

Regulatory Investment Test for Distribution (RIT-D)

Reliability Corrective Action
The Bowen Hills Network Area

Final Project Assessment Report

6 November 2026

energex
Part of Energy Queensland

INTRODUCTION

Purpose

The National Electricity Rules (NER) require that, subject to certain exclusions, distribution network service providers who are looking to address an identified need, by investing in the network, must apply the regulatory investment test for distribution (RIT-D). This Final Project Assessment Report (FPAR) has been prepared by Energex Limited (Energex) in accordance with the requirements of clause 5.17.4(r) of the NER and is published in accordance with 5.17.4(o) of the NER.

In preparing this FPAR, Energex is required to consider reasonable future scenarios. With respect to major customer loads and generation, Energex has included as much detail as possible while maintaining necessary customer confidentiality. Potential large future connections that Energex is aware of are in different stages of progress and are subject to change (including outcomes where none or all proceed). These and other customer activity can occur over the consultation period and may change the timing and/or scope of any proposed solutions.

About Energex

Energex Limited (Energex) is a subsidiary of Energy Queensland Limited and manages the electricity distribution network in the growing region of South East Queensland which includes the major urban areas of Brisbane, Gold Coast, Sunshine Coast, Logan, Ipswich, Redlands and Moreton Bay. Our electricity distribution area runs from the NSW border north to Gympie and west to the base of the Great Dividing Range.

Our electricity network consists of approximately 57,000 kilometres of powerlines and 450,000 power poles, along with associated infrastructure such as major substations and power transformers.

Today, we provide distribution services to more than 1.5 million domestic and business connections, delivering electricity to a population base of around 4 million people.

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1 ASSUMPTIONS AND TECHNICAL CHARACTERISTICS OF THE IDENTIFIED NEED

1.1 Existing supply arrangement

1.1.1 Geographic Region

Victoria Park Substation (SSVPK) supplies 12,320 residential and 2,002 business customers in Bowen Hills, Fortitude Valley, Herston and Spring Hill on the Brisbane CBD fringe. SSVPK was rebuilt in 2014 with two 60 MA transformers and provision for 36 x 11 kV feeders. There is provision for a future third transformer and a total of 60 x 11 kV feeders from this substation. SSVPK has sufficient capacity and future expansion capability, however, there are insufficient conduits to make that capacity available to connect developments in the area. These developments are driven particularly by the RNA (Royal National Agricultural) Showgrounds site redevelopment and by growth in the Bowen Hills area associated with the Queensland State government's Priority Development Area planning objectives. **Figure 1** provides an overview of the current SSVPK supply area.

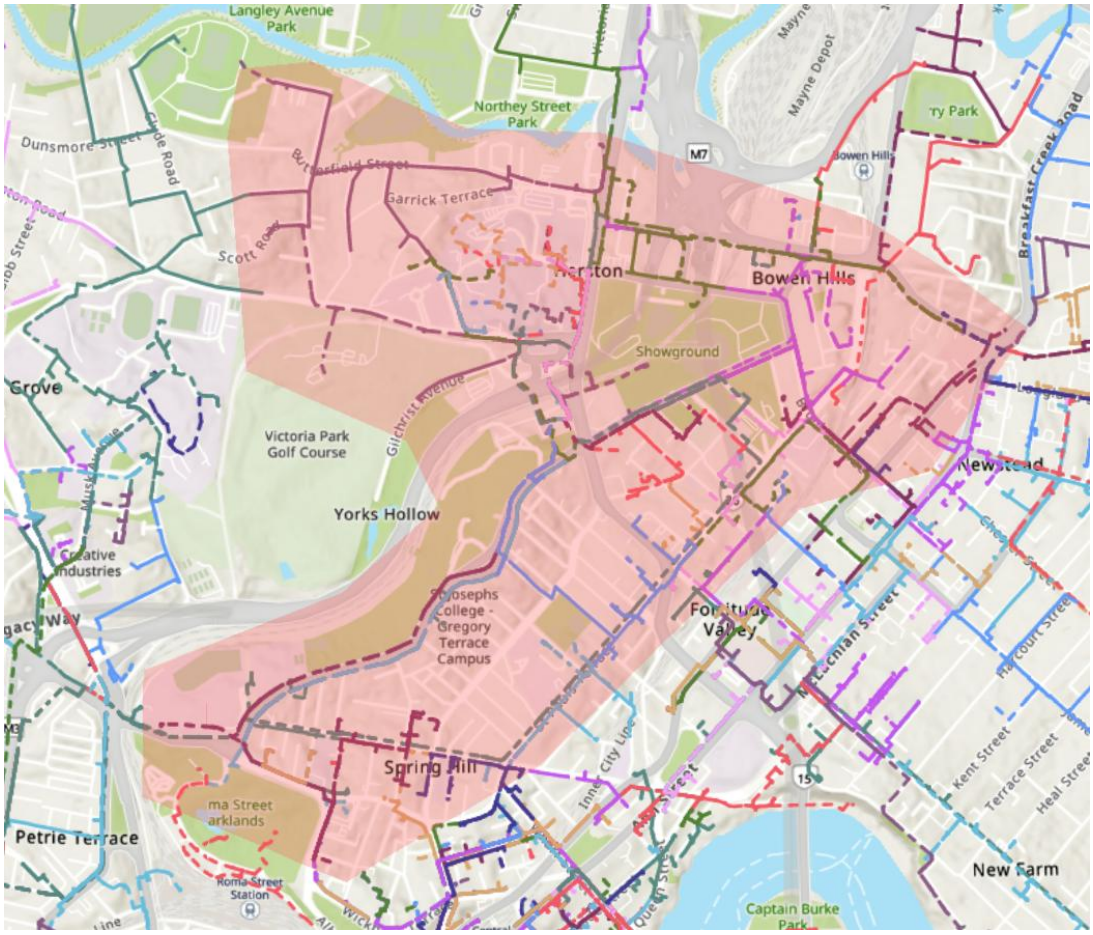


Figure 1 Existing supply area for Victoria Park Substation (highlighted)

Figure 2 represents the Bowen Hills Priority development area. The majority of this area is to the northeast of SSVPK, and that will form the focus area to be enabled with the conduit installation. The railway and inner-city bypass creates a barrier that limits conduiting options.



Figure 2 Bowen Hills Priority Development Area (PDA). Source: Bowen Hills PDA Development Scheme No.3

1.1.2 Overview of Existing System

Victoria Park Substation (SSVPK) and its existing 11 kV feeders, underground cables, and pit and duct infrastructure supply the Bowen Hills area.

SSVPK was rebuilt in 2014 with two transformers, each rated at 60 MA, and provision for 36 × 11 kV feeders. There is provision for a future third transformer and a total of 60 × 11 kV feeders. The supply area is classified as fringe CBD. Some customers are supplied by three-feeder mesh networks, while the majority are supplied by radial feeders.

The section proposed for new conduits in Bowen Hills contains a mixture of direct-buried 11 kV cables, including cables installed before the 1970s. Existing cable types include 0.12 square inch cables paralleled to form a feeder, 0.25 square inch cables, and 185 and 300 square millimetre PLYHDPE cables. The pit and duct system includes asbestos concrete/cement ducts installed from the 1960s to the 1980s and 100 mm conduits installed in the 1980s. There are no suitable spare conduits in the section where the new conduits are proposed. The lack of conduits prevents the connection of new customer loads in that area. Additionally, the failure of an existing cable presents a risk because restoration without spare conduits can take longer and cost more, especially where significant civil excavation is required.

1.2 Forecast

The loads, load profiles and load durations for individual customers are commercial in confidence. However, **Table 1** shows the approximate loads forecast without identifying specific customers, using publicly available information and comparisons with similar developments and loads elsewhere on the Energex network. The timing of some of these developments is unknown; however, it is expected that the first five developments on the list will be connected to the Energex network by mid-2029. Additional developments not on the list will almost certainly take place. Conduits are needed to connect the immediate developments that Energex is currently working on with customers. They will also provide a path for future customer connections well into the future as part of ongoing development associated with the Bowen Hills PDA.

Site Location	Estimated Approximate Load	Type
O'Connell Tce	3MVA	Residential
O'Connell Tce	4MVA	Residential
O'Connell Tce	1.5MVA	Residential
O'Connell Tce	2MVA	Residential
O'Connell Tce	1.5 MVA	Mixed Use
Gregory Tce	2MVA	Residential
Gregory Tce	1.2MVA	Residential
Anderson St	1MVA	Residential
Baxter	1MVA	Residential
St Pauls Tce	1MVA	Residential
K2 & K3 (RNA)	2MVA	Office
Brookes St	2MVA	Hotel
Campbell	1MVA	Residential
Campbell	1.5MVA	Residential
Mayne Rd	5MVA	Residential
Wren St	1MVA	Residential
O'Connell Tce	0.8MVA	Residential
Total	**31.5MVA**	

Table 1 Projected loads based on known proposed developments

1.3 Other Characteristics of the Identified Need

Energex has considered the following additional characteristics of the identified need and determined that they are not applicable in this circumstance:

- Size of load reduction and additional supply;
- Contribution to power system security or reliability
- Contribution to power system fault levels; and
- Operating profile.

2 IDENTIFIED NEED

2.1 Reliability Corrective Action

Significant development is planned in Bowen Hills including the redevelopment of the Brisbane RNA showgrounds, part of which will become the Brisbane Olympic and Paralympic Games Athletes' Village.

The Brisbane Athletes' Village will house more than 10,000 athletes and team officials for the Olympics and more than 5,000 for the Paralympics. In addition to the $3.5 billion investment for the Athletes' Village, an additional $287 million is being invested to transform the showground precinct,

including a new Machinery Hill grandstand. Energex is currently processing applications to connect the multiple high-rise towers for the Athletes' Village.

In addition to the Athletes' Village, numerous high-rise and other developments are planned in the area, with many proposed developments having received development application approval. Projected upcoming load in the area based on current known developments is estimated at approximately 32MVA. Bowen Hills is a Queensland Government Priority Development Area (PDA) and amendments are currently being made to the PDA to fast-track more than 4,000 homes for thousands of Queenslanders, adding to the 23,000 already planned over the life of the PDA. This increase in housing opportunities complements the Queensland Government's broader investment in the Bowen Hills precinct. As part of the PDA amendments, building height restrictions will also be increased from 30 to 50 storeys. **Figure 3** details known proposed developments within the PDA area.

The identified need is reliability corrective action to ensure that Energex can continue to adhere to its regulatory obligations, under applicable regulatory instruments, to provide connectivity to customers. Energex is required to connect new customers and maintain the reliability of supply to these customers. To ensure that Energex can continue to meet these requirements, reliability corrective action is required by July 2027. If this does not occur, Energex estimates the probability of failing to adhere to its regulatory obligations would reach unacceptably high levels.

For example:

- Section 66 of the *National Energy Retail Law (Queensland)* requires that Energex must, subject to and in accordance with the energy laws, provide customer connection services for the premises of a customer:
  - who requests those services; and
  - whose premises are connected, or who is seeking to have those premises connected, to the distributor's distribution system.
- Clause 5.2.3(d) of the NER, which include the requirements that a Network Service Provider must:

  (1) Review and process applications to connect or modify a connection which are submitted to it and must enter into a connection agreement.

  (…)

  (6) Permit and participate in commissioning of facilities and equipment which are to be connected to its network in accordance with rule 5.8.

Therefore, Energex considers that investment in the Bowen Hills area is necessary.



Figure 3 Known proposed developments occurring within the Bowen Hills Priority Development Area (PDA)

3 POTENTIAL CREDIBLE OPTIONS

Energex has considered all options that could reasonably be classified as a credible option without bias to energy source, technology, ownership and whether it is a network option, a non-network option or a Stand-Alone Power System (SAPS) option.

Energex has not identified any viable non-network solutions that would provide a complete or a hybrid (combined network and non-network) solution to address the identified need. Further reasoning as to how Energex came to this determination is provided in Section 6 below.

3.1 Credible Options Identified

Energex has identified one credible network option that will address the identified need.

Option A: Install new conduits in Bowen Hills

This option involves installing a bank of 125 sq mm conduits approximately 600 m long (route length) in the Bowen Hills area to provide network connectivity and future capacity into the area. The works will also include installing new pits and upgrading existing pits. These conduits will allow new cables to be installed to progress existing customer applications and connect developments, including the

Brisbane 2032 athletes' village, to the network. They will also meet requirements for future development in the Bowen Hills priority development area.

It is noted that an option regarding project phasing was considered, however discounted as non-credible. Phasing would involve installing the minimum number of conduits for the one customer connecting in Mid-2027 and then installing additional conduits in approximately 2029 for other customers. Cutting up the same road twice in such a short period would most likely not be supported by council and would also be prohibitively expensive given most of the costs is associated with civil excavation. It also increases risk as additional customers may request connection immediately after installing the conduits for the single customer.

Option A involves the supply, design and installation of:

- 16 × 125 mm² conduits of approximately 600 m route length in the Bowen Hills area to provide network connectivity and future capacity into the area.
- several new pits and upgrades to existing pits as required.

This option is commercially and technically feasible, can be implemented in the timeframe identified and would address the identified need by facilitating increased customer connections in the Bowen Hills area.

The estimated capital cost of this option is $8.35 million. This includes financial costs incurred in constructing or providing the credible option and costs of complying with laws, regulations and applicable administrative requirements. Operating and maintenance costs over the operating life of the credible option are estimated at approximately $21,000 per annum. This estimate is likely to be on the higher end, as operation cost of conduits and associated pits is expected to be low with minimal and often no maintenance required over their expected life.

The estimated construction timetable is:

- Construction start: as soon as practical at the completion of the RIT-D process.
- Construction completion: 2027

Potential community and social licence considerations associated with this option are discussed in section 7 below. There are not expected to be social licence issues with this option. No additional costs to manage or increase the delivery timeline have been considered in the evaluation of this option.

4 QUANTIFICATION OF MARKET BENEFITS FOR EACH CREDIBLE OPTION

Energex has analysed the following classes of market benefits.

4.1 Changes in Voluntary Load Curtailment

There are no customers on voluntary load curtailment agreements in the study area that could help address the identified need, therefore, Energex has determined that there will be no material change in this class of market benefit for the credible option.

4.2 Changes in Involuntary load shedding and Customer Interruptions

Involuntary load shedding is where a customer's load is interrupted from the network without their agreement or prior warning. As the only credible option identified involves getting conduits into the ground to physically connect customers, involuntary load shedding and customer interruptions is not an applicable consideration that can address the identified need.

4.3 Changes in Costs for Other Parties

Energex has determined that there will be no material change in costs incurred by other parties due to the credible option.

4.4 Differences in the Timing of Expenditure

The potential credible option included in this RIT-D assessment is not expected to affect the timing of other distribution investments for unrelated identified needs. Energex has determined that there will be no material change in this class of market benefit for the credible option.

4.5 Changes in load transfer capacity and the capacity of distribution connected units to take up load

The credible option included in this RIT-D assessment will not directly increase the load transfer capacity in the Bowen Hills distribution network. Future projects and feeders created that use the conduits may, but that is not currently relevant to the credible option and this point, this cannot be accurately modelled or determined. It would be a consideration for future projects.

4.6 Additional Option Value

Energex has not identified any additional option value that would result in a material change in market benefit.

4.7 Changes in Electrical Energy Losses

Energex anticipates that the credible option included in the RIT-D assessment will not reduce electrical energy losses. Future projects that utilise these conduits may, but that is not something that can be modelled or predicted now.

4.8 Changes in Australia's Greenhouse Gas Emissions

As can be seen in Table 2 below, Energex has determined that the change in Australia's greenhouse gas emissions for the potential credible option does not result in a material change in market benefit.

Scope of emissions	Considerations for this DPAR
Direct emissions from generation in the NEM	Immaterial – Generation for the options considered does not materially change
Direct emissions in the NEM other than from generation	Immaterial – Direct emissions in the NEM do not materially change
Fugitive emissions from the extraction and transport of fuel	Immaterial – Fuel for the options considered does not materially change
Embodied emissions in construction materials for the project	Immaterial – Given the small footprint of the credible option, the embodied emissions in construction materials are not expected to result in a material change in market benefit
Embodied emissions in assets outside the project	Immaterial – Emissions outside of the project do not materially change
Emissions associated with losses	Immaterial - The estimated cost reduction in greenhouse gas emissions associated with losses is not material
Emissions in other sectors that change as a direct result of the project	Immaterial – Emissions in other sectors do not materially change

Table 2 Changes in Australia's Greenhouse Gas Emissions

5 NPV ANALYSIS OF EACH CREDIBLE OPTION

This section outlines the methodology applied in assessing the market benefits and costs associated with each potential credible option.

The RIT-D requires Energex to identify the credible options that maximises the present value of net economic benefit to all who produce, consume and transport electricity in the National Electricity Market. As there is only one credible option identified, a sensitivity analysis has not been performed to help rank and understand the risks associated with multiple potential credible options.

5.1 Overview of Analysis Framework

Energex has adopted a real, pre-tax discount rate of 3.69% as the central assumption for the Net Present Value (NPV) analysis, this aligns with the latest AER Final Decision for a Distribution Network Service Provider's (DNSP's) regulated weighted average cost of capital (WACC) at the time of preparing this FPAR.

5.2 Estimating the Costs of each Potential Credible Option

Energex uses a combination of comparative and standard cost estimating methodologies, underpinned by a bottom-up approach as the basis for the estimation process of individual projects, which provides the platform for the development of forecast capital and operating expenditure.

Standard cost estimation forms the basis of typical larger, lower volume high complexity type network projects. With this approach, the most common network configurations associated with transmission, sub-transmission and distribution project types or components are catered for, incorporating the experience and knowledge of agreed engineered standard ways of construction of network components. These cover a wide range of activities and are adjusted on application to cater for site specific identified requirements through a bottom-up quantification of project scope and application.

Comparative costing is used where a statistically significant historical sample size exists, whereby actual project or program costs are reconciled and assessed. This approach is used in determining the operating costs.

Energex has estimated the capital and operating costs which is inclusive of the following components:

- All material costs.
- All labour costs incurred in delivery of the project (e.g. planning, design, construction, commissioning, network operations, and project management).
- All contractor costs incurred.
- Ancillary cost such as location allowances and environmental offsets.

5.3 NPV Results

An overview of the initial capital cost and NPV results are provided in Table 3.

Option	Option Name	Rank	Initial Capital Cost	Net Economic Benefit ($ real)	PV of Capex ($ real)	PV of Opex ($ real)
A	Install the 11 kV cables, Establish C&I Substation, Install conduits and pits, etc	1	$8,350,000	-$8,798,000	-$8,350,000	-$448,000

Table 3 Base case NPV ranking table

It is noted that if a failure of an existing direct buried cable occurs, having conduits in place will allow a faster restoration of supply, however this benefit is expected to be immaterial when considered against the cost and will not alter the selection of the preferred option and hence has not been included in the NPV analysis

6 PREFERRED OPTION

Option A is the only option identified and is the preferred option, and it satisfies the RIT-D.

The proponent for this option is Energex.

This statement is made on the basis of the analysis set out in this FPAR. The preferred option is the credible option that has the highest net economic benefit under the most likely reasonable scenario.

7 SOCIAL LICENCE AND COMMUNITY ENGAGEMENT

7.1 Social Licence

Energex has not identified any social licence considerations that have affected the identification and selection of credible options to address the identified need. The scope of works involves installing approximately 600m of conduits in the Bowen Hills area. The works will also include installing new pits and upgrading existing pits. While there is expected to be some disruption in the area, this will be minimised by doing works outside of busy hours (night works) and undertaking as much work as possible whilst the Story Bridge is closed and traffic is reduced. Works will also be conducted based on agreement with council and compliance with any relevant council conditions. Construction and other infrastructure work in the Bowen Hills area is necessary to facilitate development for, amongst other things, the Brisbane 2032 Olympic and Paralympic Games. Residents and businesses in this area would be aware that ongoing works are planned. Given this, there are not expected to be any specific social licence issues specifically associated with this project.

7.2 Community Engagement

Community segments in the Bowen Hills area include:

- Apartment residents and body corporate committees.
- Property developers and commercial property owners.
- Healthcare institutions and workers.
- Small businesses in hospitality and retail.
- Office-based professional workers.
- Event and entertainment operators associated with the RNA Showgrounds.
- Public transport users, given the area's heavy reliance on rail, bus and active transport

As above, we have not identified any community stakeholders who might reasonably be expected to be affected by the development of this specific project. Ongoing construction and infrastructure

works are planned in the area, and the community would be aware of this. While Energex does not anticipate any community stakeholder concerns, should any be identified, these would be addressed as part of the Energex Community Engagement Framework which is integrated into the project workflow.

8 QUERIES IN RELATION TO THIS REPORT

For any queries in relation to this FPAR, please contact:

E: demandmanagement@energex.com.au
P: 13 12 53

9 COMPLIANCE STATEMENT

This FPAR complies with the requirements of clause 5.17.4(r) of the NER as demonstrated below:

Requirement	Report Section
(1) a description of the identified need for investment;	2
(2) the assumptions used in identifying the identified need (including, in the case of proposed reliability corrective action, why the RIT-D proponent considers reliability corrective action is necessary;	1 and 2
(3) if applicable, a summary of, and commentary on, the submissions received on the Draft Project Assessment Report;	3
(4) a description of each credible option assessed	4
(5) where a *Distribution Network Service Provider* has quantified market benefits in accordance with clause 5.17.1(d), a quantification of each applicable market benefit of each credible option	5 and 6
(6) a quantification of each applicable cost for each credible option, including a breakdown of operating and capital expenditure	4
(7) a detailed description of the methodologies used in quantifying each class of costs or market benefit	5
(8) where relevant, the reasons why the RIT-D proponent has determined that a class or classes of market benefits or costs do not apply to a credible option	5
(9) the results of a NPV analysis of each credible option and accompanying explanatory statements regarding the results	6
(10) the identification of the proposed preferred option	6 and 7
(11) for the proposed preferred option, the RIT-D proponent must provide: (i) details of the technical characteristics; (ii) the estimated construction timetable and commissioning date (where relevant); (iii) the indicative capital and operating costs (where relevant); (iv) a statement and accompanying analysis that the proposed preferred option satisfied the RIT-D; and (v) if the proposed preferred option is for reliability corrective action and that option has a proponent, the name of the proponent	 1 4 4 7 N/A
(12) contact details for a suitably qualified staff member of the RIT-D proponent to whom queries on the FPAR may be directed.	9

10 APPENDIX A – THE RIT-D PROCESS

