APPENDIX 18

Proposed contingent projects 1 July 2009 – 30 June 2014

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Introduction

Transend's capital expenditure forecast for the 1 July 2009 to 30 June 2014 regulatory control period is included in Chapter 5 of Transend's revenue proposal.

This appendix provides project summaries for proposed contingent projects in accordance with clause 6A.8 of the National Electricity Rules (Rules). The purpose of the project summaries is to provide an overview of the potential investment need for the proposed contingent projects. The projects are described in general terms and the estimated costs for each proposed contingent project are presented in $2008–09 and are indicative only.

The project summaries include for each proposed contingent project:

- an overview;
- definition of the trigger event;
- a summary of the scope and estimated cost; and
- demonstration that the identified contingent project is compliant with the Rules.

PROJECT TITLE	**Sheffield–George Town new transmission line**
INVESTMENT CATEGORY	**Augmentation**
ESTIMATED COST	**$147m**

1 OVERVIEW

The analysis undertaken by ROAM Consulting identified potential significant generation developments in the north-western and western regions of Tasmania. If these generation developments occur, it is likely that increased power transfer capacity between Sheffield and George Town substations will be required.

Transfer capacity between the north-western and western regions and the remainder of the transmission system is currently limited to the rating of the 220 kV transmission lines that connect Sheffield Substation to George Town and Palmerston substations. If generation developments in the north-western and western regions occur, the proposed contingent project could deliver market benefits by removing a transmission system constraint that would occur on the existing transmission network between Sheffield and George Town substations.

Transend considers that this project should be accepted as a contingent project for the forthcoming regulatory control period because of uncertainty about the trigger event occurring and uncertainty about the scope and cost of the project.

2 CONTINGENCY TRIGGER

'Generator and/or load flow changes in the north-western and/or western regions, leading to successful application of the regulatory test'.

This trigger event is specific and capable of objective verification, it relates to a specific location or locations, and is probable but too uncertain to include the proposed contingent project in the capital expenditure forecast.

If the trigger event occurs, the proposed contingent project would deliver net market benefits and would be reasonably required to meet the Rules capital expenditure objective to efficiently meet the expected demand for prescribed transmission services over the regulatory control period.

3 PROJECT SCOPE AND ESTIMATE

The project comprises the establishment of a third transmission line between Sheffield and George Town substations, including the construction of switch bays at Sheffield and George Town substations to cater for the new transmission line.

The scope of work for this project is wholly within the shared transmission network and is physically removed from any generator connection.

Transend notes that by definition it is generally not possible to accurately define the scope of a proposed contingent project at this early stage. Therefore the estimated cost of this project is indicative only. A detailed project scope and cost estimate will be required before any amendment to the revenue determination is considered by the AER should the specified trigger event occur during the forthcoming regulatory control period.

The estimated contingent capital expenditure exceeds the applicable contingent threshold of $10 million (see section 5.9 of Transend's revenue proposal).

4 DEMONSTRATION OF RULES COMPLIANCE

Transend considers that the project should be accepted as a contingent project for the forthcoming regulatory control period because it:

i) is not otherwise provided for in the total forecast capital expenditure;

ii) reasonably reflects the capital expenditure criteria, noting that costs are an estimate at this point;

iii) exceeds the contingent project cost threshold;

iv) is reasonably required to achieve the capital expenditure objectives; and

v) has an appropriately defined trigger event.

PROJECT TITLE	**Burnie–Smithton new transmission line**
INVESTMENT CATEGORY	**Augmentation**
ESTIMATED COST	**$85m**

1 OVERVIEW

The analysis undertaken by ROAM Consulting identified potential significant generation developments in the north-western region of Tasmania. If these generation developments occur, it is likely that increased power transfer capacity between Burnie and Smithton substations will be required.

Transfer capacity between the north-western region and the remainder of the transmission system is currently limited to the rating of the 110 kV transmission lines that connect Burnie Substation to Smithton Substation. If generation developments in the north-western region occur, the proposed contingent project could deliver market benefits by removing a transmission system constraint that would occur on the existing transmission network between Burnie and Smithton substations.

Transend considers that this project should be accepted as a contingent project for the forthcoming regulatory control period because of uncertainty about the trigger event occurring and uncertainty about the scope and cost of the project.

2 CONTINGENCY TRIGGER

'Generator and/or load flow changes in the north-western region, leading to successful application of the regulatory test'.

This trigger event is specific and capable of objective verification, it relates to a specific location or locations, and is probable but too uncertain to include the proposed contingent project in the capital expenditure forecast.

If the trigger event occurs, the proposed contingent project would deliver net market benefits and would be reasonably required to meet the Rules capital expenditure objective to efficiently meet the expected demand for prescribed transmission services over the regulatory control period.

3 PROJECT SCOPE AND ESTIMATE

The project comprises the establishment of a third transmission line between Burnie and Smithton substations, including the construction of switch bays at Burnie and Smithton substations to cater for the new transmission line.

The scope of work for this project is wholly within the shared transmission network and is physically removed from any generator connection.

Transend notes that by definition it is generally not possible to accurately define the scope of a proposed contingent project at this early stage. Therefore the estimated cost of this project is indicative only. A detailed project scope and cost estimate will be required before any amendment to the revenue determination is considered by the AER should the specified trigger event occur during the forthcoming regulatory control period.

The estimated contingent capital expenditure exceeds the applicable contingent threshold of $10 million (see section 5.9 of Transend's revenue proposal).

4 DEMONSTRATION OF RULES COMPLIANCE

Transend considers that the project should be accepted as a contingent project for the forthcoming regulatory control period because it:

i) is not otherwise provided for in the total forecast capital expenditure;

ii) reasonably reflects the capital expenditure criteria, noting that costs are an estimate at this point;

iii) exceeds the contingent project and cost threshold;

iv) is reasonably required to achieve the capital expenditure objectives; and

v) has an appropriately defined trigger event.

PROJECT TITLE	**Sheffield–Farrell new transmission line**
INVESTMENT CATEGORY	**Augmentation**
ESTIMATED COST	**$80m**

1 OVERVIEW

The analysis undertaken by ROAM Consulting identified potential significant generation developments in the western region of Tasmania. If these generation developments occur, it is likely that increased power transfer capacity between Sheffield and Farrell substations will be required.

Transfer capacity between the western region and the remainder of the transmission system is currently limited to the rating of the 220 kV transmission lines that connect Sheffield Substation to Farrell Substation. If generation developments in the western region occur, the proposed contingent project could deliver market benefits by removing a transmission system constraint that would occur on the existing transmission network between Sheffield and Farrell substations.

.Transend considers that this project should be accepted as a contingent project for the forthcoming regulatory control period because of uncertainty about the trigger event occurring and uncertainty about the scope and cost of the project.

2 CONTINGENCY TRIGGER

'Generator and/or load flow changes in the western region, leading to successful application of the regulatory test'.

This trigger event is specific and capable of objective verification, it relates to a specific location or locations, and is probable but too uncertain to include the proposed contingent project in the capital expenditure forecast.

If the trigger event occurs, the proposed contingent project would deliver net market benefits and would be reasonably required to meet the Rules capital expenditure objective to efficiently meet the expected demand for prescribed transmission services over the regulatory control period.

3 PROJECT SCOPE AND ESTIMATE

The project comprises the establishment of a third transmission line between Sheffield and Farrell substations, including the construction of switch bays at Sheffield and Farrell substations to cater for the new transmission line.

The scope of work for this project is wholly within the shared transmission network and is physically removed from any generator connection.

Transend notes that by definition it is generally not possible to accurately define the scope of a proposed contingent project at this early stage. Therefore the estimated cost of this project is indicative only. A detailed project scope and cost estimate will be required before any amendment to the revenue determination is considered by the AER should the specified trigger event occur during the forthcoming regulatory control period.

The estimated contingent capital expenditure exceeds the applicable contingent threshold of $10 million (see section 5.9 of Transend's revenue proposal).

4 DEMONSTRATION OF RULES COMPLIANCE

Transend considers that the project should be accepted as a contingent project for the forthcoming regulatory control period because it:

i) is not otherwise provided for in the total forecast capital expenditure;

ii) reasonably reflects the capital expenditure criteria, noting that costs are an estimate at this point;

iii) exceeds the contingent project and cost threshold;

iv) is reasonably required to achieve the capital expenditure objectives; and

v) has an appropriately defined trigger event.

PROJECT TITLE	**Sheffield–Burnie new transmission line**
INVESTMENT CATEGORY	**Augmentation**
ESTIMATED COST	**$77m**

1 OVERVIEW

Burnie Substation supplies Tasmania's north-western region. Burnie Substation is supplied via the Sheffield–Burnie No 1 220 kV transmission line and two Sheffield–Burnie 110 kV transmission lines, one of which also supplies Emu Bay and Ulverstone substations and connects generation from Hydro Tasmania's Paloona Power Station.

Augmentation of the Sheffield–Burnie 110 kV transmission lines from a design operating temperature of 49°C to 75°C is included in the capital expenditure forecast for the forthcoming regulatory control period. Based on the 2008 demand forecast, this augmentation should provide adequate capacity to Burnie Substation to meet demand in the north western region of Tasmania.

The analysis undertaken by ROAM Consulting identified potential significant generation developments in north-western region. If these generation developments occur, the proposed contingent project could deliver market benefits by removing a transmission system constraint that would occur on the existing transmission network between Sheffield and Burnie substations.

Transend's capital expenditure forecast includes the acquisition of an easement for an additional Sheffield–Burnie transmission line. The estimate for this proposed contingent project does not include any easement acquisition costs.

Transend considers that this project should be accepted as a contingent project for the forthcoming regulatory control period because of uncertainty about the trigger event occurring and uncertainty about the scope and cost of the project.

2 CONTINGENCY TRIGGER

'Generator and/or load flow changes in the north-western region, leading to successful application of the regulatory test.'

This trigger event is specific and capable of objective verification, it relates to a specific location or locations, and is probable but too uncertain to include the proposed contingent project in the capital expenditure forecast.

If the trigger event occurs, the proposed contingent project would deliver net market benefits and would be reasonably required to meet the Rules capital expenditure objective to efficiently meet the expected demand for prescribed transmission services over the regulatory control period.

3 PROJECT SCOPE AND ESTIMATE

The project comprises the construction of a new transmission line between Sheffield and Burnie substations, including the construction of switch bays at Sheffield and Burnie substations.

The scope of work for this project is wholly within the shared transmission network and is physically removed from any generator connection.

Transend notes that by definition it is generally not possible to accurately define the scope of a proposed contingent project at this early stage. Therefore the estimated cost of this project is indicative only. A detailed project scope and cost estimate will be required before any amendment to the revenue determination is considered by the AER should the specified trigger event occur during the forthcoming regulatory control period.

The estimated contingent capital expenditure exceeds the applicable contingent threshold of $10 million (see section 5.9 of Transend's revenue proposal).

4 DEMONSTRATION OF RULES COMPLIANCE

Transend considers that the project should be accepted as a contingent project for the forthcoming regulatory control period because it:

i) is not otherwise provided for in the total forecast capital expenditure;

ii) reasonably reflects the capital expenditure criteria, noting that costs are an estimate at this point;

iii) exceeds the contingent project cost threshold;

iv) is reasonably required to achieve the capital expenditure objectives; and

v) has an appropriately defined trigger event.

PROJECT TITLE	**St Helens new 110/22 kV connection site**
INVESTMENT CATEGORY	**Connection**
ESTIMATED COST	**$43m**

1 OVERVIEW

Tasmania's east coast has experienced significant demand growth in recent years. In particular, St Helens and surrounding areas has experienced considerable demand growth. The St Helens area is currently supplied from St Marys Substation. St Marys Substation is supplied via a radial 110 kV transmission line from Palmerston Substation. This radial transmission line also supplies Avoca Substation.

Derby Substation, that is located in the north-eastern region of Tasmania, provides a limited alternative supply to the St Helens area.

The current arrangement does not comply with clause 5.(1)(a)(iv) of *Electricity Supply Industry (Network Performance Requirements) Regulations 2007* in that the 'unserved energy to load that is interrupted consequent on damage to a network element resulting from a credible contingency event is not to be capable of exceeding 300 MWh at any time.'

Preliminary investigations have identified that the construction of a new 110 kV transmission line from Derby Substation to a new substation site in the St Helens area is the most appropriate strategic solution to address the identified issues. However, the investment to achieve compliance exceeds the $15m threshold set by the jurisdiction. Preliminary analysis suggests that based on existing load levels, investment in the forthcoming regulatory control period may not provide sufficient benefit to achieve Ministerial approval under the reliability limb of the regulatory test.

An unexpected demand increase in the St Helens area would increase the reliability benefits associated with this investment, and may therefore influence the outcome of the regulatory test and advance the need for this project to within the forthcoming regulatory period. Transend would work with the DNSP, Aurora Energy to undertake this analysis.

2 CONTINGENCY TRIGGER

'Load growth in the northern region leading to a DNSP application to connect and successful application of the regulatory test.'

This trigger event is specific and capable of objective verification, it relates to a specific location or locations, and is probable but too uncertain to include the proposed contingent project in the capital expenditure forecast.

If the trigger event occurs, the proposed contingent project would deliver net market benefits and would be reasonably required to meet the Rules capital expenditure objective to efficiently meet the expected demand for prescribed transmission services over the regulatory control period.

3 PROJECT SCOPE AND ESTIMATE

The project comprises the construction of a new 110 kV transmission line from Derby Substation to a new substation site in the St Helens area. The scope of work for this project is wholly within the shared transmission system.

Transend notes that by definition it is generally not possible to accurately define the scope of a proposed contingent project at this early stage. Therefore the estimated cost of this project is indicative only. A detailed project scope and cost estimate will be required before any amendment to the revenue determination is considered by the AER should the specified trigger event occur during the forthcoming regulatory control period.

The estimated contingent capital expenditure exceeds the applicable contingent threshold of $10 million (see section 5.9 of Transend's revenue proposal).

4 DEMONSTRATION OF RULES COMPLIANCE

Transend considers that the project should be accepted as a contingent project for the forthcoming regulatory control period because it:

i) is not otherwise provided for in the total forecast capital expenditure;

ii) reasonably reflects the capital expenditure criteria, noting that costs are an estimate at this point;

iii) exceeds the contingent project cost threshold;

iv) is reasonably required to achieve the capital expenditure objectives; and

v) has an appropriately defined trigger event.

PROJECT TITLE	**Palmerston–Sheffield 220 kV transmission line augmentation**
INVESTMENT CATEGORY	**Augmentation**
ESTIMATED COST	**$22m**

1 OVERVIEW

The analysis undertaken by ROAM Consulting identified potential significant generation developments in the north-western and western regions of Tasmania. If these generation developments occur, it is likely that increased power transfer capacity between Palmerston and Sheffield substations will be required.

Transfer capacity between the north-western and western regions and the remainder of the transmission system is currently limited to the rating of the 220 kV transmission lines that connect Sheffield Substation to George Town and Palmerston substations. If generation developments in the north-western and western regions occur, the proposed contingent project could deliver market benefits by removing a transmission system constraint that would occur on the existing transmission network between Palmerston and Sheffield substations.

Transend considers that this project should be accepted as a contingent project for the forthcoming regulatory control period because of uncertainty about the trigger event occurring and uncertainty about the scope and cost of the project.

2 CONTINGENCY TRIGGER

'Generator and/or load flow changes in the north-western and/or western regions, leading to successful application of the regulatory test'.

This trigger event is specific and capable of objective verification, it relates to a specific location or locations, and is probable but too uncertain to include the proposed contingent project in the capital expenditure forecast.

If the trigger event occurs, the proposed contingent project would deliver net market benefits and would be reasonably required to meet the Rules capital expenditure objective to efficiently meet the expected demand for prescribed transmission services over the regulatory control period.

3 PROJECT SCOPE AND ESTIMATE

The project comprises the augmentation of the existing Palmerston–Sheffield 220 kV transmission line and associated switch bays at Palmerston and Sheffield substations.

The scope of work for this project is wholly within the shared transmission network and is physically removed from any generator connection.

Transend notes that by definition it is generally not possible to accurately define the scope of a proposed contingent project at this early stage. Therefore the estimated cost of this project is indicative only. A detailed project scope and cost estimate will be required before any amendment to the revenue determination is considered by the AER should the specified trigger event occur during the forthcoming regulatory control period.

The estimated contingent capital expenditure exceeds the applicable contingent threshold of $10 million (see section 5.9 of Transend's revenue proposal).

4 DEMONSTRATION OF RULES COMPLIANCE

Transend considers that the project should be accepted as a contingent project for the forthcoming regulatory control period because it:

i) is not otherwise provided for in the total forecast capital expenditure;

ii) reasonably reflects the capital expenditure criteria, noting that costs are an estimate at this point;

iii) exceeds the contingent project cost threshold;

iv) is reasonably required to achieve the capital expenditure objectives; and

v) has an appropriately defined trigger event.

PROJECT TITLE	**Waddamana–Lindisfarne 220 kV transmission line second circuit**
INVESTMENT CATEGORY	**Augmentation**
ESTIMATED COST	**$22m**

1 OVERVIEW

Transend is currently implementing the Waddamana–Lindisfarne 220 kV transmission line project. The project comprises the construction of a new double circuit 220 kV transmission line between Waddamana and Lindisfarne substations, initially strung on one side only. The timing of the installation of the second Waddamana–Lindisfarne 220 kV transmission circuit is dependent on demand growth in the southern region of Tasmania relative to the cost of reducing load at risk..

Transend considers that this project should be accepted as a contingent project for the forthcoming regulatory control period because of uncertainty about the trigger event occurring and uncertainty about the scope and cost of the project.

2 CONTINGENCY TRIGGER

'Demand growth in the southern region, leading to successful application of the regulatory test'.

This trigger event is specific and capable of objective verification, it relates to a specific location or locations, and is probable but too uncertain to include the proposed contingent project in the capital expenditure forecast.

If the trigger event occurs, the proposed contingent project would deliver net market benefits and would be reasonably required to meet the Rules capital expenditure objective to efficiently meet the expected demand for prescribed transmission services over the regulatory control period.

3 PROJECT SCOPE AND ESTIMATE

The project comprises the stringing of the second 220 kV transmission circuit on the soon to be constructed Waddamana–Lindisfarne 220 kV transmission line and associated works at Waddamana and Lindisfarne substations.

The scope of work for this project is wholly within the shared transmission network.

Transend notes that by definition it is generally not possible to accurately define the scope of a proposed contingent project at this early stage. Therefore the estimated cost of this project is indicative only. A detailed project scope and cost estimate will be required before any amendment to the revenue determination is considered by the AER should the specified trigger event occur during the forthcoming regulatory control period.

The estimated contingent capital expenditure exceeds the applicable contingent threshold of $10 million (see section 5.9 of Transend's revenue proposal).

4 DEMONSTRATION OF RULES COMPLIANCE

Transend considers that the project should be accepted as a contingent project for the forthcoming regulatory control period because it:

i) is not otherwise provided for in the total forecast capital expenditure;

ii) reasonably reflects the capital expenditure criteria, noting that costs are an estimate at this point;

iii) exceeds the contingent project cost threshold;

iv) is reasonably required to achieve the capital expenditure objectives; and

v) has an appropriately defined trigger event.

PROJECT TITLE	**Trevallyn Substation 220 kV injection point**
INVESTMENT CATEGORY	**Augmentation**
ESTIMATED COST	**$21m**

1 OVERVIEW

The northern region of Tasmania is currently supplied from Hadspen and Palmerston substations. Overloading of the transformers at Hadspen or Palmerston substations can occur as a result of certain contingency events and with no generation available from Trevallyn Power Station. A 220 kV injection at Trevallyn Substation would address this constraint. Demand growth in the northern region, and consequent increased load at risk, may lead to investment in this new injection point passing the regulatory test.

Transend considers that this project should be accepted as a contingent project for the forthcoming regulatory control period because of uncertainty about the trigger event occurring and uncertainty about the scope and cost of the project.

2 CONTINGENCY TRIGGER

'Demand growth in the northern region, leading to successful application of the regulatory test'.

This trigger event is specific and capable of objective verification, it relates to a specific location or locations, and is probable but too uncertain to include the proposed contingent project in the capital expenditure forecast.

If the trigger event occurs, the proposed contingent project would deliver net market benefits and would be reasonably required to meet the Rules capital expenditure objective to efficiently meet the expected demand for prescribed transmission services over the regulatory control period.

3 PROJECT SCOPE AND ESTIMATE

The project comprises the construction of a new 220 kV transmission line from Hadspen Substation to Trevallyn Substation, associated switch bays and the installation of a 220/110 kV auto-transformer at Trevallyn Substation.

The scope of work for this project is wholly within the shared transmission network and is physically removed from any generator connection.

Transend notes that by definition it is generally not possible to accurately define the scope of a proposed contingent project at this early stage. Therefore the estimated cost of this project is indicative only. A detailed project scope and cost estimate will be required before any amendment to the revenue determination is considered by the AER should the specified trigger event occur during the forthcoming regulatory control period.

The estimated contingent capital expenditure exceeds the applicable contingent threshold of $10 million (see section 5.9 of Transend's revenue proposal).

4 DEMONSTRATION OF RULES COMPLIANCE

Transend considers that the project should be accepted as a contingent project for the forthcoming regulatory control period because it:

i) is not otherwise provided for in the total forecast capital expenditure;

ii) reasonably reflects the capital expenditure criteria, noting that costs are an estimate at this point;

iii) exceeds the contingent project cost threshold;

iv) is reasonably required to achieve the capital expenditure objectives; and

v) has an appropriately defined trigger event.

PROJECT TITLE	**Queenstown transmission security upgrade**
INVESTMENT CATEGORY	**Augmentation**
ESTIMATED COST	**$12m**

1 OVERVIEW

Queenstown Substation is supplied from Farrell Substation via the Farrell–Rosebery–Queenstown 110 kV transmission line. In turn, Newton Substation is supplied via the Queenstown–Newton 110 kV transmission line. There is currently no alternate supply to Queenstown or Newton substations.

Clause 5.(1)(a)(i) and clause 5.(1)(a)(iv) of the *Electricity Supply Industry (Network Performance Requirements) Regulations 2007* state that:

- 'no more that 25 MW of load is to be capable of being interrupted by a credible contingency event' and
- the 'unserved energy to load that is interrupted consequent on damage to a network element resulting from a credible contingency event is not to be capable of exceeding 300 MWh at any time.'

Under the current arrangement, a contingency event on the Farrell–Rosebery–Queenstown transmission line will interrupt more than 25 MW of load and result in unserved energy of more than 300 MWh.

Preliminary investigations have identified that the establishment of a 220 kV supply from an adjacent transmission circuit would cost-effectively provide an alternate supply to Queenstown Substation and would enable compliance with the network performance requirements.

The demand at Queenstown and Newton substations is predominantly from direct-connect customers that operate mining and processing facilities. Transend intends to undertake further discussions with these customers regarding their long-term plans. This is to ensure that the investment is prudent and unlikely to result in stranded transmission assets.

Transend considers that this project should be accepted as a contingent project for the forthcoming regulatory control period because of uncertainty about the trigger event occurring and uncertainty about the scope and cost of the project.

2 CONTINGENCY TRIGGER

'Successful application of the regulatory test on the basis of a detailed cost benefit assessment (including analysis and discussion with customers at Queenstown and Newton on their long term plans)..

This trigger event is specific and capable of objective verification, it relates to a specific location or locations, and is probable but too uncertain to include the proposed contingent project in the capital expenditure forecast.

If the trigger event occurs, the proposed contingent project would deliver net market benefits and would be reasonably required to meet the Rules capital expenditure objective to efficiently meet the expected demand for prescribed transmission services over the regulatory control period.

3 PROJECT SCOPE AND ESTIMATE

The project comprises the establishment of a 220 kV supply from an adjacent transmission circuit to Queenstown Substation.

The scope of work for this project is wholly within the shared transmission system.

Transend notes that by definition it is generally not possible to accurately define the scope of a proposed contingent project at this early stage. Therefore the estimated cost of this project is indicative only. A detailed project scope and cost estimate will be required before any amendment to the revenue determination is considered by the AER should the specified trigger event occur during the forthcoming regulatory control period.

The estimated contingent capital expenditure exceeds the applicable contingent threshold of $10 million (see section 5.9 of Transend's revenue proposal).

4 DEMONSTRATION OF RULES COMPLIANCE

Transend considers that the project should be accepted as a contingent project for the forthcoming regulatory control period because it:

i) is not otherwise provided for in the total forecast capital expenditure;

ii) reasonably reflects the capital expenditure criteria, noting that costs are an estimate at this point;

iii) exceeds the contingent project cost threshold;

iv) is reasonably required to achieve the capital expenditure objectives; and

has an appropriately defined trigger event.