

# Standard

00982

Version: 4 | Released: 19/04/2016



positive energy

---

## SUBDIVISION STANDARDS - DEVELOPER DESIGN AND CONSTRUCT ESTATES

---

### Foreword

This Standard provides information for Developers of Urban Residential Development (URD) Subdivisions and Commercial and Industrial Developments on the policies, conditions and processes to follow for the connection of the development to the ENERGEX network.

# Standard

00982

Version: 4 | Released: 19/04/2016



positive energy

## SUBDIVISION STANDARDS - DEVELOPER DESIGN AND CONSTRUCT ESTATES

### Contents

Foreword .....	1
Contents .....	2
2. Referenced Documents ACTS, Standards, Codes & Manuals .....	4
3. Scope .....	5
4. Object .....	5
5. Other.....	5
5.1. SWP47.1 Designs and Concept Plans .....	5
5.2. Fees and Charges .....	6
5.3. Clearances, Vegetation Clearing and Liaisons with Other Authorities .....	7
5.4. Small Lot Fast Track Process.....	7
5.6. Non-contestable Work.....	8
5.7. Electricity works on ENERGEX easements.....	8
5.8. Design Documentation to be submitted to ENERGEX .....	8
5.9. Certificate for Electricity Supply .....	8
5.10. Easement Requirements .....	8
5.11. Padmount Transformer Site Requirements.....	9
6. Residential Developments .....	9
6.1. General Design Parameters for Subdivisions .....	9
6.2. Underground and Overhead Materials and Construction Guidelines .....	10
6.2.1. Underground.....	10
6.2.2. Overhead .....	10
6.3. 11 kV Isolation Requirements.....	11
6.4. Easements and Wayleaves .....	11
6.4.1. Easements:.....	11
6.4.2. Wayleaves:.....	12
6.5. Earthing Requirements .....	12
6.6. Current ENERGEX Replacement Program .....	12
7. Community Title Schemes – URD Networks .....	12
8. Commercial & Industrial .....	13
8.1. General Design Parameters.....	13
9. Bond – Subdivision Electricity Supply Agreement.....	14
10. Materials Lists Requirements .....	14
11. Planned Outage Standard .....	14
11.1. Standard Fees & Charges.....	15
11.2. Outage Guidelines.....	16
11.3. Live Line.....	16
11.4. Live Line Fee Calculation Sheet.....	17

# Standard

00982

Version: 4 | Released: 19/04/2016



positive energy

---

## SUBDIVISION STANDARDS - DEVELOPER DESIGN AND CONSTRUCT ESTATES

---

12.	Transformer Equalisation Scheme – (Implementation 1 July 2009).....	18
12.1.	Standards Used for the Calculation of the TES .....	19
13.	Implementation, Amnesty Period & Amnesty Sunset Clauses.....	19
15.	Enquiries Regarding This Document / Further Information.....	20
16.	Attachments.....	20
16.1.	E1 - Where an easement is required through Freehold & Crown Land (Reserves, Parks, etc) .....	20
16.2.	P1 - Where a Pad-mount Transformer Site is required.....	21
APPENDIX	TRANSFORMER EQUALISATION SCHEME.....	22
17.	Definitions For This Document .....	26
18.	Changes From Previous Version .....	27

# Standard

00982

Version: 4 | Released: 19/04/2016



positive energy

---

## SUBDIVISION STANDARDS - DEVELOPER DESIGN AND CONSTRUCT ESTATES

---

### 2. Referenced Documents ACTS, Standards, Codes & Manuals

All designs and drawings must comply with the following Acts, Standards, Codes & Manuals:

- SWP1.6 - Development of Vegetation Management Plans for Overhead Transmission and Distribution Line Routes
- SWP 2 - Construction of the Underground Electricity Distribution System.
- SWP 12.1 - The Installation and Replacement of Low Voltage Overhead Service Lines
- SWP 23 - Installation of Conduits Using Underground Directional Boring
- SWP 25 - Construction of overhead mains (up to 33 kV)
- SWP 31 - Operating The High Voltage and Low Voltage Distribution Networks
- SWP 34.2 -Testing of Earthing Systems
- SWP 34.3 -Installation and Maintenance of Earthing Systems
- SWP 37 - Supply and Installation of Rate 2 Lighting Poles and Luminaries
- SWP 47.1 - Consultancy Services for Design of Estates
- SWP 47.3 - Design of Rate 2 Public Lighting Installations
- SWP 61 - Civil Works for Underground Distribution Networks
- ENERGEX Public Lighting Construction Manual
- ENERGEX Public Lighting Policy Manual
- Electricity Act & Regulations 1994
- Work Health & Safety Act 2011 & Regulations 2011
- Environmental Protection Act 1994
- Transport Operations (Road Use Management) Act 1995
- Transport infrastructure Act 1994
- Manual of Uniform Traffic Control Devices (MUTCD), Part 3 Works on Roads, 2001
- Electricity Safety Act and Regulation 2002
- Code of Practice - Electrical Work - "Electrical Safety Act 2002"
- Code of Practice - Working Near Exposed Live Parts - Electrical Safety Act 2002
- Code of Practice – Works (Protective Earthing, Underground Cable Systems and Maintenance of Supporting Structures for Powerlines) –
- Electrical Safety Act 2002
- AS 1158 Public Road Lighting Standard
- ENERGEX Overhead Design Manual
- ENERGEX Overhead Construction Manual
- ENERGEX Underground Distribution Construction Policy
- ENERGEX Underground Distribution Construction (UDC) Standard
- ENERGEX "As Constructed" Drawing Standard
- ENERGEX Conditions of Supply and Metering of Consumer's Installations
- ENERGEX Supply & Planning Manual
- ENERGEX Network Labelling and Signage Manual
- ENERGEX Works Plan Standard
- ENERGEX Quality Assurance Requirements for Suppliers of Services
- ENERGEX Standard Network Building Blocks
- Power Coordination Guidelines with Telstra Plant

# Standard

00982

Version: 4 | Released: 19/04/2016



---

## SUBDIVISION STANDARDS - DEVELOPER DESIGN AND CONSTRUCT ESTATES

---

### 3. Scope

This Standard has been developed to provide a useful tool to summarise ENERGEX policies and standards that relate to the design and construction of Subdivision's. It is to be used by ENERGEX accredited SWP47.1 consultants and the Subdivisions Department, in conjunction with ENERGEX's other Standards and Policies as documented in the BMS

### 4. Object

This Standard outlines the design requirements for developer design and construct Subdivision's. It provides references to all the applicable documentation that needs to be adhered to when designing. It highlights key aspects of the Subdivision process and ENERGEX Standard Network Building Blocks. This document introduces the Transformer Equalisation Scheme, providing examples on how it is applied the Subdivision's. The Transformer Equalisation Scheme (TES) is an initiative to share the costs for the provision of high voltage cables, high voltage switchgear and distribution substation transformers between Developers of URD subdivisions and subdivision stages. The scheme ensures that Developers only pay for the high voltage infrastructure that is required to suitably supply their subdivision or subdivision stage and are not responsible for the costs of HV infrastructure that other developments or ENERGEX could use.

### 5. Other

#### 5.1. SWP47.1 Designs and Concept Plans

All correspondence relating to a proposed subdivision must be specific in its intent & contain the ENERGEX project number. In addition all correspondence must contain the documentation as detailed in SWP47.1 - Appendix B Work Procedure.

The SWP47.1 rated electrical consultant is responsible for the provision of a compliant design and the SWP47.2 rated project supervisor is responsible for the construction of the electrical reticulation.

All SWP47.1 designs must be certified by an RPEQ prior to a Subdividers Electricity Supply Agreement being issued by ENERGEX.

SWP47.1 designs will be audited in accordance with the checklist incorporated in the SWP document. Projects will be selected on a random basis following the approval by ENERGEX of the Subdividers Electricity Supply Agreement. The number of projects audited will depend on the number of projects lodged in that month & the ENERGEX rating of the consultant.

ENERGEX will issue a Certificate for Electricity Supply only after the developer has executed a Subdividers Electricity Supply Agreement, made the required payments & lodged a guarantee bond. The bond will be returned after the construction is completed, all property/survey issues satisfied, and the Certificate of Acceptance issued.

Copies of ENERGEX's maps will be made available upon request, at the discretion of ENERGEX.

Concept Plans are not required to be submitted for every project; however a concept plan should be submitted for projects which meet the following guidelines:

# Standard

00982

Version: 4 | Released: 19/04/2016



positive energy

## SUBDIVISION STANDARDS - DEVELOPER DESIGN AND CONSTRUCT ESTATES

- multi-stage development
- large C&I development
- the site is within 1km of a proposed/existing substation
- 11kV planning issues require clarification
- 11kV Switching requires clarification
- there are environmental issues
- there are possible conflicts with adjacent subdivisions
- there are issues of equity regarding the installation of a transformer or
- there are any other specific issues that need to be resolved prior to detailed design.
- Complex TES calculations or where clarification is required on the TES policy.

Street lighting must comply with Local Authority Requirements and if designed to Australian Standard, the design must specify the category of lighting installed. An RPEQ must certify the lighting design. The works plan must include a note advising the lighting standard that has been used.

It is necessary to obtain design plan approval of the Local Authority and to construct in accordance with the final design plan for all service alignments. A copy of these approvals are to be forwarded to ENERGEX, prior to the Subdividers Electricity Supply Agreement being issued. Any changes to the alignment during construction are to be approved by the SWP47.1 electrical consultant/ENERGEX and the Local Authority.

The SWP47.1 electrical consultant is responsible for ensuring that the design is in accordance with the relevant ENERGEX Standards & Specifications and the SWP47.2 rated project supervisor is responsible for ensuring that all construction work is completed in accordance with the relevant ENERGEX Standards & Specifications

### 5.2. Fees and Charges

Design Lodgement Fee (GST Inclusive)

	A	B	C
Design submission 1-4 Lots (small lot process)	Nil	Nil	Nil
First design submission (1-4 Lots/Premises – outside small lot process)	Nil	\$165.00	\$275.00
First design submission (5 or more Lots/Premises)	Nil	\$330.00	\$550.00
Re-checking Fee (Optional charge for each subsequent checking)	\$220.00	\$220.00	\$220.00
Field Audit Fee (GST Inclusive)			
1 to 4 lots/premises – outside small lot process	\$137.50	\$275.00	\$550.00
5 or more lots/premises	\$275.00	\$550.00	\$1,100.00
Re-inspection fee	\$220.00		
Additional Materials request	\$88.00		
Late completion Fee: A late completion fee of \$11 per lot per fortnight will be applied if a certificate of completion is not lodged within 12 weeks of the nominated material/plant collection date			

Refer ENERGEX Standard Fees & Charges for further information.

# Standard

00982

Version: 4 | Released: 19/04/2016



positive energy

---

## SUBDIVISION STANDARDS - DEVELOPER DESIGN AND CONSTRUCT ESTATES

---

Live Line costs will be assessed in accordance with the attached "Live Line Activities for Subdivisions" calculation sheet (Section 8.4) and included in the Supply Agreement. It should be noted that a minimum charge will apply and is applicable to all works completed by Live Line in addition to those listed in the "Planned Outage Standard for Developer Design & Construct Estates". Any Live Line works, that are not associated with commissioning, can be carried out by an ENEREX accredited Live Line Service Provider rather than using ENEREX. A list of these Service Providers can be obtained from ENEREX Subdivision Department.

Switching/commissioning costs are to be in accordance with the attached "Planned Outage Standard for Developer Design & Construct Estates". Switching/Commissioning may be changed at ENEREX's discretion. This may result in the developer requiring to pay additional fees, or receiving a refund. A Switching Fee Calculation Sheet and a Live Line Fee Calculation Sheet (where applicable) are to be submitted with the package request for a Subdividers Electricity Supply Agreement

### **5.3. Clearances, Vegetation Clearing and Liaisons with Other Authorities**

Ground Clearance & Inter Circuit clearances are to be maintained to Statutory and ENEREX requirements. Existing issues are to be brought to ENEREX's attention prior to carrying out changes to the network.

For overhead constructions, the clearing and/or trimming of vegetation must comply with SWP1.6. Should assistance be required in meeting the requirements of SWP 1.6, the developer may take the option of hiring a Vegetation Consultant to survey the route and submit a tailored clearing plan.

For information with regard to 33kV and 110kV U/G cables it will be necessary for you to contact Queensland Call Before You Dig Service on phone 132 129.

Please advise Telstra and Optus as soon as possible if alteration to their plant is necessary. The developer is responsible for ensuring that proposed works maintain the minimum statutory height for Telstra & Optus cabling, including BBCC.

The developer is to ensure that EPR levels are maintained in accordance with the agreed clearances of earthed ENEREX plant to existing Telstra Plant, covered in the Power Coordination Guidelines

### **5.4. Small Lot Fast Track Process**

Small subdivision projects that are eligible to be fast tracked through the subdivision process are as follows:

- developments creating an additional 4 lots or less
- residential allotments only
- allotments developed for single dwellings only (ie. no units, townhouses, etc)
- low voltage works only
- final total circuit length of 250 m or less; or new circuit route length of 60m or less + a LV area that ties to a minimum of two existing transformer areas.
- minimum existing transformer size of 25 kV.A
- No design lodgement fees or switching fees required

## Standard

00982

Version: 4 | Released: 19/04/2016



---

### SUBDIVISION STANDARDS - DEVELOPER DESIGN AND CONSTRUCT ESTATES

---

#### **5.6. Non-contestable Work**

Non-contestable work which will be undertaken by ENEREX include:

- 33 kV underground
- 110/132 kV overhead and underground

33 kV Overhead works may be completed by the subdivision consultant as part of the reticulation, subject to approval of the design by ENEREX Network Asset Management Department. Approval is to be sought via the lodgement of a concept plan submitted to ENEREX Subdivisions Department.

#### **5.7. Electricity works on ENEREX easements**

Works on existing ENEREX easements are to be approved by ENEREX Property Department, prior to any works commencing within the easement. This includes both civil works & reticulation work associated with the development

#### **5.8. Design Documentation to be submitted to ENEREX**

The number of works plans required to be submitted to ENEREX are as follows (electronic copies not acceptable at this time):

- Design Lodgement - 2 Copies
- Master Works Plan - 1 Copy
- As Constructed Works Plan - 1 Copy

A material list in accordance with the ENEREX requirements is to be supplied on a separate A4 sheet.

#### **5.9. Certificate for Electricity Supply**

When your electrical reticulation plans have been accepted by ENEREX and approved by the relevant Government Departments/Local Authority, cost estimates will be prepared by ENEREX and a Subdivision Electricity Supply Agreement will be forwarded to you for signing and return to this office. Electrical reticulation construction work may commence following receipt by ENEREX of:

- all local authority approvals
- guarantee bond
- all contributions
- signed Subdivision Electricity Supply Agreement

The SWP47.2 Service Provider must have a copy of the ENEREX Certificate for Electricity Supply prior to commencing electrical works

#### **5.10. Easement Requirements**

Where electricity supply to the development involves electric line/cable crossing property, ENEREX may require an easement as security for these lines/cables. Please refer to Attachments E1 & E2 for the relevant procedure to be followed by the Developer.



# Standard

00982

Version: 4 | Released: 19/04/2016



positive energy

## SUBDIVISION STANDARDS - DEVELOPER DESIGN AND CONSTRUCT ESTATES

### 5.11. Padmount Transformer Site Requirements

Where a transformer site is required to be excised as roadway in accordance with ENERGEX's Underground Distribution Construction Manual, the procedure shown on Attachment P1 is to be followed by the Developer.

## 6. Residential Developments

### 6.1. General Design Parameters for Subdivisions

The following general design parameters apply:

- ADMD applicable:
  - Standard Residential Developments – 4.5kV.A, standard deviation - 50% of ADMD (ie.2.25kV.A), power factor - 0.97. ADMD to be adjusted to suit the development as per the Supply & Planning Manual & or applicable Standards Alerts.
- An ADMD of 7.0kV.A is to be used for Prestige Housing.
- ADMD of existing areas is to be in accordance with the ENERGEX Supply & Planning Manual & or applicable Standards Alerts. Designing to any ADMD other than the standard is to be approved by ENERGEX Subdivisions Department.
- Acceptable voltage drop of 11 V for both underground and overhead supply.
- Paralleling of LV underground cables is only permitted on the first segment from the transformer, between the LV isolator & the first pillar on that circuit. Both cables must terminate on the same LV isolator in the transformer and in the same LV pillar.
- Padmounted substation sites shall be recessed in the property alignment and shall be surveyed and dedicated as part of the road reservation

PADMOUNT TYPE	All Estates Clear Road Reserve (Width & Depth)
Square Type Common Earthing	4.8m x 5.0m for Flat Site & Sloping Site with retaining wall
Square Type Separate Earthing	12.6m x 8.9m

*For more information refer to ENERGEX Underground Distribution Construction Manual*

- For subdivisions containing several adjacent 'hatchet' blocks, ie lots without direct street frontage accessed via an easement, it may be necessary to provide two or more service pillars adjacent to each other, so that no more than two consumers are supplied from any one pillar. This provides for future load development, ie consumers upgrading from single phase to three phase supply. The first pillar would be of a standard type; additional pillars would be cross-road types. In such cases, it may be necessary for consumers' mains to be run a short distance within the road reserve so as to connect to the appropriate service pillar. A maximum distance of 2.0m is acceptable otherwise ENERGEX approval will be required on a per project basis. As a general guide consumers mains installed within the footpath must be double insulated, installed in a minimum 40mm heavy duty conduit, have a minimum of 600 cover & be protected by PVC cover strip.
- Where there is more than 1 lot hatchet block down an access easement, ENERGEX will require underground supply to made available. Joint use property poles are not acceptable.
- Where there is a building envelope plan in place for the Subdivision, ENERGEX require the nominated building pads to be shown on the works plan. Electrical reticulation is to be made available to the most practical location for the proposed lot.

# Standard

00982

Version: 4 | Released: 19/04/2016



positive energy

---

## SUBDIVISION STANDARDS - DEVELOPER DESIGN AND CONSTRUCT ESTATES

---

### 6.2. Underground and Overhead Materials and Construction Guidelines

#### 6.2.1. Underground

- Underground 11kV extensions to be 240 mm<sup>2</sup> Al. Triplex XLPE on through mains and 95 mm<sup>2</sup> Al. XLPE on transformer spurs (ENERGEX required to approve the use of 95 mm<sup>2</sup> Al XLPE cable). ENERGEX may request the use of 240 mm<sup>2</sup> Cu cable on installations in close proximity to an existing or proposed substation.
- All pit and duct installations require 11kV and LV cables with an earthed armoured protection to be used.
- Underground LV reticulation to be 240 mm<sup>2</sup> XLPE.
- LV ties between transformer areas are required. Refer to ENERGEX Supply and Planning manual.
- PVC protective strip to AS 4070 shall be installed above all direct laid cables, joints and conduits (where the conduits are outside the footpath electricity alignment of 0-900mm)
- All conduits, associated fittings and bends shall comply with the requirements of AS/NZS 2053 and all above ground runs shall be U.V stabilised.

#### 11kV feeders

- 125mm min LD orange PVC

#### LV feeders

- 80mm LD orange PVC – limited use for 3 pillar radials
- 100mm min LD orange PVC – standard use (for entry to 3 way pillars use 80mm bends and reducer if required)
- 40mm HD orange PVC (Streetlight circuits only).

#### Communications

- 100mm MD white, UPVC to AS/NZS 2053.1 and AS1345
- One ENERGEX communication conduit to be installed with any 11kV conduit configuration installed. Locations of conduit is contained in UDC Manual.
- Where directional boring techniques are applied, conduits utilised shall be non-pressure tested heavy-duty polyethylene conduit manufactured to AS 1159.

In areas reticulated with CONSAC cable, XLPE cable should not be connected to the CONSAC cable via transition joints. Service pillars in areas reticulated with CONSAC cables were fed via a service tee-joint. The CONSAC cable is to be terminated into existing or additional pillars and install new sections of XLPE cables which are also terminated into the existing or additional pillars.

#### 6.2.2. Overhead

- Overhead 11kV extensions to be 7/4.75 AAC (Moon) on through mains and 7/3.75 AAC (Mars) on transformer spurs.
- Overhead 11 kV extensions in rural locations can be 6/4.75-7/1.6 ACSR (“Cherry”) on through mains and 6/1/3.75 ACSR (“Banana”) on transformer spurs.

# Standard

00982

Version: 4 | Released: 19/04/2016



positive energy

## SUBDIVISION STANDARDS - DEVELOPER DESIGN AND CONSTRUCT ESTATES

- All overhead extensions require a line profile to be carried out to ensure statutory clearances are maintained.
- CCT conductors are to be considered and used as per the requirements of SWP1.6 and Standards Alert StdsA95.
- 11 kV OH Constructions:
  - Expanded 11 kV trident construction when no super-circuits are present
  - 11 kV vertical delta/vertical offset when installed beneath super-circuits.
- Overhead LV reticulation is to be 95 mm<sup>2</sup> LVABC.
- In rural areas where long runs and spans of bare low voltage conductors have previously have been used, 11 kV reticulation, in combination with greater numbers of smaller capacity distribution transformers may be required. Approval from ENERGEX is required if it is proposed to install open wire LV mains.
- Stringing tension for LVABC shall be determined based on conductor sag in a 100 m span at 15 degrees C. Tables used in ENERGEX for LVABC are 880, 660, 440 and 220. Stringing table T220 shall only be used for LVABC sections on which line current will never exceed 150 A.

The following general guidelines apply to the integration of “new” 11 kV overhead works into the existing network:

- Whenever a new feeder or part of a feeder (spur, tee-off) is added into an existing network, it shall be built to the current standard (including conductors, fittings and structures)
- ENERGEX shall be provided with the opportunity to assess the impact of the new works and advise whether augmentation works are required to the existing network.
- Whenever possible, an individual structure being changed within an existing feeder shall be built to the current standard. However, existing conductors need not be changed.

### **6.3. 11 kV Isolation Requirements**

11 kV Isolation Requirements are:

- On new 11 kV OH urban feeders or extensions, install an ABS or LBS for every 750kV.A of transformer capacity.
- On new rural 11 kV OH feeders or extensions, install an ABS or LBS for approximately every 5km of ‘backbone’ line route.
- In the 11kV underground network there is to be no more than one underground tee off allowed between isolation points. Refer to ENERGEX Standard Network Building Blocks.

### **6.4. Easements and Wayleaves**

#### **6.4.1. Easements:**

- 11 kV & LV cables and 11kV plant shall be installed in public roadways or dedicated parcels of land in the case of pad-mount substation sites.

# Standard

00982

Version: 4 | Released: 19/04/2016



positive energy

---

## SUBDIVISION STANDARDS - DEVELOPER DESIGN AND CONSTRUCT ESTATES

---

- Easements for 11 kV & LV underground cable purposes should be avoided. ENERGEX will not allow underground cables to be installed through residential lots. Approval from ENERGEX Subdivision Department is required for easements through park or C&I lots.
- Easements for 11 kV & LV underground cables shall be a minimum width of 2.0m & sufficient to allow future access for repairs and maintenance.
- Easements may be required in Community Title Schemes where the ENERGEX network may supply customers outside the Community Title Scheme.
- The easement conditions on existing easements should be investigated prior to altering the ENERGEX network.

### 6.4.2. Wayleaves:

- are acceptable for overhead assets below 33kV and associated assets (ie ground stays)
- cannot be taken out for assets to be installed in the future (ie future overhead service). In these situations it is best to hang the service as part of the design, however not commission the service)
- any changes to an existing overhead line (deviation, reconductoring, additional conductor) require a new way-leave to be established.

Special conditions as determined by QR may apply for 11 kV underground cable crossings of rail lines.

### 6.5. Earthing Requirements

The MEN system of earthing shall be used. Typically, the neutral of LV distribution cables is earthed at every 5th pillar at most, or maximum of 200 m of route length, as well as at ends of distribution radials. Earthing is also required at all link pillars & cable terminations (minor cables excepted).

### 6.6. Current ENERGEX Replacement Program

ENERGEX has several programs in place to replace existing assets in the ENERGEX network. The Subdivision design submitted to ENERGEX is to include the replacement of the following ENERGEX assets where they are impacted by the design. Please advise ENERGEX if there are assets adjacent to the Subdivision that could be replaced as part of the Subdivision project. ENERGEX may request these additional works to be undertaken.

- 3/12 steel overhead conductors
- 7/064 11kv and LV overhead conductors
- Bush poles

## 7. Community Title Schemes – URD Networks

The layout of community title subdivisions is similar to that of standard URD subdivisions. The cables must be run on a consistent alignment within common property, usually within 1.5 m of an internal road.

The allocated corridor shall be an area that is turfed with cross over's for driveways and parking bays only. The allocated corridor shall be free of all permanent structures (such as rubbish bin enclosures, gazebos and retaining walls).

# Standard

00982

Version: 4 | Released: 19/04/2016



positive energy

## SUBDIVISION STANDARDS - DEVELOPER DESIGN AND CONSTRUCT ESTATES

ENERGEX allows internal reticulation of a Community Title Scheme if the internal roads provide access to 10 dwellings or more. If there is no internal road, or less than 10 dwellings, ENERGEX considers this work non-contestable with a single point of supply. This will be designed and constructed by ENERGEX.

The reticulation design for a proposed subdivision can include points of supply to duplexes and community title schemes. Points of supply for duplex developments are contestable work. ADMD applicable for a duplex is 3 kVA per dwelling. For lots dedicated as a community title scheme larger than 2 dwellings will require an ADMD allowance of 30 kVA and conduits to the site as per the C&I reticulation requirements.

The Community Title Scheme is not to have multiple points of supply from ENERGEX network installed outside the development on road reserve.

A maximum of four individual detached dwellings may be initially supplied from any pillar. This is to allow for any future load development, eg certain consumers requiring three-phase supply at a later date. Buildings containing more than one unit will likely require polyphase supply. Phases shall be nominated for individual dwellings to ensure optimum phase balancing.

24 hour access is required to all ENERGEX assets inside the Community Title Scheme.

## 8. Commercial & Industrial

### 8.1. General Design Parameters

- The following design guidelines apply in addition to those already specified for Residential Developments:
- ADMD applicable - 30 kV.A / lot, standard deviation - 0, power factor - 0.8.
- 6 conduits (4 x 125mm + 2 x 100mm) shall be installed along one side of the road, and 4 conduits (2 x 125mm + 2 x 100mm) shall be installed to the opposite side of the road.
- One ENERGEX communication conduit to be installed with any 11kV conduit configuration installed.
- Joint Use Trenches will not be permitted in the footpath of C&I Subdivisions. Telstra, Optus and all other services are to be installed on their own alignment, except for road crossings where a shared trench arrangement will be acceptable.
- Underground LV reticulation to be 240 mm<sup>2</sup> Al. XLPE.
- An industrial service pillar complete with 6 x 100 A fuses and a 200 A combined fuse switch to be installed on the shared property boundary of every second lot.
- 3 way looping pillars must be installed for cross road mains in addition to the C&I pillars supplying the development. To facilitate the installation of the pillars adjacent to each other, it is acceptable to use 185mm<sup>2</sup> single core copper cables between the 3 way looping pillar and the 2 way C&I pillar.
- In areas of heavy low voltage load, (commercial/industrial areas), where large bare conductors would previously have been used, the following options are available:
  - parallel 4 x 95 mm<sup>2</sup> LVABC circuits
  - additional 11 kV reticulation and placement of distribution substations closer to large loads - installation of underground low voltage mains or services

No overload is permitted on transformers supplying Industrial loads.

## Standard

00982

Version: 4 | Released: 19/04/2016



---

## SUBDIVISION STANDARDS - DEVELOPER DESIGN AND CONSTRUCT ESTATES

---

### 9. Bond – Subdivision Electricity Supply Agreement

Developers Contribution is based on the following costs:

- Labour costs of design, project management & construction including civil works and vegetation works.
- Developer supplied materials including street lighting & conduits.
- Cost of cancellation of existing guarantees and sharing of capital contributions (as required).
- Minimum \$10,000 bond on all Subdivision projects.
- ENERGEX will calculate the bond based on the number of dwellings:
  - \$5000 per lot for URD and C&I subdivisions.
  - \$2000 per dwelling in Community Title Scheme
  - For developers that have a rolling bond with ENERGEX, ENERGEX will only require 50% of the bond. The full rolling bond in place with ENERGEX is required to be accessible for each project should ENERGEX be required to draw the bond to complete the project

### 10. Materials Lists Requirements

ENERGEX require a list of materials to be included with the design package. The materials are to be sectioned into the following categories and supplied as a separate A4 sheet.

#### **UGE – Underground Materials**

Pad-mounted Transformers and Underground Cables other than those used for street lighting.

#### **OHE - Overhead Materials**

All Overhead materials. This includes all materials which are above the ground including pole terminations and associated materials.

**Total Trenching Length** – Distance in metres.

### 11. Planned Outage Standard

The Planned Outage Standard for the commissioning of developer design and construct subdivisions has been developed as a guide to determine:

- which switching methods are to be utilised ie Live Line
- where generators should be used

Commissioning Plans documented by the consultants on the works plan will nominate the method of commissioning they anticipate to use. These commissioning methods will generally fit into one of the following switching categories:

1. LV Switching sheet only. ENERGEX will check switching sheet, add to LV diary and update mapping records.

# Standard

00982

Version: 4 | Released: 19/04/2016



positive energy

## SUBDIVISION STANDARDS - DEVELOPER DESIGN AND CONSTRUCT ESTATES

2. Simple HV & LV (UG - 11kV extension from unused isolator or OH - commissioning transformer on 11kV live line clamps). ENERGEX will arrange for the preparation of HV sheet, authorising, controlling and switching (HV & LV) based upon a switching application prepared by the Commissioning Coordinator. Including LV as above.
3. HV & LV switching for estate commissioning. ENERGEX will arrange for the preparation of HV sheet, authorising, controlling and switching (HV & LV) based upon a switching application prepared by the Commissioning Coordinator. Including LV as above.
4. Live Line and LV only. Estates where there is no HV switching. Bridge In & Commissioning (BIC) using live line methods. ENERGEX will prepare a Reclose Block, authorise and do live line work based upon a switching application prepared by the Commissioning Coordinator. Including LV as above.
5. Live Line, HV & LV switching. Estates involving HV switching associated with live line works. ENERGEX will arrange for the preparation of HV sheet, authorising, controlling and switching (HV & LV) based upon a switching application prepared by the Commissioning Coordinator. Including LV as above.

### 11.1. Standard Fees & Charges

Standard Switching Fees	Standard Fee <sup>1</sup>
LV only	\$110
Simple HV & LV	\$660
HV & LV	\$990
Live Line & LV	\$1320
Live Line, HV & LV	\$1650

Where Generators are used add \$110 to the above fees for switching for each generator plus generator charges.

To simplify the estimation process a standard fee will be charged for the use of generators while commissioning residential estates.

#### Standard Generator Charges

Generator Size	Standard Charge <sup>2</sup>
300	\$1650
500	\$2200

Switching Fee Calculation Sheet				
Item No.	Description	Standard Fee (excluding GST)	Qty Required	Sub-Total (excluding GST)
1.	LV only	\$100		
2.	Simple HV & LV	\$660		
3.	HV & LV	\$990		
4.	Live Line & LV	\$1,320		

# Standard

00982

Version: 4 | Released: 19/04/2016



positive energy

## SUBDIVISION STANDARDS - DEVELOPER DESIGN AND CONSTRUCT ESTATES

5.	Live Line, HV & LV	\$1,650		
Total (excluding GST)				

### 11.2. Outage Guidelines

Subdivisions are constructed within ENERGEX's area in two network geographic categories:

1. Urban Areas - This category covers most areas in and around cities and large towns. On the extremities of these areas it should include all properties up to approximately 4 hectares (rural residential). These areas are defined as areas with 10 or more customers per route km of line.
2. Rural Areas - This category covers rural areas with farming loads. The category will cover small farms (>4 hectares) up to fairly large properties. This category is defined as areas where there are less than 10 customers per route km of line, but more than one customer per 2 km of line.

In an urban area where an interruption to customers can not be avoided by the use of Low Voltage ties or live line techniques, up to and including 315 kV.A of transformer capacity (residential) or 315 kV.A of measured transformer load (residential) can be interrupted. If more installed capacity/measured load is to be interrupted generators must be used to avoid interruption to all affected customers.

In rural areas up to and including 100kV.A of installed transformer capacity can be interrupted. Where an interruption to customers can not be avoided by the use of Low Voltage ties or live line techniques, up to and including 315kV.A of transformer capacity (residential) or 315kV.A of measured transformer load (residential) can be interrupted. If more installed capacity/measured load is to be interrupted, generators must be used to avoid interruption to all affected customers.

Additional switching charges will apply where an increased number of generators are required at the time of construction, due to an increase in the measured transformer load from the time of the design.

Designers, when undertaking design of new infrastructure construction on distribution network shall make every effort to engineer out any requirement for planned interruptions(s) to electricity supply when establishing the Commissioning Program

Where an interruption to customers can not be avoided by the use of Low Voltage ties, live line techniques or generated deployment, planned outages must be limited to one (1) outage between the hours of 08:00am and 04:00pm

Special needs customers (ie life support) can only be interrupted with four business days notice. All other customers require two business days notification. (QERU draft) \$20 penalty credited to each affected customer's account will apply for failure to give sufficient notice.

Commercial and Industrial customers cannot be interrupted within their normal hours of business without their prior consent.

Network constraints may determine times switching can occur on the network. The Outage Coordinator may liaise with the Commissioning Coordinator to determine the most suitable time for switching

\*\* A longer outage duration is acceptable if negotiated with the customer(s) and have their written agreement.

### 11.3. Live Line

Live Line may be required in the following situations:



# Standard

00982

Version: 4 | Released: 19/04/2016



positive energy

## SUBDIVISION STANDARDS - DEVELOPER DESIGN AND CONSTRUCT ESTATES

- for sensitive feeders where it is necessary to minimise interruptions to customers
- projects where the outage standards are not able to be maintained
- projects where it is cost effective to utilise Live Line rather than traditional switching

The Live Line costs for SSA, (issued separately) lists a number of standard items commonly used in Subdivision Projects and associated costs. A minimum charge of \$828 (plus GST) will apply and items should be selected which best fit the proposed works.

The following items are covered in the Outage Standard and need not be allowed for in the calculation of the Live Charges as per the spreadsheet:

- "Live Line and LV only. Estates where there is no HV switching. Bridge In & Commissioning (BIC) using live line methods. ENERGEX will prepare a Reclose Block, authorise and do live line work based upon a switching application prepared by the Commissioning Coordinator. Including LV as above."
- "Live Line, HV & LV switching. Estates involving HV switching associated with live line works. ENERGEX will arrange for the preparation of HV sheet, authorising, controlling and switching (HV & LV) based upon a switching application prepared by the Commissioning Coordinator. Including LV as above."

The following Live Line works are classed as switching and can be included as part of the Live Line switching fees:-

- Bridge-in & commission U/G cable pole terminations.
- Break & make O/H bridges.

It should be noted however that the Outage Standard charges for Live Line switching works and do not include construction works performed by Live Line, such as replacing cross-arms, standing poles, re-conductoring, re-tensioning mains, etc.

### 11.4. Live Line Fee Calculation Sheet

Live Line Activities in Subdivisions (includes GST)

Item No.	Type of Job	Cost	Qty Req	Comments
1.	Erect Mid span pole & install stirrups, including Proline	\$2,870		Contractor fits pole & digs hole to correct depth, ENERGEX transfers HV mains only
2.	Install stirrups on existing pole only	\$1070		This does not include fitting the 11kv EDO x-arm to the pole
3.	Replace pole including Proline	\$3,640		Contractor fits pole & digs hole to correct depth, ENERGEX erects & transfers HV mains only & dock old pole to appropriate height
4.	Cut & Shut 11kv mains	\$2,990		
5.	Drop 1 span of 11kv mains	\$1,375		

## Standard

00982

Version: 4 | Released: 19/04/2016



positive energy

### SUBDIVISION STANDARDS - DEVELOPER DESIGN AND CONSTRUCT ESTATES

Item No.	Type of Job	Cost	Qty Req	Comments
6.	Erect 11kv termination x-arm (on pole or raiser)	\$2,145		
7.	Move exist 11kv pin onto raiser and erect 11kv termination x-arm	\$3,980		
8.	Erect 1 span of 11kv mains	\$2,610		
9.	Cut & Shut 11kv mains & erect ABS on pole	\$5,900		
10.	Erect 11kv ABS on existing pole & bridge	\$3,980		
11.	Cut & Shut 11kv mains & erect/recover Temp ABS	\$6,820		
	<b>TOTAL</b>			

#### Notes:

1. All materials are supplied by contractors
2. All works have been costed at Asset Services Non-regulated rates.
3. Service Provider is responsible for organising Traffic Control. Refer to BMS02002 Working on Roadways

## **12. Transformer Equalisation Scheme – (Implementation 1 July 2009)**

For more detailed information and working examples, refer to Appendix 2.

The Transformer Equalisation Scheme only applies to Urban Residential Developments (URD) subdivisions.

Transformer Equalisation does not apply to the following types of developments:

- Rural subdivisions;
- Unit developments such as strata title, multi-story, retirement villages;
- Closed gate or private subdivisions; and
- Commercial or industrial subdivisions.

The general guidelines for the application of the TES include:

- The Transformer Equalisation Reimbursement may be offset against any amount payable under the current project
- The TES applies to padmount and pole type distribution transformers.
- The TES applies to all new URD Subdivisions and subdivision stages that may be developed.
- All monetary values used in the calculation of the Transformer Equalisation Payment or Reimbursement are GST exclusive however GST will be applied in accordance with the tax laws in the calculation of the Amount Payable by the Developer of the Price.

At the completion of the Subdivision project prior to ENERGEX issuing the Certificate of Acceptance, ENERGEX may carry out an audit on the TES applied for the project. ENERGEX will assess whether a refund or additional payment is required of the developer. If the developer is required to pay additional funds, ENERGEX may draw this from the bond in place for the project.

---

## SUBDIVISION STANDARDS - DEVELOPER DESIGN AND CONSTRUCT ESTATES

---

### 12.1. Standards Used for the Calculation of the TES

- The Transformer Equalisation Fees are calculated using a Transformer Capacity Standard for a distribution substation and the After Diversity Maximum Demand (ADMD) per lot allowed in the design of the electrical reticulation of the URD subdivision or stage. To ensure uniformity, standard figures have been set for both.
- ADMD allowance per lot. The ADMD allowance per lot of a URD subdivision, stage or part thereof of a URD subdivision is given in Table 3.4.1 – Design ADMD's in the ENERGEX Supply and Planning Manual.
- The design ADMD's are the standard values that will be used to calculate the Transformer Equalisation Payment / Reimbursement.
- All calculations will be based on a \$320 per k.VA
- Transformer capacity standard. The maximum allowable loading of a distribution substation transformer for the purpose of the Transformer Equalisation Scheme is to be 125% of the nameplate rating.

### 13. Implementation, Amnesty Period & Amnesty Sunset Clauses

ENERGEX's Systems Engineering Group has advised that standard Implementation, Amnesty Period & Amnesty Sunset Clauses are to be applied for all Standards Updates, including but not limited to manual updates, SWP updates and policy updates, as follows:

1. Implementation - Initial implementation shall occur as defined in the standard alert or SWP amendment.
2. Amnesty Period - An amnesty period shall commence from the implementation date of the standard alert or SWP amendment, for all new designs as detailed in the standard alert or SWP amendment.
3. Sunset Clause for Amnesty Period - All designs shall conform to the new standard within a maximum of 3 months of the implementation date of the standards alert or SWP amendment.

Designs lodged during the amnesty period will be required to be amended to the new standards where the following has occurred:

1. The amnesty period has lapsed and a Subdivision Electricity Supply Agreement has not been requested.
2. A Subdivision Electricity Supply Agreement issued during the amnesty period has not been executed by the supply agreement expiry date.
3. A Subdivision Electricity Supply Agreement issued during the amnesty period has been executed by the Subdivision Electricity Supply Agreement expiry date, but construction has not commenced within 6 months or been completed within 9 months of the execution date of the Subdivision Electricity Supply Agreement.

## Standard

00982

Version: 4 | Released: 19/04/2016



positive energy

---

### SUBDIVISION STANDARDS - DEVELOPER DESIGN AND CONSTRUCT ESTATES

---

## 15. Enquiries Regarding This Document / Further Information

For further information regarding this document please contact Subdivision & Streetlighting Department:

Subdivision Department  
524 Bilsen Rd, Geebung Qld 4034  
Ph: (07) 3407 5817  
Fax: (07) 3407 5863  
e-mail: [subdivision@energex.com.au](mailto:subdivision@energex.com.au)

## 16. Attachments

### 16.1. E1 - Where an easement is required through Freehold & Crown Land (Reserves, Parks, etc)

Where an easement is required to protect ENERGEX's overhead and/or underground assets within FREEHOLD land or Crown Land (reserves), before a Certificate of Acceptance is issued ENERGEX require the following:

- A copy of the survey plan showing the proposed easement, and
- The relevant easement documentation, signed by the Grantor, and
- A copy of the easement Registration Confirmation Statement from the Department of Natural Resources & Mines;

to be forwarded to ENERGEX's Subdivision Department. It is the responsibility of the Developer to have the survey plan/s drawn and the easement documentation prepared in a manner acceptable for registration in the office of the Department of Natural Resources & Mines.

The Form 9 Easement should show the Grantee at Item 5 as "ENERGEX Limited (ACN 078 849 055)" and should refer to the following relevant Memorandum number:-

- For underground cable assets only:  
Form 9 should refer to Memorandum No. 700341471 in Item 8 Purpose of Easement (Item 7) is to be shown as "Underground electricity".
- For Overhead/Underground Cables and Padmount Transformers:  
Form 9 should refer to Memorandum No. L967635R in Item 8 Purpose of Easement (Item 7) is to be shown as "Electrical works".
- Form 9 should refer to Memorandum No. 704540583 in Item 8.  
Purpose of Easement (Item 7) is to be shown as "Electricity Works".
- Form 9 should refer to Memorandum No. 704633472 in Item 8.  
Purpose of Easement (Item 7) is to be shown as "Unallocated State Land".

ENERGEX's Subdivision Department will ensure that the easement satisfies our requirements and if so, will then arrange for the easement documentation to be executed by ENERGEX's Network Property Department and returned to the Developer or their Solicitors for lodgement at the Department of Natural Resources & Mines.

Upon receipt of the Registration Confirmation Statement from your solicitor, the bond will be released, subject to all other aspects of the Subdividers Supply Agreement having been completed to ENERGEX's satisfaction.

## Standard

00982

Version: 4 | Released: 19/04/2016



positive energy

---

### SUBDIVISION STANDARDS - DEVELOPER DESIGN AND CONSTRUCT ESTATES

---

All costs and outlays associated with the preparation and lodgment of the easement documentation are to be borne by the Developer.

#### **16.2. P1 - Where a Pad-mount Transformer Site is required**

Where an ENERGEX pad-mount transformer site is to be located within a public road, ENERGEX requires that the site be shown as road on the survey plan.

Before a Certificate of Acceptance is issued, ENERGEX requires a copy of the plan, showing the subject area as dedicated roadway.

Upon receipt of a copy of the registered plan, ENERGEX will arrange release of the bond money, subject to all other aspects of the Subdividers Supply Agreement having been completed to ENERGEX's satisfaction.

If a padmount transformer site is not located within public road reserve but is situated on freehold or Crown land (park or reserve), then an easement will be required over the transformer site and also the underground and/or overhead asset which serve the transformer. The easement documentation, in this case, should make reference to ENERGEX's standard easement conditions. Please contact ENERGEX's Subdivision Department to obtain the relevant Memorandum Number.

---

## SUBDIVISION STANDARDS - DEVELOPER DESIGN AND CONSTRUCT ESTATES

---

### APPENDIX TRANSFORMER EQUALISATION SCHEME

#### 1. What is Basis for a Transformer Equalisation Scheme

There may be occasions where a transformer will be installed with a greater capacity than that which is required by the subdivision or stage of subdivision. There may also be occasions where only LV internal reticulation is required within the subdivision or stage that can be supplied from a previously installed transformer. To provide a more equitable sharing of costs for the HV infrastructure in URD Subdivisions, ENERGEX Limited will administer a Transformer Equalisation Scheme (TES).

The Transformer Equalisation Scheme (TES) is an initiative to share the costs for the provision of high voltage cables, high voltage switchgear and distribution substation transformers between Developers of URD subdivisions and subdivision stages. The scheme ensures that Developers only pay for the high voltage infrastructure that is required to suitably supply their subdivision or subdivision stage and are not responsible for the costs of HV infrastructure that other developments or ENERGEX could use.

Equally, the scheme also ensures that Developers pay for a share of HV Infrastructure that may supply reticulation within their development but be outside the area of the current project.

#### 2. Guidelines For The Transformer Equalisation Scheme

The Transformer Equalisation Scheme only applies to Urban Residential Developments (URD) subdivisions where the lot size is greater than 4 lots. Transformer Equalisation does not apply to the following types of developments:

- Rural subdivisions;
- Community Title Schemes
- Closed gate or private subdivisions (ie private roadway); and
- Commercial or industrial subdivisions.

For these developments, the Developer fully funds all substations and associated cabling.

The Transformer Equalisation Scheme (TES) will be a significant influence on the Total Developer's Contribution.

The general guidelines for the application of the TES include:

- TES applies to transformers previously installed under the TES policy (after 1 July 2009 on a SESA Agreement).
- The Transformer Equalisation Reimbursement may be offset against any amount payable under the current project
- The TES applies to padmount and pole type distribution transformers.
- The TES applies to all new URD Subdivisions and subdivision stages that may be developed.
- All monetary values used in the calculation of the Transformer Equalisation Payment or Reimbursement are GST exclusive however GST will be applied in accordance with the tax laws in the calculation of the Amount Payable by the Developer of the Price.

The method of calculating the Transformer Equalisation Reimbursement and the Transformer Equalisation Payment are described in Clause 1.3 along with worked examples.

# Standard

00982

Version: 4 | Released: 19/04/2016



positive energy

---

## SUBDIVISION STANDARDS - DEVELOPER DESIGN AND CONSTRUCT ESTATES

---

### 3. Standards Used For the Calculation Of The TES

The Transformer Equalisation Fees are calculated using a Transformer Capacity Standard for a distribution substation and the After Diversity Maximum Demand (ADMD) per lot allowed in the design of the electrical reticulation of the URD subdivision or stage. To ensure uniformity, standard figures have been set for both.

**ADMD allowance per lot.** The ADMD allowance per lot of a URD subdivision, stage or part thereof of a URD subdivision is given in Table 3.4.1 – Design ADMD's in this Manual.

The design ADMD's are the standard values that will be used to calculate the Transformer Equalisation Payment / Reimbursement.

**Transformer capacity standard.** The maximum allowable loading of a distribution substation transformer for the purpose of the Transformer Equalisation Scheme is to be 125% of the nameplate rating.

### 4. Transformer Equalisation Reimbursement

This scheme will credit Developers a Transformer Equalisation Reimbursement calculated on a per lot basis for transformer capacity not utilised in the internal electrical reticulation of the particular URD subdivision or stage. Any amount of Transformer Equalisation Reimbursement is limited to only the number of lots for which the unutilised capacity of the transformer can supply.

Where the spare capacity of a transformer cannot be used to supply subsequent lots or it cannot be used by ENERGEX to supply foreseeable loads or infrastructure, the Transformer Equalisation Reimbursement does not apply. This situation can arise within a subdivision or stage where the transformer's LV reticulation reaches the extent of its voltage limits or its layout is restricted by the configuration of the development (e.g. at the edge of the development or adjacent to geographical barrier).

### 5. Transformer Equalisation Payment

A Transformer Equalisation Payment will be required from the Developer for each lot where the lot will be supplied from a previously installed transformer (installed under the TES policy).

In situations where only LV reticulation is required for a subdivision or subdivision stage, ENERGEX will charge the Developer a Transformer Equalisation Payment calculated on a per lot basis for transformer capacity obtained from outside the development.

There will be cases where some lots will be supplied from an existing transformer and some from a new transformer installed in the subdivision/stage. Thus, there may be subdivisions or stages of subdivisions in which the Developer will receive a Transformer Equalisation Reimbursement and be required to pay a Transformer Equalisation Payment. In these circumstances the reimbursement and payment will be summated with the net amount added to or deducted from the Total Works Price.

### 6. Reconciliation of Transformer Equalisation Amounts

When the project is completed, (Certificate of Completion provided) ENERGEX Subdivision's Department will reconcile the concept used to determine the Total Developer's Contribution to the When the project is completed, (Certificate of Completion provided) ENERGEX Subdivision's Department will reconcile the concept used to determine the Total Developer's Contribution to the actual lot supply arrangement. The reconciliation will determine if the amounts used to set the Transformer Equalisation Reimbursement and Payment in the Offer were correct. Where there is a difference, there will be adjustment to the Amount Payable.

# Standard

00982

Version: 4 | Released: 19/04/2016



positive energy

---

## SUBDIVISION STANDARDS - DEVELOPER DESIGN AND CONSTRUCT ESTATES

---

If the adjustment shows that the Developer is required to make an additional payment, the Developer will be invoiced for this amount.

If the adjustment shows that the Developer will receive a payment from ENERGEX, the Developer will be required to provide an invoice for this amount.

### 7. Worked Examples

#### Case 1 - Transformer within Subdivision

In URD Subdivisions that require the installation of a distribution transformer/s consideration is given to the maximum number of lots that can be suitably supplied by the LV of the transformer/s. This number is determined by calculating the maximum allowable loading on the transformer/s by the method described above and allocating the appropriate ADMD per lot for the type of dwelling to be constructed within the subdivision.

**Case 1A.** For a 40 lot first stage of a URD Subdivision designed with the installation of a 315 kVA distribution transformer. This transformer is capable of supplying a total of 65 lots with an ADMD of 4.5 kVA. As the stage only requires supply to 40 lots, the Developer may be entitled to a reimbursement amount up to the maximum of an extra 25 lots. This reimbursement however is on the provision that the spare capacity can be used to supply subsequent lots or by ENERGEX for supply to foreseeable infrastructure. If for example the spare capacity could supply 25 lots in the next stage of the subdivision then the Developer would receive a reimbursement for the unused capacity calculated for 25 lots.

The difference between the number of lots that could be suitably supplied (up to the maximum) from the usable spare capacity and the number of lots of the subdivision or stage is multiplied by the ADMD per lot for the type of dwelling and the Transformer Equalisation Multiplier (\$/kVA) set out in ENERGEX's Subdivision Guidelines (Section 9.1)

The equation is,  $TER = ADMD \times No\ Lots \times \$/kVA$ .

This calculation will determine the Transformer Equalisation Reimbursement due to the Developer from ENERGEX.

The Transformer Equalisation Reimbursement will be deducted from the fees and charges payable to ENERGEX in the Total Developer's Contribution of the Price for the Project.

**Case 1B.** If in Case 1A no further development was possible outside of this stage and the spare capacity could not be used.

There would not be any Transformer Equalisation Reimbursement to the Developer. This situation may occur where the subdivision is at the edge of the development or a geographical limitation or the LV reticulation has reached its extents.

#### Case 2 - Transformer outside Subdivision

In URD subdivision projects where only LV electrical reticulation is required, as transformation has occurred outside the project, the Developer must pay for the costs involved in providing the HV infrastructure that was installed in a previous subdivision or stage.



## Standard

00982

Version: 4 | Released: 19/04/2016



---

### SUBDIVISION STANDARDS - DEVELOPER DESIGN AND CONSTRUCT ESTATES

---

In these situations an additional payment is due to ENERGEX and this payment can be calculated by multiplying the ADMD kVA per lot figure for the type of dwelling by the number of lots that will be supplied by the LV only reticulation and the Transformer Equalisation Multiplier (\$/kVA).

This calculation will determine the Transformer Equalisation Payment to be paid to ENERGEX by the Developer. The Transformer Equalisation Payment will be added to the fees and charges payable to ENERGEX in the Total Developer Contribution for the Project.

**Case 2A** A 25 lot stage of a URD Subdivision can be supplied from a transformer installed in a previous stage. The Developer must pay to ENERGEX the Transformer Equalisation Payment calculated by multiplying the ADMD kVA per dwelling value by the 25 lots and the Transformer Equalisation Multiplier.

The equation is,  $TEP = ADMD \times \text{No Lots} \times \$/kVA$ .

The Total Developer's Contribution by the Developer for the subdivision will include the Network Connection Works costs and the Transformer Equalisation payment that is due.

#### **Case 3 Supply from transformer outside and inside the Subdivision**

In some URD subdivision projects a situation may occur where LV electrical reticulation is supplied from transformation outside the development and a new transformer inside the development. The Developer must pay for the costs involved in providing the HV infrastructure that was installed in a previous subdivision or stage. The Developer will also receive a reimbursement for the capacity of the new transformer that can be used.

In these situations a payment is due to ENERGEX for the lots supplied from the previously installed transformer. This amount is calculated by multiplying the ADMD kVA per lot figure for the area by the number of lots that will be supplied by the LV only reticulation and the Transformer Equalisation Multiplier (\$/kVA).

This calculation will determine the Transformer Equalisation Payment to be paid to ENERGEX by the Developer. The Transformer Equalisation Payment will be added to the fees and charges payable to ENERGEX in the Total Developer's Contribution by the Developer for the Project.

The Transformer Equalisation Reimbursement will be deducted from the fees and charges payable to ENERGEX in the Total Developer's Contribution of the Price for the Project.

**Case 3A** Ten lots in a 45 lot stage of a URD Subdivision can be supplied from existing LV infrastructure and an additional transformer is required to supply the balance of the lots.

The Developer must pay to ENERGEX the Transformer Equalisation Payment calculated by multiplying the ADMD kVA per dwelling type by each the 10 lots and the Transformer Equalisation Multiplier.

The equation is,  $TEP = ADMD \times \text{No Lots} \times \$/kVA$ .

The additional transformer can supply 65 lots for other stages of the subdivision.

Therefore, a Transformer Equalisation Reimbursement may be applicable to the 30 lots of spare capacity. ENERGEX will credit to the Developer the Transformer Equalisation Reimbursement calculated by multiplying

## Standard

00982

Version: 4 | Released: 19/04/2016



positive energy

### SUBDIVISION STANDARDS - DEVELOPER DESIGN AND CONSTRUCT ESTATES

the ADMD kVA per dwelling type by the number of lots that can potentially be supplied outside the subdivision stage by the new transformer and the Transformer Equalisation Multiplier (\$/kVA).

The equation ,  $TER = ADMD \times No\ Lots \times \$/kVA$ .

The Total Developer's Contribution by the Developer for the subdivision will include the Network Connection Works costs and the Transformer Equalisation Payment that is due less the Transformer Equalisation Reimbursement credits.

## 17. Definitions For This Document

Term	Definition
TES	The Transformer Equalisation Scheme (TES) is an initiative to share the costs for the provision of high voltage cables, high voltage switchgear and distribution substation transformers between Developers of URD subdivisions and subdivision stage
Bond	An amount in cash or an irrevocable undertaking executed by a bank or an approved lending authority, which shall be lodged with ENERGEX in accordance with the terms of the Supply Agreement.
Certificate of Acceptance	Refers to ENERGEX Form 1681, which shall be completed by ENERGEX at the transfer of assets, including Rate 2 public lighting, to ENERGEX at completion of the reticulation to the satisfaction of ENERGEX.
Community Title Development – (formerly known as Group Title Development)	A subdivision of land in which individual lots do not necessarily have immediate access to a dedicated road, and which comply with the Body Corporate and Community Management Act (formerly Building Unit and Group Titles Act). These developments may also include retirement villages, townhouse developments and relocatable home parks.
Consultant	For the purposes of SWP 47.1, refers to the company or organisation authorised by ENERGEX and engaged by the Developer to design the electrical reticulation infrastructure within the estate. Consultant's responsibilities for the design, including commissioning program, of estates are described within this SWP.
Developer	Any person, organisation or company, which enters into an agreement with ENERGEX for the supply of electricity to an estate under the terms and conditions of this agreement.
RPEQ	Registered Professional Engineer of Queensland (Division Electrical).
Service Provider	The company or organisation authorised by ENERGEX to construct elements of electrical reticulation infrastructure as described within the relevant SWP.
Subdividers Electricity Supply Agreement	A signed agreement between a Developer and ENERGEX for the supply of electricity to an estate. Such an agreement will normally be drawn up on ENERGEX Form 1049NW – Subdivision Electricity Supply Agreement – Developer Design and Construct.

## Standard

00982

Version: 4 | Released: 19/04/2016



---

### SUBDIVISION STANDARDS - DEVELOPER DESIGN AND CONSTRUCT ESTATES

---

#### **18. Changes From Previous Version**

This version updates the reference to the Work Health and Safety Act and Regulations to the new legislation enacted on the 1 January 2012