Regulatory Test - Request for Information

Emerging Distribution Network Limitations in the Stanthorpe Area

13 November 2013

Ergon Energy Corporation Limited

TABLE OF CONTENTS

EXECUTIVE SUMMARY

Ergon Energy Corporation Limited (Ergon Energy) is responsible (under its Distribution Authority) for electricity supply to the Stanthorpe area in southern Queensland. We have identified emerging limitations in the electricity distribution network supplying the Stanthorpe area. The loads on Ergon Energy's subtransmission network in the Stanthorpe area have progressively increased such that augmentation is required if reliable supply is to be maintained.

The Stanthorpe area is presently supplied by the Pozieres 33/11kV and Stanthorpe Town 33/11kV substations. These substations are supplied from Stanthorpe Bulk Supply 110/33kV, which is fed via a single overhead feeder from Warwick T058 110/33kV. This feeder has a capacity of 24.4MVA. If this line is out of service, up to 7MVA of load in the Stanthorpe area can be supplied by the 33kV network at the present time.

The combined load of Stanthorpe Town and Pozieres substation is 13.1MVA. In case of an outage on the Warwick-Stanthorpe line, only 7MVA of load can be supplied, leaving some energy unserved.

To minimise the energy at risk for the Stanthorpe area Ergon Energy needs an additional minimum of 4MVA capacity at 11kV to be provided to this area during contingency periods. This size has been matched to expected load requirements within Ergon Energy's typical 10 year planning horizon.

In order to ensure that energy at risk in the Stanthorpe area is minimised, initial corrective action will be required to be completed prior to the summer of 2014/15. A decision about the selected option is required by 30 June 2014 if any option involving significant construction is to be completed by 1 November 2014.

This is a Request for Information where Ergon Energy is seeking information about possible solutions to the emerging limitations which may be able to be provided by parties other than Ergon Energy.

Submissions in writing (electronic preferably) are due by 23 January **2014** and should be lodged to:

Attention: Network Planning and Strategy

Email: regulatory.tests@ergon.com.au

Updated information will be provided on our web site:

http://www.ergon.com.au/community--and--our-network/network-management-and-projects/regulatory-test-consultations

For further information and inquiries please submit to the email address above.

1. INTRODUCTION

Ergon Energy has identified emerging limitations in the electricity distribution network supplying Stanthorpe area of southern Queensland.

This is a Request for Information where Ergon Energy is seeking information about possible solutions to the emerging limitations which may be able to be provided by parties other than Ergon Energy.

Submissions in writing (electronic preferred) are due by **23 January 2014** and should be lodged to:

Attention: Network Planning and Strategy

Email: regulatory.tests@ergon.com.au

A decision is required by 30 June 2014 if the initial stage of any option involving significant construction is to be completed by 1 November 2014.

Updated information will be provided on our web site:

http://www.ergon.com.au/community--and--our-network/network-management-and-projects/regulatory-test-consultations

2. BACKGROUND & PURPOSE FOR THIS REQUEST FOR INFORMATION

2.1. Background

If technical limits of the distribution system will be exceeded and the rectification options are likely to exceed $10M, Ergon Energy is required under the National Electricity Rules (NER)[1] to notify affected Registered Participants[2], AEMO and Interested Parties[3] within the time required for corrective action and meet the following regulatory requirements:

- Consult with affected Registered Participants, AEMO and Interested Parties regarding possible solutions that may include local generation, demand side management and market network service provider options[4].
- Demonstrate proper consideration of various scenarios, including reasonable forecasts of electricity demand, efficient operating costs, avoidable costs, costs of ancillary services and the ability of alternative options to satisfy emerging network limitations under these scenarios.
- Ensure the recommended solution meets reliability requirements while minimising the present value of costs when compared to alternative solutions[5].

Ergon Energy is responsible for electricity supply to the Stanthorpe area (under its Distribution Authority) and has identified emerging limitations in the electricity network supplying Stanthorpe. The load on Ergon Energy's subtransmission supply network has progressively increased such that augmentation is required if reliable supply is to be maintained.

2.2. Purpose of this "Request for Information"

The purpose of this Request for Information is to:

- Provide information about the existing distribution network in the Stanthorpe area.
- Provide information about emerging distribution network limitations and the expected time by which action must be taken to maintain the reliability of the distribution system.
- Provide information about the criteria that solutions to be provided by parties other than Ergon Energy must meet.
- Explain the process (including approach and assumptions) to be used to evaluate alternative solutions, including distribution options that are currently being investigated by Ergon Energy.

2.3. History

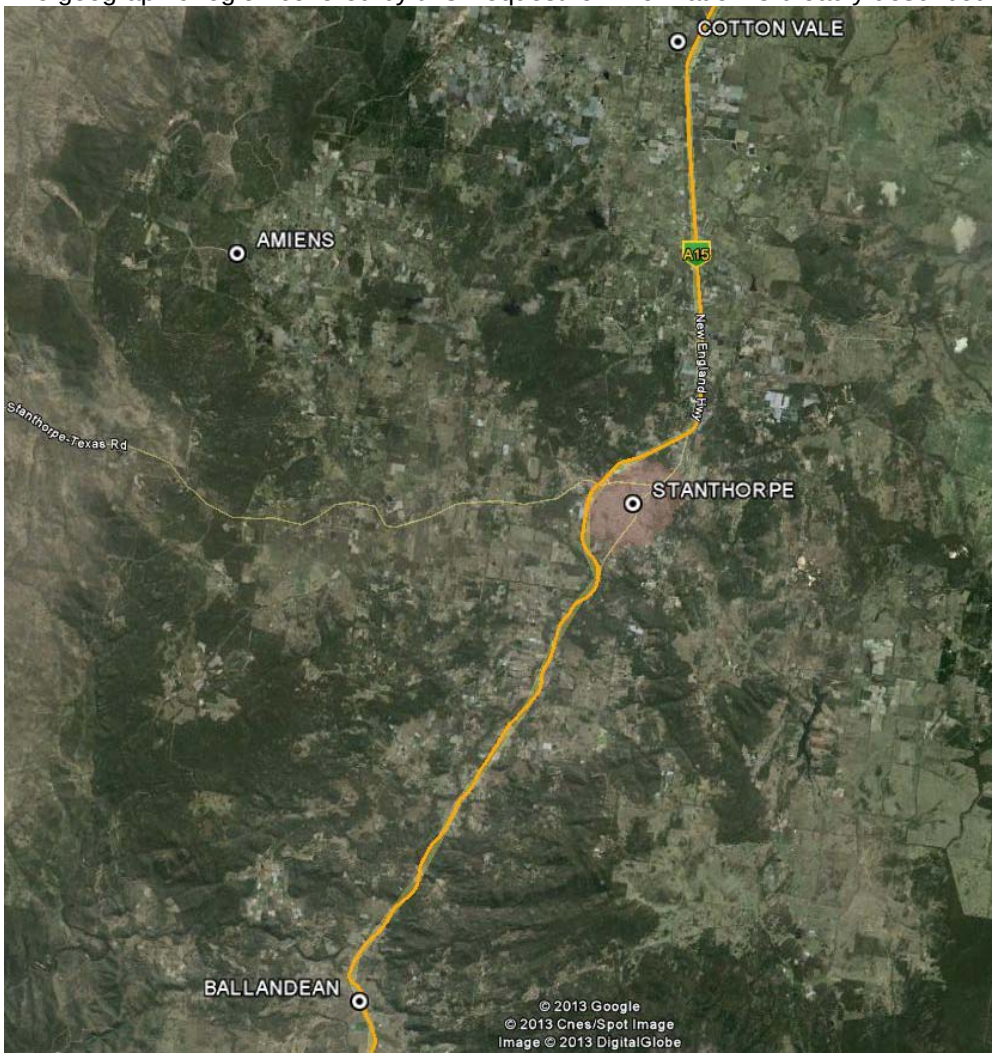
A regulatory test was originally conducted in 2010 to look at measures to defer construction of an additional 110kV line from Warwick T58 to Stanthorpe T60. Since that time, demand in the Stanthorpe area has plateaued, and it has been decided that it is appropriate to seek further proposals from the community.

[1] Clause 5.6.2(f)
[2] As defined in the NER
[3] As defined in the NER
[4] NER, clause 5.6.2(f)
[5] In accordance with the Australian Energy Regulator's Regulatory Test Version 3, November 2007

3. EXISTING SUPPLY SYSTEM TO THE STANTHORPE AREA

3.1. Geographic Region

The geographic region covered by this Request for Information is broadly described as the Stanthorpe area as shown on the map below.



3.2. Existing Supply System

Stanthorpe T60 Bulk Supply substation is supplied via a single 110kV line from Warwick T58 Bulk Supply. From here, supply is distributed to the Stanthorpe area.

Stanthorpe, Ballandean, and the surrounding area 11kV customers are supplied by Ergon Energy's Stanthorpe Town and Pozieres 33/11kV substations. These substations are supplied from the 110/33kV transformers at Stanthorpe T60 Bulk Supply substation. Stanthorpe T60 is supplied via one overhead 110kV line from Warwick T58 Bulk Supply. As a back-up, the 33kV system from Warwick can supply 7MVA of load.

The load on Stanthorpe T60 Bulk Supply Substation 110/33kV substation reached 13.1 MVA during 2012/13. As a consequence, if the 110kV line supplying Stanthorpe T60 undergoes a contingency, only 7MVA of the Pozieres/Stanthorpe Town load can be supplied, resulting in lost energy.

4. EMERGING DISTRIBUTION NETWORK LIMITATIONS

A load history and forecast for the Stanthorpe customer load is shown in Table 2 below.

TABLE 2 – Supply Substation Load History & Forecast

Substation	Maximum Annual Demand (MVA)											
	Actual Load		Forecast Load									
	11/12	12/13	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23
ME02 Stanthorpe Town ZS	**11.5**	**12.0**	***12.1***	***12.2***	***12.3***	***12.4***	***12.1***	***12.1***	***11.8***	***12.0***	***11.9***	***12.0***
ME117 Pozieres ZS	**3.8**	**3.9**	***3.8***	***3.8***	***3.9***	***3.9***	***3.8***	***3.8***	***3.7***	***3.8***	***3.7***	***3.8***
T60 Stanthorpe BSS	**14.0**	**13.1**	***13.6***	***13.6***	***13.7***	***13.9***	***13.5***	***13.5***	***13.2***	***13.4***	***13.3***	***13.4***

It is clear from the load data in Table 2 that:-

- The load on the Stanthorpe network exceeds the limit of the 7MVA which can be supplied by the 33kV network at the present time.

4.1. Timeframes for Taking Corrective Action

In order to minimise the possibility of lost energy to customers in the Stanthorpe area complies with Ergon Energy's energy at risk guidelines, corrective action should be completed before summer 2014/15.

A decision about the selected option is required by 30 June 2014 with a preferred commissioning completed by 1 November 2014. Ergon Energy will consider compelling projects that will be commissioned by 1 October 2015.

4.2. Known Future Network and Generation Development

(i.e. projects that have been approved and are firm to proceed)

Ergon Energy has assessed the market for generation opportunities concluding that there are some customer owned assets and other conceptual projects that could contribute to the non-network solution.

5. INFORMATION ABOUT CRITERIA THAT SOLUTIONS MUST MEET

It is essential that corrective action be taken prior to summer 2014/15 to maintain a reliable electricity supply to the Stanthorpe area. This may involve network augmentation or the implementation of local generation or demand side management options which reduce, delay or remove the need for new network investment.

This Request for Information, and subsequent consultation, provides an opportunity for alternative solutions to be submitted for consideration. The information provided in this document is intended to enable affected Registered Participants, AEMO and Interested Parties to formulate and propose feasible local generation and demand side management solutions.

Ergon Energy has identified the following criteria; to assist solution providers understand the technical and other requirements. These criteria must be satisfied if solutions are to compensate or rectify the emerging technical limitations of the distribution network.

As a distribution network service provider (DNSP), Ergon Energy must comply with technical standards in the NER. In particular, requirements relating to reliability and system security contained in Schedule 5.1 of the NER are relevant to planning for future electricity needs.

Amongst other things, Schedule 5.1 requires that:

- the frequency variations are within the limits described in S5.1.3;
- voltage fluctuations do not exceed limits set out in S5.1.5;
- voltage harmonic & notching distortion do not exceed limits set out in S5.1.6;
- voltage unbalance does not exceed limits set out in S5.1.7;
- the power system can operate in a stable state as defined in S5.1.8;
- faults can be cleared in times specified in S5.1.9;
- load control is in place in accordance with S5.1.10;
- automatic reclosure requirements are met, S5.1.11; and
- AEMO be advised of current ratings as required in S5.1.12. AEMO has a related obligation (4.3.1 (f)) to operate the power system within all plant capabilities.

Schedule 5.1 also includes details of credible contingencies and levels of redundancy to be considered in planning and operating the distribution network, such as:

- 'System Normal': the absolute minimum level of reliability required. Defined as the ability to supply all load with all elements of the electricity system intact (i.e. loss of supply would occur during a single fault or contingency),
- 'N-1': able to meet peak load with the worst *single* credible fault or contingency,
- 'N-2': able to supply all peak load during a *double* contingency.

Ergon Energy has certain obligations to comply with technical standards under the NER and its Distribution Authority (and subsidiary instruments). These obligations must be taken into consideration when choosing a suitable solution for the Stanthorpe network technical limitations discussed in this Request for Information.

5.1. Size

To minimise lost energy in the Stanthorpe area, Ergon Energy needs an additional minimum of 4MVA capacity at 11kV to be provided to this area. This size has been matched to the expected load requirements within Ergon Energy's typical 10 year planning horizon. The additional capacity could be call off load, call on standby generation, or continuous generation that removes up to 4MVA from the 11kV connection point as per the times stipulated in Section 5.3 Demand Response.

To enhance the proposals opportunities Ergon Energy is seeking solutions that meet all or part there of the 4MVA.

5.2. Type

An additional 4MVA of capacity is sought to mitigate the energy unserved in the case of an outage on the Warwick – Stanthorpe line at peak load times. This is anticipated to take the form of;

- Power factor correction (correction of power factor at customer site to in excess of the minimum required by their connection agreement)
- Demand management (reduction of demand at the customer site, through measures such as (but not limited to) more efficient lighting, improved cool room insulation, efficient air conditioning)
- Demand response (call-off load or generation, either export or parallel, depending on the robustness of the network at the customer site)

5.3. Demand Response

Energy is at risk in the system during the following times:

Peak Time of Day	07:00-08:00, 11:00-13:00, 17:00-20:00
Shoulder Times of Day	06:00-21:00
Days of Week	All days
Time of Year	Nov-Feb, Jun-Aug

To enhance the proposals opportunities Ergon Energy is seeking demand response (i.e. generation or call off load) solutions that provide prices for 3, 5 or 10 year contracts and/or proponents nominated time period.

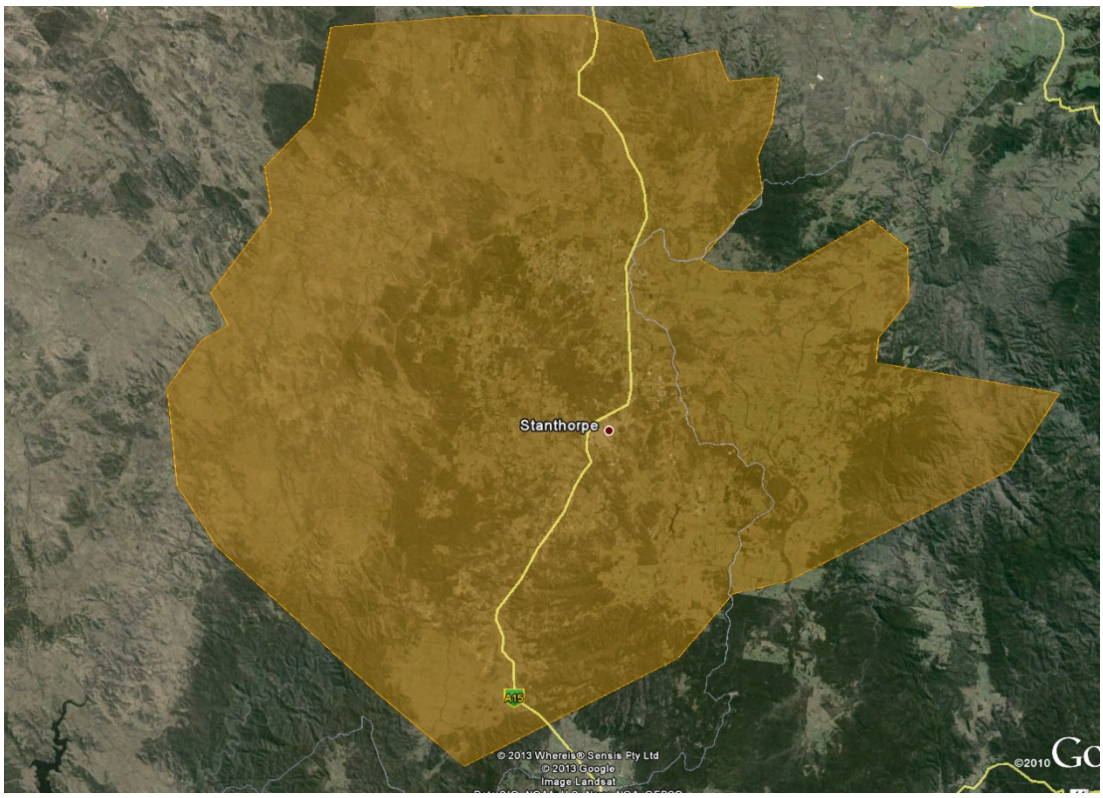
A run time of minimum 20 hours per annum is anticipated, consisting of two events of up to ten hours. Expected response time will be within thirty minutes of a call.

5.4. Timing

Preferred commissioning completed by 1 November 2014. Ergon Energy will consider compelling projects that will be commissioned by 1 October 2015.

5.5. Location

Additional 11kV capacity is to be delivered to the approximate load centres of the Stanthorpe Ballandean areas as defined by the following map, as supplied by the Stanthorpe Town and Pozieres Substation. Connection of generation is contingent on the strength of the applicable network, and may not be possible in all locations.



5.6. Quality

Proposed solutions must comply with the relevant standards in the NER and furthermore, must not inhibit Ergon Energy's ability to meet its obligations under the NER and other statutory instruments.

Altering a connection applies to customers with existing electricity supply. Your connection may need to be altered if you are installing new equipment. Please contact your electrical contractor who will advise if your connection needs to be upgraded. You must meet your network connection agreement obligations to be eligible to apply for the non-network alternate solutions.

5.7. Reliability

The National Electricity Rules' Schedule 5.1 includes details of credible contingencies and levels of redundancy to be considered in planning and operating the distribution network, such as:

- 'System Normal': the absolute minimum level of reliability required. Defined as the ability to supply all load with all elements of the electricity system intact (i.e. loss of supply would occur during a single fault or contingency),
- 'N-1': able to meet peak load with the worst single credible fault or contingency
- 'N-2': able to supply all peak load during a double contingency.

5.8. Longevity

Options must be capable of providing solutions to the projected limitation in the Stanthorpe area for the number of years contracted. A suitable solution may be contracted for up to ten years.

6. EVALUATION PROCESS

6.1. Evaluation Criteria

The Australian Energy Regulator's (AER) Regulatory Test[6] and Chapter 6[7] of the NER mandates the evaluation criteria and requires Ergon Energy to consider demand side management, generation and market network service provider options on an equal footing. The Regulatory Test also specifies the assessment methodology to be used:

> "An option satisfies the regulatory test if:
>
> > In the event the option is necessitated principally by the inability to meet the service standards linked to the technical requirements of Schedule 5.1 of the NER or in applicable regulatory instruments – **the option minimises the costs of meeting those requirements, compared with alternative option/s in a majority of reasonable scenarios**."[8]

An augmentation proposed to meet minimum network performance requirements of Schedule 5.1 of the NER, or other statutory requirements including the Queensland requirements described in Ergon Energy's Network Management Plan[9], is referred to as a 'reliability augmentation'.

This means that the assessment of solutions will be based on minimising the present value of costs while meeting minimum network performance requirements.

A public process is required which includes disclosure of project costs and comparison of alternatives. It is important that all feasible options proposed are considered in the process.

If a non-network option satisfies technical requirements, and can be implemented for a lower cost than a distribution augmentation in the required timeframe, it will be necessary for Ergon Energy to enter into a network support agreement with the proponents of the alternative project to ensure supply quality and reliability can be maintained.

Since regulated funding (collected via Ergon Energy's network charges) will be required, it is necessary that network support arrangements satisfy the Regulatory Test in terms of both economics and disclosure of relevant costs to the market.

6.2. Submissions from Solution Providers

This is not a tender process. Submissions are requested so that Ergon Energy can meet its regulatory obligations to compare the present value cost of alternatives against options of augmenting a distribution supply system to maintain reliability of supply.

Ergon Energy will not be legally bound in any way or otherwise obligated to any person who may receive this Request for Information or to any person who may submit a proposal. At no time will Ergon Energy be liable for any costs incurred by a proponent in the assessment of this Request for Information, any site visits, obtainment of further information from Ergon Energy or the preparation by a proponent of a proposal to this Request for Information.

Ergon Energy may seek clarification of details from the proponent of a proposed option provided this does not materially alter the proposal.

If you propose a solution, it should contain the following information:

- Details of the party making the submission (or proposing the solution);
- Details of the party responsible for the providing the solution (if different to the proponent);
- An explanation of the relevance of the proposal and/or options presented;

[6] AER's Regulatory Test Version 3, November 2007.

[7] Version 59, Clause 6.6.3

[8] Emphasis added by Ergon Energy

[9] Ergon Energy's Network Management plan is available on its website - http://www.ergon.com.au/community--and--our-network/network-management/network-management-plan

- Technical details of the project (capacity, reliability, availability, proposed connection point if relevant etc) to allow an assessment of the likely impact on supply capability;
- If applicable to the solution being offered:
  - the size, type and location of load(s) that can be reduced, shifted, substituted or interrupted
  - the size, type and location of generators that can be installed or utilised if required;
  - the type and location of action or technology proposed to reduce peak demand/provide electricity system support;
- Sufficient information to allow the costs of the solution to be incorporated in a cost effectiveness comparison in accordance with AER's Regulatory Test;
- Information about the impact on the proposal if electricity demand were to be 10% above/below Ergon Energy's forecasts.
- An assessment of the ability of the proposed solution to meet the technical requirements of the NER;
- Timing for availability of the option, and whether it is a committed project[10];
- The level of payment required to fund the proposal (initial payment, availability payment, dispatch payment etc) in both $s and/or $/kVA and/or $/kWh;
- Other material that would be relevant in the assessment of the proposed solution.

Submissions to this "Request for Information' will need to be described in the consultation process and will be made public. As such, any commercially sensitive material, or material that the party making the submission does not want to be made public, should be clearly identified.

It should be noted that Ergon Energy is required to publish the outcomes of the Regulatory Test analysis. If solution providers elect not to provide specific project cost data for commercial-in-confidence reasons, Ergon Energy may rely on cost estimates from independent specialist sources.

6.3. Timetable for Submissions

Submissions in writing are due by 23 January 2014 and should be lodged to:

Attention: Network Planning and Strategy

Email: regulatory.tests@ergon.com.au

[10] As defined in the AER's Regulatory Test

6.4. Assessment and Decision Timetable

Ergon Energy intends to carry out the following process to assess what action should be taken to address the identified distribution network limitations:

Step 1	Request for (initial) Information (i.e. **this Request for Information**).	Date Released: **14/11/13**
Step 2	Submissions in response to the Request for Information.	Due Date: **23/01/14**
Step 3	Review and analysis by Ergon Energy. This is likely to involve further consultation with proponents and additional data may be requested.	Anticipated to be completed by: **06/02/14**
Step 4	Release of Ergon Energy's Consultation Paper and Draft Recommendation of solution which satisfies the Regulatory Test.	Anticipated to be released by: **27/02/14**
Step 5	Submissions in response to the Consultation Paper & Draft Recommendation.	Due Date: **27/03/14**
Step 6	Release of Final Recommendation (including summary of submissions received).	Anticipated to be released by: **10/04/13**
Ergon Energy reserves the right to revise this timetable at any time. The revised timetable will be made available on the Ergon Energy website.		

Ergon Energy will use its reasonable endeavours to maintain the consultation program listed above. However this program may alter due to changing power system conditions or other circumstances beyond the control of Ergon Energy. Updated information will be made available on our website: http://www.ergon.com.au/community--and--our-network/network-management-and-projects/regulatory-test-consultations.

The consultation timetable is driven by the need to make a decision by 30 June 2014 if any option involving significant construction is to be in place by 1 November 2014.

At the conclusion of the consultation process, Ergon Energy intends to take steps to progress the recommended solution to ensure system reliability is maintained.