland are calculated by deducting the total revenue by building block for all Demand Tariff Class cost pools from the total revenue building blocks from the PTRM;

4. The total revenue by building block for the Domestic Tariff Classes individual cost pools in both South Australia and Queensland are calculated by multiplying the total revenue by building block for each cost pool by the combination of Customer Numbers and Volume Consumption cost allocator.

5. The total revenue by building block for the Commercial Tariff Classes individual cost pools in both South Australia and Queensland are calculated by multiplying the total revenue by building block for each cost pool by the combination of Customer Numbers and Volume Consumption cost allocator.

2.5 Cost Allocation Methodology for Costs Not Directly Attributable to Reference Services

Clause 93(2)(b) of the NGR requires that costs directly attributable to pipeline services that are not reference services are to be allocated to those services, and Clause 93(2)(c) of the NGR requires that other costs are to be allocated between reference and other services on a basis (which must be consistent with the revenue and pricing principles) determined or approved by the AER.

Envestra does not allocate costs that are not attributable to reference services in its Cost Allocation Model.

2.6 Rebateable Services

Clause 93(3) of the NGR states that the AER may permit the allocation of the costs of rebateable services, in whole or part, to reference services if the AER is satisfied that:

- the service provider will apply an appropriate portion of the revenue generated from the sale of rebateable services to provide price rebates (or refunds) to the users of reference services; and

- any other conditions determined by the AER are satisfied.

Clause 2.6.2 (d) of the RIN requires that for rebateable services, a description be provided of the mechanism that Envestra will use to apply an appropriate portion of the revenue generated from the sale of rebateable services to price rebates (or refunds) to users of reference services.

Envestra does not allocate costs of rebateable services in its Cost Allocation Model as it does not provide rebateable services.

2.7 Compliance with Avoidable and Stand-Alone Cost Requirements

2.7.1 Stand Alone Costs

Clause 2.6.2.1 (e) of the RIN requires that in the Access Arrangement proposal, Envestra must define the stand-alone cost for each tariff class for each reference service which should outline what costs comprise the stand-alone cost of providing each reference service to network users in each tariff class.

Consistent with Ergon Energy's approach in its 2010-11 Pricing Proposal[1], Envestra has defined the stand-alone costs for each tariff class as the infrastructure costs associated with servicing that tariff class[2]. These costs represents the upper bound of providing reference

[1] Pricing Proposal to the Australian Energy Regulator - Distribution Services for 1 July 2010 to 30 June 2011, Ergon Energy, 4 June 2010.
[2] Pricing Proposal to the Australian Energy Regulator - Distribution Services for 1 July 2010 to 30 June 2011, Ergon Energy, 4 June 2010, pp 48

services to each tariff class, because the costs are calculated based on the assumption that no other network users use the network infrastructure, thereby ignoring the economies of scale that result from the other tariff classes that are also currently using the shared infrastructure[3].

Envestra estimated the stand-alone costs separately for the Demand Tariff Classes and for the Domestic and Commercial Tariff Classes in its Cost Allocation Model. The methodology for estimating the stand-alone costs for both the Demand Tariff Classes and the Domestic and Commercial Tariff Classes are set out below.

Demand Tariff Classes

The stand-alone cost for each of the Demand Tariff Classes was determined to be the cost associated with the HP ring, where the HP ring was defined to comprise every network asset required to service the Demand Tariff Classes. The costs associated with the HP ring were calculated as the pro-rata of 2011-12 building block revenue requirement based on the proportion of the RAB comprising the HP ring.

Each Demand Tariff Class has the same stand-alone cost. This is because the assets required to service each Demand Tariff Class form part of the HP ring, and all of these assets must be present to enable supply to each of the network users in the Demand Tariff Classes. Consequently, the stand-alone cost for each Demand Tariff Class must be the cost of the HP ring, as no Demand Tariff Class can be considered in isolation.

Domestic and Commercial Tariff Classes

The stand-alone costs for the Domestic and Commercial Tariff Classes were determined to be the cost associated with the HP ring plus the connection assets associated with each Domestic and Commercial Tariff Class.

The costs of the connection assets for each tariff class were based on the pro-rata of the total 2011-12 building block revenue less the building block revenue associated with the Demand Tariff Classes. The residual amount was then further prorated between the Domestic and Commercial Tariff Classes as set out in section 2.4.4.

2.7.2 Avoidable Cost

Clause 2.6.2.1(f) of the RIN requires that in the Access Arrangement proposal, Envestra must define the avoidable cost for each tariff class of each reference service which should outline what costs comprise the avoidable cost of providing each reference service to network users in each tariff class.

Envestra has defined avoidable cost for each tariff class to be the cost that can be avoided by not providing reference services to that tariff class. Put another way, this represents the costs (i.e. the Return On Capital, Return Of Capital and O&M costs) associated with dedicated connection assets such as meters, RDLs and inlets.

This definition is consistent with both Ergon Energy's and Integral Energy's interpretation of avoidable cost in their 2010-11 Pricing Proposals. Both electricity distributors interpreted avoidable cost to be the cost which would be avoided by not providing a distribution service

[3] Ibid.

to a particular tariff class[4] [5]. Further, Envestra's interpretation is also consistent with Ergon Energy's interpretation of avoidable cost because it includes the presumption of the existing network in its current state[6].

2.7.3 Comparison of Avoidable Costs, Weighted Average Revenue and Stand Alone Costs

Clause 94(3) of the NGR requires that for each tariff class, the revenue expected to be recovered should lie on or between:

- (a) an upper bound representing the stand alone cost of providing the reference service to network users who belong to that class; and
- (b) a lower bound representing the avoidable cost of not providing the reference service to those network users.

In addition, clause 2.6.2.1(h) of the RIN requires that in the Access Arrangement proposal submission, Envestra must demonstrate that the expected revenue recovered for each tariff class for each reference service lies on or between the stand-alone and avoidable cost.

The tables below demonstrate that for each South Australian and Queensland tariff class, the 2011-12 weighted average revenue for each tariff class lies above the lower bound avoidable cost and below the upper bound stand alone cost, in accordance with clause 94(3) of the NGR and clause 2.6.2.1(h) of the RIN:

Table 5 – South Australia Avoidable, Expected and Stand Alone Costs (excluding GST)

Tariff Class	Avoidable Costs ($M)	Weighted Average Revenue ($M)	Stand Alone Costs ($M)	Complies
Tariff D – Northern	$2.26	$11.47	$29.37	Yes
Tariff D – Central	$1.33	$4.63	$29.37	Yes
Tariff D – Southern	$0.62	$1.60	$29.37	Yes
Tariff D – Petersborough	$0.08	$0.38	$29.37	Yes
Tariff D – Port Pirie	$0.02	$0.54	$29.37	Yes
Tariff D – Riverland	$0.02	$0.19	$29.37	Yes
Tariff D – South East	$0.13	$0.41	$29.37	Yes

[4] Pricing Proposal to the Australian Energy Regulator - Distribution Services for 1 July 2010 to 30 June 2011, Ergon Energy, 4 June 2010, pp 48.
[5] Direct Control Services Annual Pricing Proposal 2010/11, Integral Energy, 30 April 2010, p75.
[6] Pricing Proposal to the Australian Energy Regulator - Distribution Services for 1 July 2010 to 30 June 2011, Ergon Energy, 4 June 2010, pp 48.

Tariff Class	Avoidable Costs ($M)	Weighted Average Revenue ($M)	Stand Alone Costs ($M)	Complies
Tariff D – Whyalla	$0.02	$0.17	$29.37	Yes
Tariff R – Residential (R)	$20.29	$100.18	$193.19	Yes
Tariff R – Commercial (C)	$2.54	$19.00	$49.88	Yes

Table 6 – Queensland Avoidable, Expected and Stand Alone Costs (excluding GST)

Tariff Class	Avoidable Costs ($M)	Weighted Average Revenue ($M)	Stand Alone Costs ($M)	Complies
Tariff D: Brisbane	$1.49	$11.26	$34.39	Yes
Tariff D: Northern	$0.16	$0.59	$34.39	Yes
Tariff D: Riverview	$0	$0.52	$34.39	Yes
Tariff R: Brisbane & Riverview	$6.23	$18.84	$60.39	Yes
Tariff R: Northern	$0.25	$0.74	$35.44	Yes
Tariff C: Brisbane & Riverview	$0.23	$13.96	$35.10	Yes
Tariff C: Northern	$0.04	$2.10	$34.51	Yes

2.8 Long Run Marginal Cost

Definition of LRMC

Clause 2.6.2.1(i) of the RIN requires that in the Access Arrangement proposal, Envestra must define Long Run Marginal Cost (LRMC) for each reference service or for each element of the service to which the charging parameter relates, whichever is relevant. The definition of LRMC needs to outline what costs comprise LRMC.

LRMC is not defined in the NGR. Envestra notes Integral Energy's interpretation in its 2010-11 Pricing Proposal, which first defined short run marginal cost as:[7]

> *The "cost to society of a network user using existing capacity in the network at any point in time. This is generally very low unless the system is capacity constrained, and reflects the fact that the great majority of the costs of an electricity network provider are fixed in the short run and do not vary with the usage of the network.*

[7]Direct Control Services Annual Pricing Proposal 2010/11, Integral Energy, 30 April 2010, p78.

Integral Energy then defined LRMC as:[8]

> *"a situation in which the investment in plant and equipment is variable*", and further noted that LRMC will "*relate broadly to the annualised cost of augmenting capacity (in the case of electricity, at a particular voltage, at a particular location, at a particular time), generally, per unit of additional capacity provided (i.e., kW or kVA)*".

Envestra considers that appropriate parallels exist between electricity distribution and gas distribution infrastructure for this definition to be broadly applicable to Envestra's network. Consequently, Envestra interprets LRMC to be the costs of providing additional network capacity in the long term.

Envestra's Approach to Calculating LRMC

Envestra's approach to calculating the LRMC was developed with regard to the AER approved methodologies adopted by Jemena Gas Networks (Jemena) in NSW[9], ActewAGL[10], and ETSA Utilities[11].

Envestra used the Average Incremental Cost (AIC) approach, whereby the present value of the incremental investment (both capital and operating costs) associated with increasing demand is divided by the present value of the change in incremental demand. This approach is consistent with that adopted by both Jemena and ETSA Utilities.

Mathematically, the AIC approach to calculating the LRMC can be expressed as:

$$\text{LRMC} = \frac{\text{PV (growth related shared network capex)} + \text{PV (growth related shared network opex)}}{\text{PV (incremental demand)}}$$

where

- **growth related shared network capex** is the forecast annual capital investment (Capex) in shared network assets required to meet additional demand over the nominated forecast period;
- **growth related shared network opex** is the forecast annual operational and maintenance expenditure required to operate and maintain the shared network costs required to meet additional demand over the nominated forecast period; and
- **incremental demand** is the change in gas demand (in GJ) for each year over the nominated forecast period.

Using the methodology outlined above, Envestra attempted to calculate the LRMC for its distribution networks in Queensland and South Australia by tariff class (consistent with ETSA Utilities). Envestra considers that calculating the LRMC by tariff class, rather than on a whole-of-network basis, is consistent with NERA Economic Consulting's view[12] that it is inaccurate to refer to a universal marginal cost. Specifically, the LRMC varies on the basis of factors including customer type, location and gas consumption profiles. These factors

[8] Ibid.
[9] Jemena Gas Networks (NSW) – Access Arrangement Information – Appendix 15.4 Long Run Marginal Cost Report 26 August 2009.
[10] ActewAGL Distribution Access arrangement information for the ACT, Queanbeyan and Palerang gas distribution network, June 2009.
[11] ETSA Utilities Pricing Proposal 2010-11, June 2010.
[12] NERA Economic Consulting, Distribution Pricing Rule Framework Network Policy Working Group, December 2006, p32.

are reflected in Envestra's tariff classes, and as a result Envestra has attempted to calculate the LRMC for each of its tariff classes.

Other Considerations in the Calculation of LRMC

- Growth-Related Expenditure Associated with the Shared Network (Deep Assets)

  Consistent with the approaches taken by Jemena and ETSA Utilities, only forecast expenditure (both capital and operating expenditure) relating to the forecast growth of the shared network (deep assets) to service additional customer demand is included in Envestra's LRMC calculation. This is because the calculation of the LRMC relies on the key assumptions that expenditure on shared network assets is driven by growth in customer demand.

  Forecast expenditure associated with connection assets such as meters and inlets are not included in the LRMC calculation. This is because connection assets are typically dedicated to specific customers and are driven by customer numbers, not demand growth.

- Forecast period

  The length of the forecast period over which the LRMC is calculated should take into consideration the useful life of shared network assets. However, the forecast period is not typically set to equal the useful life of new network assets (which can be as long as 60 years) because capital expenditure, operating expenditure and demand forecasts cannot be produced for such a long period into the future with any degree of accuracy.

  Envestra adopted a forecast period of ten years as it considers that a ten year forecast period captures long run costs without drawing on forecasts that are projected too far into the future to be reliable. Further, a ten year forecast period is consistent with that used by ETSA Utilities.

LRMC Calculation Outcomes

Envestra was unable to calculate reasonable values for the LRMC at the tariff class level, by geographical region or even at a whole-of-network level for either Queensland or South Australia. The LRMC values calculated were either too large (relative to the actual tariffs within each tariff class) or negative.

Envestra analysed the data and underlying assumptions which led to these outcomes and identified that:

1. forecast capital expenditure and operating expenditure cannot be produced down to the tariff class level or by geographical location in Queensland and South Australia. Consequently, Envestra needed to pro-rata the expenditure based on a combination of customer numbers and consumption in order to derive expenditure at the tariff class level;
2. the forecast growth-related capital expenditure and operating expenditure relates to projects which only affect small segments of the gas distribution network that are experiencing growth in customer numbers; and
3. gas consumption is not growing steadily for any of the tariff classes in Queensland or South Australia. In fact, demand growth for South Australian residential volumetric customers is declining (i.e. negative growth) over the next ten years, and in Queensland,

declines in residential volumetric customer demand are expected for the next four years. This decline in residential gas consumption is due to a number of factors, including a decline in the use of gas for space heating (being taken up by growth in electric air conditioning for heating) and the proliferation of more efficient gas appliances.

This means that:

1. There is insufficient data at the level of granularity required to accurately calculate the LRMC by geographical region and by tariff class; and
2. The forecast expenditure and demand data suggests that at the tariff class level, expenditure on shared network assets is not driven by growth in customer demand.

As a result, it is not possible for Envestra to obtain reasonable LRMC outcomes using the AIC approach given the data limitations and the lack of a strong correlation between growth-related expenditure and demand growth. Further, Envestra is not aware of any other suitable or practical approaches to quantifying the LRMC in light of the issues identified above.

How Envestra's Tariffs have been Developed with Regard for LRMC

Clause 94(4)(a) of the NGR requires that a tariff, and if it consists of two or more charging parameters, each charging parameter for a tariff class, must take into account the LRMC for the reference service or, in the case of a charging parameter, for the element of the service to which the charging parameter relates.

In addition, clause 2.6.2.1(j) of the RIN requires that Envestra demonstrate how the relevant LRMC has been taken into account in determining a tariff for a tariff class or the charging parameters within a tariff class. This may include a quantification of the LRMC (and its components) that relate to the reference service or element of the reference service to which the charging parameters relate.

Despite Envestra not being able to quantify the LRMC as stated above, Envestra has regard for the LRMC when determining a tariff for a tariff class or the charging parameters within a tariff class. Consistent with Ergon Energy's approach, Envestra has selected its tariff parameters in order to effectively signal LRMC to network users, in particular to signal the impact that network users will have on the network, manage demand and volume variance risk, and avoid sending signals that could result in inefficient choices being made by network users of that tariff class[13]. Refer to Section 2.2 for a detailed description of these charging parameters.

Furthermore, Envestra allocates revenue to tariff classes on the basis of:

- Customer Numbers, used to apportion O&M and any other costs (i.e. Carry-Over Amounts and Benchmark Tax Liabilities) across the various cost categories for each Domestic and Commercial Tariff Class;

- Volume consumption, used to apportion Return On Capital and Return Of Capital across the various cost categories for each Domestic and Commercial Tariff Class; and

[13] Pricing Proposal to the Australian Energy Regulator - Distribution Services for 1 July 2010 to 30 June 2011, Ergon Energy, 4 June 2010, pp 53

- The replacement costs of the assets, used to apportion O&M, Return On Capital, Return Of Capital and any other costs (i.e. Carry-Over Amounts and Benchmark Tax Liabilities) across the various cost categories for each Demand Tariff Class. Replacement costs are used instead of Depreciated Optimised Replacement Cost (DORC) values because the replacement costs are relatively stable over time whereas the DORC values change. In this way, variations to network user prices would be avoided as the replacement cost is not affected by the replacement of old assets.

2.9 Grouping of Reference Tariffs on an Economically Efficient Basis

Clause 94(2)(a) of the NGR requires that a tariff class must be constituted with regard to the need to group network users for reference services together on an economically efficient basis.

Clause 2.6.2.1(c) of the RIN requires that in explaining the response to 2.6.2.1(b), Envestra needs to provide information about the basis for grouping network users in a tariff class and how this grouping is economically efficient.

Envestra has developed its tariff classes in recognition of the need to group together network users on an economically efficient basis. Specifically, the tariff classes have been developed on the basis of:

- type of Haulage Reference Service provided to network user's delivery point (i.e. Domestic, Commercial and Demand). The type of Haulage Reference Service recognises the difference in consumption and demand profiles for each network user that receives these services;

- connection characteristics (i.e. by connection pressure – HP, Medium Pressure and Low Pressure); and

- demand (MDQ for demand network users).

2.10 Transaction Costs

Clause (94)(2)(b) of the NGR requires each tariff class must be constituted with regard to the need to avoid unnecessary transaction costs.

Clause 94(4)(b)(i) of the NGR requires that a tariff, and if it consists of 2 or more charging parameters, each charging parameter for a tariff class, must be determined having regard to the transaction costs associated with the tariff or each charging parameter.

Clause 2.6.2.1(d) of the RIN requires that in explaining the response in 2.6.2.1(b) the Service Provider needs to provide information about the type of transaction costs it has considered in determining tariff classes, what transaction costs are relevant to the proposed tariff classes and what transaction costs have been avoided. This explanation may include a quantification of the transaction costs that relate to the tariff class and those transaction costs avoided.

Clause 2.6.2.1(k) of the RIN requires that Envestra explain how the tariff or charging parameters that comprise a tariff have been determined with regard to relevant transaction costs. In doing so, Envestra needs to provide information about the type of transaction costs associated with the tariff or charging parameter of the tariff. This explanation may include a

quantification of the transaction costs that relate to the tariff class and those transaction costs avoided.

Envestra considers that its reference tariff structures and associated charging parameters effectively balance Envestra's objectives of minimising transaction costs and providing appropriate price signals to network users.

Envestra has defined transaction costs associated with the reference tariffs and tariff parameters to be the cost to network users from having too many tariff classes (or charging parameters) or not enough tariff classes (or charging parameters) through inappropriately grouping and structuring tariffs.

With regard to tariff classes, Envestra does not consider it possible to further consolidate its existing tariff classes in such a way that it can be shown that the reference tariffs within each tariff class are grouped on an economically efficient basis (i.e. that the costs of providing the reference services within each tariff class are comparable). This is because the cost of supplying Envestra's network users differs greatly depending on the geographical location and the type of Haulage Reference Service for the network user.

With regard to charging parameters, consideration was given to rationalising the number of banded volume consumption and MDQ steps to reduce the complexity of the reference tariff structures and charging parameters. However, the existing reference tariff structures have been retained because:

- Additional transaction costs associated with updating the appropriate reference tariffs and notifying affected network users would be avoided; and

- Reducing the number of consumption bands would distort the price signals sent to network users.

2.11 Response to Price Signals

Clause (94)(4)(b) of the NGR requires that a tariff, and if it consists of two or more charging parameters, each charging parameter for a tariff class must be determined having regard to whether network users belonging to the relevant tariff class are able or likely to respond to price signals.

Clause 2.6.2.1(l) of the RIN requires that Envestra explain how the tariff or charging parameters that comprise a tariff have been determined with regard to how network users may respond to price signals. This explanation should include analysis (preferable quantified) about network users' responsiveness to price signals relevant to the tariff or charging parameters.

Envestra has developed its tariffs and the charging parameters that constitute each tariff in such a manner that customers are able or likely to respond to price signals. The way in which the Tariff D, Tariff R and Tariff C tariffs, and their associated charging parameters, have been developed is set out below:

Demand Tariff Classes

The Tariff D tariffs have been structured so that network users can respond to pricing signals whilst providing certainty to network users on the amount of their annual charge. This is because the Tariff D tariffs are structured as "declining block tariffs" based only on the MDQ,

not the actual consumption of gas consumed on any given day. Consequently, the Tariff D tariff structure incentivises network users to:

- commit to consuming a minimum quantity of gas per day;
- consume at least the MDQ, which in turn provides Envestra with a degree of certainty in relation to pipeline demand on any given day; and
- adopt gas as the preferred fuel of choice by not penalising network users for exceeding the MDQ.

Thus, network users are provided with a strong incentive to increase consumption, thereby shifting consumption towards the higher tariff bands where the volumetric rates are lower.

Domestic and Commercial Tariff Classes

The variable nature of the volume charge for Tariff R and Tariff C implies that network users are able to and can respond to price signals. Furthermore, the Tariff R threshold that defines the step between the first and second tariff bands has been set with regard to the average consumption for domestic network users in South Australia and Queensland from 2006-07 to 2008-09.

Tariff R and Tariff C are structured as declining block tariffs, which provides a strong incentive for network users to increase consumption, thereby shifting consumption towards the higher tariff bands where the volumetric rates are lower.

2.12 Tariff Adjustment to Address Revenue Shortfalls

Clause 94(5) of the NGR requires that if, as a result of the operation of subrule (4), Envestra may not recover the expected revenue, tariffs must be adjusted so as to ensure recovery of expected revenue with minimum distortion to efficient patterns of consumption.

Clause 2.6.2.1 of the RIN requires that in circumstances where expected revenue across all tariff classes for a reference service is lower than total revenue allocated to that reference service, Envestra must quantify the difference in revenue by reference to the expected revenue for each reference service and total revenue allocated to each reference service.

In addition, Envestra must demonstrate how the shortfall for each reference service is allocated across each tariff class and where relevant across each charging parameter in a tariff class for that reference service and how this was done with minimum distortion to efficient patterns of consumption.

Envestra expects that its reference tariffs will recover the expected revenue. Consequently, Envestra has not applied any adjustments consistent with the requirements of this clause.

2.13 Compliance with Tariff Control Formulae

Clause 93(1) of the NGR requires that a full access arrangement must include a mechanism (a reference tariff variation mechanism) for variation of a reference tariff over the course of an access arrangement period.

Section 4.4 of Envestra's 2007 Access Arrangement sets out the two approved reference tariff variation methodologies for South Australia, which includes:

a) a Reference Tariff Control Formula Approach; and

b) a Trigger Event Adjustment Approach.

Specifically in relation to the Reference Tariff Control Formula Approach, there are two haulage reference tariff control formulae that Envestra must comply with. The first is designed to ensure that the average revenue (in $ per GJ) that Envestra receives from all Haulage Reference Services does not increase, as a result of any proposed variation to reference tariffs, at a rate that is greater than the change in CPI – X (where X is the factor described in Annexure E of the Access Arrangement).

The second Haulage Reference tariff control formula is designed to ensure that the average revenue (in $ per GJ) that Envestra receives from any single type of Haulage Reference Service, after any proposed variation to reference tariffs, does not increase by more than CPI plus X.

Envestra has not calculated the two tariff control formulae as set out above for 2011-12 because this is the first year of the next regulatory control period and the applicable tariff control formulae do not apply in the first regulatory year.

Envestra will calculate the reference tariff control formulae as approved by the AER from the second regulatory year of the regulatory control period (i.e. 2012-13) onwards.

3 Appendix One – South Australian Tariff Schedules

Note: The tariffs set out in this schedule represent the 2011-12 tariff structures in 2010-11 dollars.

Table 7 – Tariff D (Demand Haulage Service) Adelaide Region

MDQ at Delivery Point	Monthly Charge		
	Northern Zone	Central Zone	Southern Zone
50GJ or less	$2,682.00	$2,682.00	$2,682.00
Next 50GJ $/GJ of MDQ for MDQ over 50GJ	$34.06	$40.59	$47.86
Next 900GJ $/GJ of MDQ for MDQ over 100GJ	$21.33	$25.80	$29.97
Additional GJ $/GJ of MDQ for MDQ over 1,000GJ	$6.40	$7.40	$9.04

Table 8 – Tariff D (Demand Haulage Service) Other Regions

MDQ at Delivery Point	Monthly Charge				
	Peterborough Region	Port Pirie Region	Riverland Region	South East Region	Whyalla Region
50GJ or less	$3,795.00	$2,682.00	$3,795.00	$2,682.00	$2,682.00
Next 50GJ $/GJ of MDQ for MDQ over 50GJ	$49.92	$34.05	$49.80	$34.05	$34.18
Next 400GJ $/GJ of MDQ for MDQ over 100GJ	$30.66	$17.40	$30.66	$17.40	$17.40
Next 500GJ $/GJ of MDQ for MDQ over 500GJ	$31.42	$7.34	$31.42	$17.82	$17.82
Additional GJ $/GJ of MDQ for MDQ over 1,000GJ	$6.47	$5.98	$6.47	$6.47	$6.47

Table 9 – Tariff R (Domestic Haulage Service)

South Australia Residential Tariffs	
Base Charge (per network day)	$0.31
Charge for the first 0.0274GJ of Gas Delivered ($/GJ/during a network day)	$14.00
Charge for the next 0.0219GJ of Gas Delivered ($/GJ/during a network day)	$8.34
Charge for Additional Gas Delivered ($/GJ/during a network day)	$3.50

Table 10 – Tariff C (Commercial Haulage Service)

South Australia Commercial Tariffs	
Base Charge (per network day)	$0.62
Charge for the first 0.9863GJ of Gas Delivered ($/GJ/during a network day)	$8.80
Charge for the next 4.274GJ of Gas Delivered ($/GJ/during a network day)	$4.72
Charge for the next 11.178GJ of Gas Delivered ($/GJ/during a network day)	$2.06
Charge for Additional Gas Delivered ($/GJ/during a network day)	$0.86

4 Appendix Two – Queensland Tariff Schedules

Note: The tariffs set out in this schedule represent the 2011-12 tariff structures in 2010-11 dollars

Table 11 – Tariff D (Demand Haulage Service)

MDQ at Delivery Point	Monthly Charge		
	Brisbane	Riverview	Northern
50GJ or less	$7,984.09	$7,521.99	$8,598.89
Next 75GJ $/GJ of MDQ for MDQ over 50GJ	$75.20	$7.92	$82.58
Next 150GJ $/GJ of MDQ for MDQ over 125GJ	$41.42	$7.58	$45.20
Next 250GJ $/GJ of MDQ for MDQ over 275GJ	$16.55	$6.97	$17.91
Next 500GJ $/GJ of MDQ for MDQ over 525GJ	$7.54	$6.93	$8.06
Next 10,000GJ $/GJ of MDQ for MDQ over 1,025GJ	$3.83	$6.90	$4.19
Additional GJ $/GJ of MDQ for MDQ over 11,025GJ	$3.83	$6.90	$4.19

Table 12 – Tariff R (Domestic Haulage Service)

Queensland Residential Tariffs	Brisbane & Riverview	Northern
Base Charge (per network day)	$0.31	$0.31
Charge for the first 0.0082GJ of Gas Delivered ($/GJ/during a network day)	$21.00	$23.10
Charge for the next 0.0192GJ of Gas Delivered ($/GJ/during a network day)	$15.00	$16.50
Charge for Additional Gas Delivered ($/GJ/during a network day)	$7.13	$7.84

Table 13 – Tariff C (Commercial Haulage Service)

Queensland Commercial Tariffs	Brisbane & Riverview	Northern
Base Charge (per network day)	$0.30	$0.30
Charge for the first 0.2GJ of Gas Delivered ($/GJ/during a network day)	$15.42	$16.92
Charge for the next 0.3GJ of Gas Delivered ($/GJ/during a network day)	$14.07	$15.49
Charge for the next 0.5GJ of Gas Delivered ($/GJ/during a network day)	$13.65	$15.00
Charge for the next 1GJ of Gas Delivered ($/GJ/during a network day)	$12.94	$14.20
Charge for the next 5GJ of Gas Delivered ($/GJ/during a network day)	$11.33	$12.44
Charge for Additional Gas Delivered ($/GJ/during a network day)	$8.50	$9.33

5 Appendix Three – 2011-12 Cost Pools for South Australia and Queensland

Table 14 – South Australian Cost Pools

South Australia Building Block	Total Revenue	Residential Cost Pool	Commercial Cost Pool	Adelaide Northern	Adelaide Central	Adelaide Southern	Port Pirie	Petersborough	Riverlands	South East	Whyalla
Return on capital	$109.70	$91.62	$11.47	$3.20	$1.84	$0.98	$0.21	$0.04	$0.03	$0.26	$0.05
Return of capital	$2.50	$2.09	$0.26	$0.07	$0.04	$0.02	$0.00	$0.00	$0.00	$0.01	$0.00
O&M	$71.00	$46.72	$5.85	$12.64	$3.42	$1.12	$0.72	$0.03	$0.19	$0.29	$0.02
Carry-over amounts	$11.70	$7.70	$0.96	$2.08	$0.56	$0.18	$0.12	$0.00	$0.03	$0.05	$0.00
Benchmark Tax Liability	$18.80	$15.70	$1.97	$0.55	$0.32	$0.17	$0.04	$0.01	$0.01	$0.04	$0.01
Total Revenue	**$213.70**	**$163.82**	**$20.51**	**$18.55**	**$6.18**	**$2.48**	**$1.08**	**$0.08**	**$0.26**	**$0.65**	**$0.08**

Table 15 – Queensland Cost Pools

Queensland Building Block	Total Revenue	Residential – Brisbane& Riverview Cost Pool	Residential – Northern Cost Pool	Commercial – Brisbane& Riverview Cost Pool	Commercial – Northern Cost Pool	Tariff D: Brisbane	Tariff D: Riverview	Tariff D: Northern
Return on capital	$33.05	$17.47	$0.70	$0.47	$0.08	$7.16	$0	$7.16
Return of capital	$1.87	$0.99	$0.04	$0.03	$0.00	$0.40	$0	$0.40
O&M	$23.18	$5.34	$0.21	$0.14	$0.02	$7.93	$1.60	$7.93
Carry-over amounts	$0	$0	$0	$0	$0	$0	$0	$0
Benchmark Tax Liability	$4.15	$2.19	$0.09	$0.06	$0.01	$0.90	$0	$0.90
Total Revenue	**$62.25**	**$26.00**	**$1.04**	**$0.71**	**$0.11**	**$16.40**	**$1.60**	**$16.40**