APPENDIX 2

Demonstration of compliance with the RIN

Energex

Reset RIN

Schedule 1 - 2014

energex

positive energy

Version control

Version	Date	Description
1	10/10/2014	Draft 1 Schedule 1 Regulatory Reference Template
2	27/10/2014	Final Draft Schedule 1 Regulatory Reference Template

Energex Limited (Energex) is a Queensland Government Owned Corporation that builds, owns, operates and maintains the electricity distribution network in the growing region of South East Queensland. Energex provides distribution services to almost 1.4 million domestic and business connections, delivering electricity to a population base of around 3.2 million people.

Energex's key focus is distributing safe, reliable and affordable electricity in a commercially balanced way that provides value for its customers, manages risk and builds a sustainable future.

Group Manager
Corporate Communications
Energex
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BRISBANE QLD 4001

Item	Detail	Location
1.	Provide Information	
1.1	1.1 Provide the information required in each Regulatory template in the Microsoft Excel Workbooks attached at Appendix A completed in accordance with: (a) this Notice; (b) the instructions in the Microsoft Excel Workbooks attached at Appendix A; (c) the Principles and Requirements in Appendix E; and (d) the service classifications set out in the framework and approach paper. (This requirement does not relate to Energex's regulatory asset base values in the current regulatory control period or the previous regulatory control period).	Financial and Non-Financial Regulatory Templates
1.2	Energex must provide a Basis of Preparation document for all information other than forecast information.	Basis of Preparation
1.3	Energex must provide the cost allocation method used to allocate costs in accordance with rule 6.15 of the NER between distribution services	Regulatory Proposal – Appendix 33: 2015-20 Cost Allocation Method
1.4	Energex must provide, for the purposes of the preparation of the regulatory proposal: (a) a regulatory template that references each response to a paragraph in this Schedule 1, where it is provided in or as part of the regulatory proposal.	This document references each response to Schedule 1, and where supporting information is located.
1.5	Energex must reconcile capex and opex forecasts provided in the regulatory templates to the ex-ante capital and operating allowances in the PTRM for the forthcoming regulatory control period.	Energex confirms that expenditure forecasts in regulatory templates are equivalent to the ex-ante capital and operating allowances in the PTRM for the forthcoming regulatory control period.
1.6	Where the regulatory proposal varies or departs from the application of any component or parameter of the capital efficiency sharing scheme, efficiency benefit sharing scheme, demand management incentive scheme or service	Regulatory Proposal: Chapter 15: Efficiency Benefit Carry

	target performance incentive scheme as set out in the framework and approach paper, Energex must, for each variation or departure explain: (a) the reasons for the variation or departure, including why it is appropriate; (b) how the variation or departure aligns with the objectives of the relevant scheme; and (c) how the proposed variation or departure will impact the operation of the relevant scheme.	Over Chapter 16: Efficiency Benefit Sharing Scheme Chapter 17: Capital Expenditure Sharing Scheme Chapter 18: Service Target Performance Incentive Scheme Chapter 19: Demand Management Incentive Scheme
2.	Classification of Services	
2.1	Energex must identify each proposed service classification which departs from a service classification set out in the framework and approach paper in the regulatory proposal and explain: (a) the reasons for the departure, including why the proposed service classification is more appropriate; and (b) how the treatment of the service will differ under the proposed service classification in comparison to that in the framework and approach paper.	Regulatory Proposal - Chapter 6: Classification of Services and Control Mechanisms
2.2	If the proposed service classifications in the regulatory proposal depart from any of the service classifications set out in the framework and approach paper, Energex must: (a) provide, in a second set of regulatory templates, all information required in each regulatory template in accordance with the instructions contained therein, modified as necessary, to incorporate the proposed service classifications; and (b) identify and explain where the regulatory templates differ.	Not applicable as Energex is not proposing to depart.
3.	Control Mechanisms	
3.1	For the proposed forecast revenues that Energex estimates to recover from providing direct control services over the forthcoming regulatory control period, Energex must provide: (a) formulaic expressions for the basis of control mechanisms for standard control services and for alternative control services; and (b) a detailed explanation and justification for each component that makes up the formulaic expression.	Regulatory Proposal - Chapter 6: Classification of Services and Control Mechanisms Regulatory Proposal - Part Three:

		Alternative Control Services
3.2	Energex must also demonstrate: (a) how Energex considers the control mechanisms are compliant with the framework and approach paper; and (b) for standard control services, how Energex considers the control mechanisms are also compliant with clause 6.2.6 and part C of Chapter 6 of the NER.	Regulatory Proposal - Chapter 6: Classification of Services and Control Mechanisms Regulatory Proposal - Part Three: Alternative Control Services
4.	Step Changes	
4.1	For all Step changes in forecast expenditure (including those due to changes in regulatory obligations or requirements and those due to changes in Energex's own policies and strategies) Energex must provide: (a) in regulatory template 2.17.1 and regulatory template 2.17.2 of regulatory template 2.17, the quantum of the Step change Energex: i. forecasts to incur in each year of the forthcoming regulatory control period; ii. if applicable, has incurred, or expects to incur, in the current regulatory control period relative to expenditure previously approved by the AER; and (b) a description of the Step change:	(a) Regulatory Template 2.17 (b) Regulatory Proposal – Appendix 8: Application of Base Step Trend Model
4.2	Energex must provide an explanation of: (a) when the change occurred, or is expected to occur; (b) what the driver of the Step change is; (c) how the driver has changed or will change (for example, revised legislation may lead to a change in a regulatory obligation or requirement); and (d) whether the Step change is recurrent in nature;	Regulatory Proposal – Appendix 8: Application of Base Step Trend Model
4.3	Energex must provide justification for when, and how, the Step change affected, or is expected to affect: (a) the relevant opex category; (b) the relevant capex category; (c) total opex; and (d) total capex;	Regulatory Proposal – Appendix 8: Application of Base Step Trend Model

4.4	Energex must provide the process undertaken by Energex to identify and quantify the Step change; provide cost benefit analysis that demonstrates Energex proposes to address the Step change in a prudent and efficient manner, including: (a) the timing of the Step change; and (b) if Energex considered a 'do nothing' option, evidence of how Energex assessed the risks of this option compared with other options;	(a & b) Refer Regulatory Proposal – Appendix 8: Application of Base Step Trend Model – adjustment templates in sections 2.2 and 2.3. It can be noted that cost benefit analysis and 'do nothing' options have not been provided for the following adjustments: • Provisions • Negative adjustments • Reallocations (transfers between functional areas)
4.5	Energex must provide, if the Step change is due to a change in a regulatory obligation or requirement: (a) any relevant variations or exemptions granted to Energex during the previous regulatory control period or the current regulatory control period; (b) any relevant compliance audits Energex conducted during the previous regulatory control period or the current regulatory control period;	Regulatory Proposal – Appendix 8: Application of Base Step Trend Model
4.6	With reference to specific clauses of the relevant legislative instrument(s), Energex must provide the: (a) previous regulatory obligation or requirement; and (b) how the changed regulatory obligation or requirement is driving the Step change.	Regulatory Proposal – Appendix 8: Application of Base Step Trend Model
5.	Capital Expenditure	
5.1	In relation to total forecast capex, Energex must provide the following information; (a) why the total forecast capex is required for Energex to achieve each of the objectives in clause 6.5.7(a) of the NER; (b) how Energex's total forecast capex reasonably reflects each of the criteria in clause 6.5.7(c) of the NER; (c) how Energex's total forecast capex accounts for the factors in clause 6.5.7(e) of the NER; (d) an explanation of how the plans, policies, procedures and regulatory obligations or requirements identified in regulatory templates 7.1 and 7.3, and consultants reports, economic analysis and assumptions identified in 1.4 have been incorporated; and (e) an explanation of how each response provided to paragraph 5.1 is reflected in any increase or decrease in	(a – c) Regulatory Proposal – Chapter 4: Customer Engagement, Chapter 9: Forecast Capital Expenditure (d – e) Regulatory Proposal – Chapter 7: Approach to Asset Management, Chapter 9: Forecast Capital Expenditure

	expenditures or volumes, particularly between the current and forthcoming regulatory control periods, provided in regulatory templates 2.1 to 2.12.	
5.2	Energex must provide the model(s) and methodology Energex used to develop its total forecast capex, including; (a) A description of how Energex prepared the forecast capex, including: i. how its preparation differed or related to budgetary, planning and governance processes used in the normal running of Energex's business; ii. the processes for ensuring amounts are free of error and other quality assurance steps; and iii. if and how Energex considered the resulting amounts, when translated into price impacts, were in the long term interest of consumers. (b) any source material used (including models, documentation or any other items containing quantitative data): and (c) calculations that demonstrate how data from the source material has been manipulated or transformed to generate data provided in the regulatory templates.	Energex Schedule 1 Attachment: Supplementary Information
5.3	Energex must Identify which items of Energex's forecast capex have been: (a) derived directly from competitive tender processes; (b) based upon competitive tender processes for similar projects; (c) based upon estimates obtained from contractors or manufacturers; (d) based upon independent benchmarks; (e) based upon actual historical costs for similar projects; and (f) reflective of any amounts for risk, uncertainty or other unspecified contingency factors, and if so, how these amounts were calculated and deemed reasonable and prudent.	Energex Schedule 1 Attachment: Supplementary Information
5.4	Energex is required to provide all documents which were taken into account and relate to the deliverability of forecast capex and explain the proposed deliverability.	Energex Schedule 1 Attachment: Supplementary Information
	Capital Expenditure – Capex Categories	
5.5	Energex must provide descriptions of each capex category and expenditures comprising these categories identified in the regulatory templates, including: (a) key drivers for expenditure;	Regulatory Proposal – Chapter 9: Forecast Capital Expenditure

	(b) an explanation of how expenditure is distinguished between: i. demand driven and non-demand driven augmentation capital expenditure; ii. connections expenditure and augmentation capital expenditure; iii. replacement capital expenditure driven by condition and asset replacements driven by other drivers (e.g. the need for demand or non-demand driven augmentation capital expenditure); and iv. any other capex category or opex category where Energex considers that there is reasonable scope for ambiguity in categorisation.	
6.	Replacement Capital Expenditure Modelling	
6.1	In relation to information provided in regulatory templates 2.2 and with respect to the AER's repex model, provide:	Refer to compliance tables in the following documents: Repex Model Supporting Information Augex Model Supporting Information
6.1 (a)	In relation to individual asset categories set out in the regulatory templates, in a separate document: i. a description of the asset category, including: (A) the assets included and any boundary issues (i.e. with other asset categories); (B) an explanation of how these matters have been accounted for in determining quantities in the age profile; (C) an explanation of the main drivers for replacement (e.g. condition); and (D) an explanation of whether the replacement unit cost provides for a complete replacement of the asset, or some other activity, including an extension of the asset's life (e.g. pole staking) and whether the costs of this extension or other activity are capitalised or not. ii. an estimate of the proportion of assets replaced for each year of the current regulatory control period, due to: (A) aging of existing assets (e.g. condition, obsolesce, etc.) that should be largely captured by this form of replacement modelling; (B) replacements due to other factors (and a description of those factors); (C) additional assets due to the augmentation, extension, development of the network;	Refer to compliance tables in the following documents: Repex Model Supporting Information Augex Model Supporting Information

	and (D) additional assets due to other factors (and a description of those factors).	
6.1 (b)	Justification for the replacement life statistics provided (the mean and standard deviation), including: i. the methodology, data sources and assumptions used to derive the statistics; ii. the relationship to historical replacement lives for that asset category; and iii. Energex's views on the most appropriate probability distribution to simulate the replacement needs of that asset category, including matters such as: (A) the appropriateness of the normal distribution or another distribution (e.g. the Weibull distribution); (B) the typical age when the "wear out" phase becomes evident; (C) the "skewness" of the distribution; and (D) the process applied to verify that the parameters are a reasonable estimate of the life for the asset category.	Refer to compliance tables in the following documents: Repex Model Supporting Information Augex Model Supporting Information
6.1 (c)	The derivation of replacement unit costs and asset lives, including any internal documentation or analysis or independent benchmarking that justifies or supports its cost data. This information must include: i. the methodology, data sources and assumptions used to derive the cost data; ii. the possibility of double-counting costs in the estimate, and the process applied to ensure this is appropriately accounted for; iii. the variability in the unit costs between individual asset replacements, and the main drivers of the variability; iv. the relationship of the unit cost, and its derivation, to historical replacement costs for that asset category (this should clearly differentiate and quantify any assumed cost difference due to labour/material price changes and other factors); v. the process applied to verify that the parameter is a reasonable estimate of the unit cost for the asset category; and	Refer to compliance tables in the following documents: Repex Model Supporting Information Augex Model Supporting Information
6.1 (d)	For the previous, current and forthcoming regulatory control periods, explain the drivers or factors that have changed network replacement expenditure requirements. Separately identify and quantify the relative effect of each of the following matters on network replacement expenditure requirements, where they have changed network replacement expenditure requirements: i. rules, codes, license conditions, statutory requirements; ii. internal planning and asset management approaches;	Refer to compliance tables in the following documents: Repex Model Supporting Information

	iii. measurable asset factors that affect the need for expenditure in this category (e.g. age profiles, risk profiles, condition trend, etc.). Identify and quantify individual factors; iv. the external factors that can be forecast and the outcome measured (e.g. demand growth, customer numbers) that affect the need for expenditure in this category. Identify and quantify individual factors, covering the forecasts and the outcome (external factors to be discussed here do not relate to changing obligations which are covered in paragraph 4); v. technology/solutions to address needs, covering: (A) network; and (B) non-network. vi. any other significant matters. The information provided in response to the above requests should at least distinguish between the asset categories defined above.	Augex Model Supporting Information
7.	Augmentation Capital Expenditure Modelling	
7.1	Any instructions in this Notice relating to the Augex model must be read in conjunction with the Augex model guidance document available on the AER's website (http://www.aer.gov.au/node/18864)	Refer to compliance tables in the following documents: Repex Model Supporting Information Augex Model Supporting Information
7.2	In relation to information provided in regulatory template 2.4 and with respect to the AER's augex model:	Refer to compliance tables in the following documents: Repex Model Supporting Information Augex Model Supporting Information
7.2 (a)	Separately for sub-transmission lines, sub-transmission and zone substations, HV feeders and distribution substations, Energex must explain how it: i. Prepared the maximum demand data (weather corrected at 50 per cent probability of exceedance; see	Refer to compliance tables in the following documents:

	Schedule 2 for further guidance) provided in the asset status regulatory templates 2.4.1 to 2.4.4, including where relevant, explanations of each of: (A) how this value relates to the maximum demand that would be used for normal planning purposes; (B) whether it is based upon a measured value, and if so, where the measurement point is and how abnormal operating conditions are allowed for; (C) whether it is based on estimated (rather than actual measured) demand, and if so, the basis of this estimation process and how it is validated; and (D) The relationship of the values provided to raw unadjusted maximum demand; and the relationship of the values provided to the values that could be expected from weather corrected maximum demand measures that reflect a 10 per cent probability of exceedance year. ii. Determined the rating data provided in the asset status regulatory templates 2.4.1 to 2.4.4, including where relevant: (A) the basis of the calculation of the ratings in that segment, including asset data measured and assumptions made; and (B) the relationship of these ratings with Energex's approach to operating and planning the network. For example, if alternative ratings are used to determine the augmentation time, these should be defined and explained. iii. Determined the growth rate data provided in the asset status regulatory templates 2.4.1 to 2.4.4. This should clearly indicate how these rates have been derived from maximum demand forecasts or other load forecasts available to Energex.	Repex Model Supporting Information Augex Model Supporting Information
7.2 (b)	In relation to the capex-capacity regulatory template 2.4.6, Energex must explain: i. the types of cost and activities covered. Clearly indicate what non-field analysis and management costs (i.e direct overheads) are included in the capex and what proportion of capex these cost types represent; ii. how it determined and allocated actual capex and capacity to each of the segment groups, covering: (A) the process used, including assumptions, to estimate and allocate expenditure where this has been required; and (B) the relationship of internal financial and/or project recording categories to the segment groups and process used. iii. how it determined and allocated estimated/forecast capex and capacity to each of the segment groups, covering: (A) the relationship of this process to the current project and program plans; and (B) any other higher-level analysis and assumptions applied.	Refer to compliance tables in the following documents: Repex Model Supporting Information Augex Model Supporting Information

7.2 (c)	Describe the projects and programs Energex has allocated to the unmodelled augmentation categories in regulatory template 2.4.6, covering: i. the proportion of unmodelled augmentation capex due to this project or program type; ii. the primary drivers of this capex, and whether in Energex's view, there is any secondary relationship to maximum demand and/or utilisation; and iii. whether the outcome of such a project or program, whether intended or not, should be an increase in the capability of the network to supply customer demand at similar service levels, or the improvement in service levels for a similar customer demand level.	Refer to compliance tables in the following documents: Repex Model Supporting Information Augex Model Supporting Information
7.2 (d)	Separately for each network segment that Energex defined in the model segment data regulatory template 2.4.5: i. Describe the network segment, including: (A) the boundary with other connecting network segments; and (B) the main reasoning for the individual segment (e.g. as opposed to forming a more aggregate segment). ii. Explain the utilisation threshold statistics provided (i.e. the mean and standard deviation), including: (A) the methodology, data sources and assumptions used to derive the parameters; (B) the relationship to internal or external planning criteria that define when an augmentation is required; (C) the relationship to actual historical utilisation at the time that augmentations occurred for that asset category; (D) Energex's views on the most appropriate probability distribution to simulate the augmentation needs of that network segment; and (E) the process applied to verify that the parameters are a reasonable estimate of utilisation limit for the network segment. iii. Regarding the augmentation unit cost and capacity factor provided, provide an explanation of each of: (A) the methodology, data sources and assumptions used to derive the parameters; (B) the relationship of the parameters to actual historical augmentation projects, including the capacity added through those projects and the cost of those projects; (C) the possibility of double-counting in the estimates, and processes applied to ensure that this is appropriately accounted for (e.g. where an individual project may add capacity to various segments); and (D) the process applied to verify that the parameters are a reasonable estimate for the network segment.	Refer to compliance tables in the following documents: Repex Model Supporting Information Augex Model Supporting Information
7.2 (e)	Explain the factors Energex considers may result in different augmentation requirements for itself as compared to other NEM DNSPs. Energex should account for the degree that different augmentation requirements are driven by differences in asset utilisation and maximum demand growth. Energex should also explain all other factors,	Refer to compliance tables in the following documents:

	specific to its network, which would result in different augmentation requirements when compared to a DNSP with similar asset utilisation and maximum demand growth. The explanation should clearly indicate those factors that may impact: i. the maximum achievable utilisation of assets for Energex; and ii. the likely augmentation project and/or cost. For each significant factor discussed, Energex must indicate relevant model segments and estimate the impact these factors will have on its augmentation levels and associated capex compared to other DNSPs.	Repex Model Supporting Information Augex Model Supporting Information
8.	Demand and Customer Number Forecasts	
8.1	Energex must provide and describe the methodology used to prepare the following forecasts for the forthcoming regulatory control period: (a) maximum demand; and (b) number of new connections.	Regulatory Proposal – Appendix 16: Energex Demand Energy and Customer Number Forecasting Methodology
8.2	Energex must provide: (a) the model(s) Energex used to forecast customer numbers and maximum demand; (b) where Energex's approach to weather correction has changed, provide historically consistent weather corrected maximum demand data, as per the format in regulatory templates 5.3 and 5.4 using Energex's current approach. If any of this data is unavailable, explain why; (c) for number of new connections, volume data requested in regulatory template 2.5; and (d) any supporting information or calculations that illustrate how information extracted from Energex forecasting model(s) reconciles to, and explains any differences from, information provided in regulatory templates 2.5, 5.3 and 5.4.	(a) Regulatory Proposal - Appendix 16: Energex Demand Energy and Customer Number Forecasting Methodology (b) Methodology has not changed (c) Regulatory Template 2.5 (d) Regulatory Proposal – Appendix 16: Energex Demand Energy and Customer Number Forecasting Methodology
8.3	For each of the methodologies provided and described in response to paragraph 8.1, and, where relevant, data requested under 8.2(b) and 8.2(c), Energex must explain or provide (as appropriate): (a) the models used; (b) a global (top-down) and spatial (bottom-up) demand forecast; (c) the inputs and assumptions used in the models (including in relation to economic growth, customer numbers and policy changes and provide any associated models or data relevant to justifying these inputs and assumptions); (d) the weather correction methodology, how weather data has been used, and how Energex's approach to	(b) Regulatory Template 5.3 and 5.4 (h) Regulatory Template 5.4 and 5.5 (i) Regulatory Proposal – Chapter 10: Forecast Operating Expenditure (m) Energex utilises a 50% probability

	weather correction has changed over time; (e) an outline of the treatment of block loads, transfers and switching within the forecasting process; (f) each appliance model used, where used, or assumptions relating to average customer energy usage (by customer type); (g) how the forecasting methodology used is consistent with, and takes into account, historical observations (where appropriate), including any calibration processes undertaken within the model (specifically whether the load forecast is matched against actual historical load on the system and substations); (h) how the resulting forecast data is consistent across forecasts provided for each network element identified in regulatory template 5.4 and system wide forecasts; (i) how the forecasts resulting from these methods and assumptions have been used in determining the following: i. capital expenditure forecasts; and ii. operating and maintenance expenditure forecasts. (j) whether Energex used the forecasting model(s) it used in the joint planning process for the purposes of its regulatory proposal; (k) whether Energex forecasts both coincident and non-coincident maximum demand at the feeder, connection point, subtransmission substation and zone substation level, and how these forecasts reconcile with the system level forecasts (including how various assumptions that are allowed for at the system level relate to the network level forecasts); (l) whether Energex records historic maximum demand in MW, MVA or both; (m) the probability of exceedance that Energex uses in network planning; (n) the contingency planning process, in particular the process used to assess high system demand; (o) how risk is managed across the network, particularly in relation to load sharing across network elements and non-network solutions to peak demand events; (p) whether and how the maximum demand forecasts underlying the regulatory proposal reconcile with any demand information or related planning statements published by AEMO, as well as forecasts produced by any transmission network service providers connected to Energex's network; (q) how the normal and emergency ratings are used in determining capacity for individual zone substations and sub-transmission lines; (r) where Energex proposes to commence or continue a Demand-Related Capex Project or Program during the Forthcoming regulatory control period on a HV feeder: i. for each feeder from the zone substation that is the connecting zone substation for the relevant HV feeder, and any other feeders that the relevant HV feeder can transfer load to or from: (A) assumed future load transfers between feeders; (B) assumed feeder underlying load growth rates (exclusive of transfers and specific customer developments); and	of exceedance (POE) in network planning (p) Regulatory Proposal - Chapter 8: Demand Energy and Customer Forecasts (q) Augex Model Supporting Information Refer to Regulatory Proposal – Appendix 16: Energex Demand Energy and Customer Number Forecasting Methodology for all other supporting information

	(C) assumed block loads, and associated demand assumptions; ii. existing embedded generation capacity, and associated assumptions on the impact on demand levels; iii. assumed future embedded generation capacity, and associated assumptions on the impact on demand levels; iv. existing non-network solutions, and the associated assumptions on the impact on demand levels; v. assumed future non-network solutions, and associated assumptions on the impact on demand levels; and vi. the diversity between feeders; (s) where Energex proposes to commence or continue a Demand-Related Capex Project or Program during the Forthcoming regulatory control period on a zone substation (or relevant substations for a sub-transmission line): i. assumed future load transfers between related substations; ii. assumed underlying load growth rates (exclusive of transfers and specific customer developments); iii. assumed specific customer developments, and associated demand assumptions; iv. existing embedded generation capacity, and associated assumptions on the impact on demand levels; v. assumed future embedded generation capacity, and associated assumptions on the impact on demand levels; vi. existing non-network solutions, and the associated assumptions on the impact on demand levels; vii. assumed future non-network solutions, and associated assumptions on the impact on demand levels; and viii. diversity with related substations.	
8.3	A global level forecast is the demand forecast that applies to the network service provider's entire network. A spatial forecast applies to elements of the network. For transmission network service providers (TNSPs), spatial forecasts could be at the level of connection points with distribution network service providers (DNSPs) and major customers. For DNSPs, spatial forecasts could be at the level of connection point, zone substations and/or HV feeders. A NSP may incorporate an appliance model in its demand forecasting method to account for the effects of the uptake of appliances (such as air-conditioners) on maximum demand. A Demand-Related Capex Project or Program is one where the primary driver is to address a growth in demand.	Not applicable
8.4	Energex must provide: (a) evidence that any independent verifier engaged by Energex has examined the reasonableness of the method, processes and assumptions in determining the forecasts and has sufficiently capable expertise in undertaking a verification of forecasts; and (b) documentation, analysis and/or models that provide reasonable evidence of the results of each independent	(a) and (b): Regulatory Proposal – Appendix 16: Energex Demand Energy and Customer Number Forecasting Methodology Appendix 15: Review of Demand and

	verification referred to in sub-paragraph (a) above.	Energy Forecasting Methodologies – Frontier Economics
9.	Connections Expenditure Requirements	
9.1	Energex must provide and describe the methodology and assumptions used to prepare the forecasts of connection works including: (a) Estimation of connection unit costs for each customer type; and (b) Connection volumes for each customer type.	The forecasts of volumes for connection works based on the customer number forecasts created for Energex's energy forecasts - which are in turn based on migration and economic growth forecasts. The link incorporates a lag between the movements in customer numbers and their impact on capital projects, as well as different expectations for the ratio of customers to capital projects under high, low and base case assumptions. Unit cost estimates for connection types are based on a combination historical data and resource estimates from subject matter estimates.
9.2	Energex must provide its estimation of customer contributions based upon the estimated life and revenue to be recovered from connection assets, including: (a) the expected life of the connection; (b) the average consumption expected by the customer over the life of the connection; and (c) any other factors that influence the expected recovery of the distribution network use of system charge to customers.	Regulatory Proposal – Chapter 21: Annual Revenue Requirements
10.	Operating and Maintenance Expenditure	
	Total forecast operating and maintenance expenditure (opex)	

10.1	Energex must provide: (a) the model(s) and the methodology Energex used to develop its total forecast opex; (b) justification for Energex's total forecast opex, including: i. why the total forecast opex is required for Energex to achieve each of the objectives in clause 6.5.6(a) of the NER; ii. how Energex's total forecast opex reasonably reflects each of the criteria in clause 6.5.6(c) of the NER; and iii. how Energex's total forecast opex accounts for the factors in clause 6.5.6(e) of the NER;	Energex Schedule 1 Attachment: Supplementary Information Regulatory Proposal – Chapter 10: Forecast Operating Expenditure
10.2	Energex must provide: (a) the quantum of non-recurrent costs for each year of the forthcoming regulatory control period; and (b) an explanation of each non-recurrent cost;	Regulatory Proposal – Appendix 8: Application of Base Step Trend Model
10.3	If Energex used a revealed expenditure Base year approach to develop its total forecast opex, Energex must provide: (a) the Base year Energex used; and (b) explanation and justification for why that Base year represents efficient and recurrent costs;	Regulatory Proposal – Appendix 8: Application of Base Step Trend Model
10.4	If Energex did not use a revealed expenditure Base year approach to develop its total forecast opex, Energex must provide: (a) its forecast expenditure by Opex Category for each year of the forthcoming regulatory control period in regulatory template 2.16.2 for standard control services opex; (b) in Microsoft Excel format, clear reconciliation (including all calculations and formulae) of Energex's total forecast opex to: i. forecast standard control services opex by driver in regulatory template 2.16.1; ii. forecast standard control services opex by Opex Category in regulatory template 2.16.2; (c) its explanation of major drivers for the increases and decreases in expenditure by Opex Category in the forthcoming regulatory control period compared to actual historical expenditure; (d) its explanation and justification for: i. whether Energex considers there is a year of historic opex that represents efficient and recurrent costs; or ii. why Energex considers no year of historic opex represents efficient and recurrent costs.	Not applicable
	Output growth	

10.5	Energex must provide the amount of total forecast opex attributable to output growth changes for each year of the forthcoming regulatory control period in regulatory template 2.16.1 for standard control services opex.	Regulatory Template 2.16
10.6	Energex must provide: (a) the output growth drivers Energex used to develop the amount of total forecast opex attributable to output growth changes; (b) any economies of scale factors applied to the growth drivers; (c) evidence that the growth drivers explain cost changes due to output growth; and (d) if Energex applied any composite multiple output growth drivers: i. the inputs for each composite multiple output growth driver; and ii. the weightings for each input;	Regulatory Proposal – Appendix 8: Application of Base Step Trend Model
10.7	Energex must provide an explanation of how, in developing the amount of total forecast opex attributable to output growth changes, Energex: (a) applied the output growth drivers; and (b) accounted for economies of scale.	Regulatory Proposal – Appendix 8: Application of Base Step Trend Model
	Real price changes	
10.8	Energex must provide the amount of total forecast opex attributable to changes in the price of labour and materials for each year of the forthcoming regulatory control period in regulatory template 2.16.1 for standard control services opex.	Regulatory Template 2.16
10.9	Energex must provide an explanation of: (a) how, in developing the amount of total forecast opex attributable to changes in the price of labour and materials, Energex applied the real price measures in regulatory template 2.14; and (b) whether Energex's labour price measure compensates for any form of labour productivity change.	(a) Regulatory Proposal – Appendix 35: Cost Escalation Rates and Application (b) Energex Schedule 1 Attachment: Supplementary Information
	Productivity change	

10.10	Energex must provide the amount of total forecast opex attributable to changes in productivity for each year of the forthcoming regulatory control period in regulatory template 2.16.1 for standard control services opex.	Regulatory Proposal – Appendix 8: Application of Base Step Trend Model
10.11	Energex must provide, in percentage year on year terms, the productivity measure that Energex used to develop the amount of total forecast opex attributable to changes in productivity;	Regulatory Proposal – Appendix 8: Application of Base Step Trend Model
10.12	Energex must provide an explanation of: (a) how, in developing the amount of total forecast opex attributable to changes in productivity, Energex applied the productivity measure in paragraph 10.11; (b) whether Energex's forecast productivity changes capture the historic trend of cost increases due to changes in regulatory obligations or requirements and industry best practice; and (c) whether Energex's productivity measure includes productivity change compensated for by the labour price measure used by Energex to forecast the change in the price of labour.	Regulatory Proposal – Appendix 8: Application of Base Step Trend Model (c) Energex's proposal for labour escalation is based on the Wages Price Index. As the quantity and quality of labour inputs are held constant in determining the index, compensation for productivity is excluded from labour escalation.
	Opex step changes	
10.13	Energex must provide the amount of total forecast opex attributable to opex step changes for each year of the forthcoming regulatory control period in regulatory template 2.16.1 for standard control services opex.	Regulatory Template 2.16
10.14	Energex must provide an explanation of why Energex considers: (a) the efficient costs of the Step change are not provided by other components of Energex's total forecast opex such as base opex, output growth changes, real price changes or productivity change; (b) the total forecast opex will not allow Energex to achieve the objectives in clause 6.5.6(a) of the NER unless the Step change is included; and (c) the total forecast opex will not reasonably reflect the criteria in clause 6.5.6(c) of the NER unless the Step change is included.	Regulatory Proposal – Appendix 8: Application of Base Step Trend Model
	Vegetation management	

10.15	Energex must provide compliance audits of vegetation management work conducted by Energex during the current regulatory control period.	Energex has conducted compliance audits on all 4 vegetation contractors during the regulatory period. The audits are derived from an overall programme with each vegetation organisation having its own schedule and include final product, process and combined union audits. Reports are provided monthly to senior Energex management. Defects identified to the contractors are monitored to ensure rectification is carried out within the agreed timeframes. Significant defects are handled through the compliance non-conformance process.
11.	Risk Management and Insurance	
	Risk Management Framework	
11.1	Provide information that sets out Energex's governance arrangements in relation to the management of risk, including: (a) a risk appetite statement, which details the level of risk Energex's board is willing to accept including the nature and level of risks and the level of loss that can be sustained; (b) a risk management strategy that describes Energex's strategy for managing risk and the key elements of the risk management framework that give effect to this strategy; and (c) any other information that demonstrates Energex's governance arrangements in relation to risks and their management.	Regulatory Proposal – Chapter 22: Uncertainty Regime, Chapter 28: Governance, Assurances and Certifications Regulatory Proposal - Appendix 50: Energex's Enterprise Risk Management – Risk Management Overview Energex Schedule 1 Attachment: Supplementary Information

	Insurance (regulatory template 2.15	
11.2	General instructions: (a) Regulatory template 2.15.1 must provide a summary of all Energex's proposed insurance costs. (b) Regulatory template 2.15.2 and 2.15.3 seek more detailed information regarding total property and liability premiums only. The total property premiums forecast in regulatory template 2.15.2 must equal the sum of the premium forecasts classed as property insurance in regulatory template 2.15.1. The total liability forecast in regulatory template 2.15.3 must equal the sum of the premium forecasts classed as liability insurance in regulatory template 2.15.1. (c) Amounts are exclusive of GST.	(a) to (c) Regulatory Template 2.15 Regulatory Proposal – Chapter 22: Uncertainty Regime Regulatory Proposal – Appendix 51: Self-insurance Report (Willis) Energex Schedule 1 Attachment: Supplementary Information
11.3	Energex must provide the following information for each commercially insured risk listed in regulatory template 2.15.1: (a) the name and description of each insured risk, including policy limits and sub-limits; (b) a description of the general method used to forecast premiums (this may be in the form of an insurance premium forecast report by a qualified risk specialist); and (c) any changes in insurance cover between the current and forthcoming regulatory control periods.	(a) Regulatory Template 2.15, table 2.15.1 Regulatory Proposal – Chapter 22: Uncertainty Regime Regulatory Proposal – Appendix 51: Self-insurance Report (Willis) Energex Schedule 1 Attachment: Supplementary Information
11.4	Energex must provide the following information regarding total property and total liability insurance reported in regulatory templates 2.15.2 and 2.15.3 respectively: (a) a description of the systematic drivers of insurance premiums; (b) a description of the circumstances that have led to any premium changes over the current regulatory control period; (c) a description of the method used to forecast premiums for the forthcoming regulatory control period, including estimated exposure growth and premium rate changes and any other adjustments made. Provide supporting evidence for exposure, premium rate changes, or any other proposed adjustments; and	Energex Schedule 1 Attachment: Supplementary Information

	(d) an explanation of how the value of insured assets is derived for property insurance (e.g. replacement costs, insured value etc.).	
11.5	Where insurance is shared with other entities, Energex must provide: (a) an explanation of the cost allocation approach used for each risk class; (b) cost allocations (percentage) by risk class for the current regulatory control periods; and (c) the cost allocation (percentage) that underlies forecast premiums for the forthcoming regulatory control period. If the proportion allocated to Energex has changed, explain why.	Not Applicable
11.6	Energex must provide a report from an appropriately qualified risk specialist verifying that Energex's forecast insurance premiums are efficient.	Energex Schedule 1 Attachment: Supplementary Information
	Self-insurance	
11.7	For each risk for which Energex is proposing a self-insurance allowance in the regulatory proposal: (a) provide a description of the risk and risk exposure including cover, exclusions and limit; (b) explain how each self-insurance allowance has been calculated describing the modelling and detailing key assumptions; (c) provide a record of historic losses and claims against the self-insurance fund as far as records allow; (d) explain why compensation should be provided for the risk. Where insurance is available from a commercial insurer and an insurance quote has been obtained, provide evidence that it is more efficient to self-insure for that risk; (e) confirm that the risk for which self-insurance is being sought is not recovered through any other mechanism; and (f) explain why, if a self-insurance allowance has not been sought for a particular risk in the 2010–11 to 2014–15 regulatory control period, it is being sought in the 2015–16 to 2019–20 regulatory control period.	(a – c) Regulatory Proposal – Chapter 22: Uncertainty Regime Regulatory Proposal – Appendix 51: Self-insurance Report (Willis) (d) Regulatory Proposal – Chapter 22: Uncertainty Regime (e) Regulatory Proposal – Appendix 8: Application of Base Step Trend Model, Regulatory Template 3.5 (self-insurance) – demonstrates that self-insurance expenditure was removed from the base year and prepared as a bottom up forecast for the 2015-20 regulatory control period (f) no new self-insurance allowance was sought for 2015-20

11.8	If Energex is proposing self-insurance for asset failure risk in the revenue proposal: (a) provide: i. the annual number of failures for each asset category for which self-insurance is being sought ii. the historical costs for each asset failure iii. a description of what those costs relate to, including any split between capex and opex. (b) explain: i. where the self-insurance allowance is not based on the actual historical asset failure rates and costs, how the allowance has been forecast and why it is efficient ii. how the proposed capex has been taken into account in calculating the probability of asset failure for each asset category for which self-insurance is being sought.	Not applicable
11.9	Energex must provide a report from an appropriately qualified actuary or risk specialist verifying the calculation of risk and corresponding self-insurance premiums.	Regulatory Proposal - Appendix 51: Self-Insurance Report (Willis)
12.	Alternative Control Services	
12.1	The overheads relating to each alternative control service must be disclosed in accordance with paragraph 12.2.	Regulatory Proposal Chapters: 24: Alternative Control Services – Connection Services 25: Alternative Control Services – Metering Services 26: Alternative Control Services – Public Lighting 27: Ancillary Network Services Regulatory Proposal – Appendix 33: 2015-20 Cost Allocation Method

12.2	Energex must provide a list of all of the individual services that Energex intends to provide to customers and levy charges for in the forthcoming regulatory control period that fit within the broader definitions of distribution services that the AER proposed to classify as alternative control services in the Framework and Approach Paper.	Regulatory Proposal Chapters: 24: Alternative Control Services – Connection Services 25: Alternative Control Services – Metering Services 26: Alternative Control Services – Public Lighting 27: Ancillary Network Services Regulatory Proposal - Appendix 54: Alternative Control Services – Price Cap Services
12.3	Energex must provide a definition of each alternative control service listed in paragraphs 13, 14 and 15, where Energex proposes a classification different to that in the Framework and Approach Paper.	Energex has not proposed any classification changes.
12.4	For each alternative control service listed in paragraphs 13, 14 and 15, Energex must specify the charges applicable during each year of the current regulatory control period. Also include proposed charges for each year of the forthcoming regulatory control period.	Regulatory Proposal - Appendix 54: Alternative Control Services – Price Cap Services
12.5	For each alternative control service listed in paragraphs 13, 14 and 15, Energex must specify the total revenue earned by Energex in each year of the current regulatory control period and forthcoming regulatory control period.	Regulatory Templates 4.1, 4.2, 4.3 and 4.4
12.6	For metering and public lighting alternative control services, Energex must specify the number of customers in each year of the current regulatory control period, and forecasts for the forthcoming regulatory control period.	Regulatory Templates 4.1 and 4.2 Energex Schedule 1 Attachment: Supplementary Information
12.7	For each alternative control service listed in paragraphs 12, 13 and 14, Energex must provide the labour rate(s) used to calculate the charges for the current and forthcoming regulatory control periods	Regulatory Proposal – Appendix 54: Alternative Control Services – Price

	(a) Specify the labour classification level used to provide the services e.g. outsourced or internally provided and labourer type. (b) List all direct costs, and their quantum, in the make-up of the labour rate(s).	Cap Services
12.8	Energex must list each material category (e.g. meters, poles, brackets) required for the provision of alternative control services listed in the response to paragraphs 12, 13, 14 and 15. (a) Provide a description of each material category (b) Provide the average unit costs for each material category (c) List all direct costs included in the unit costs (d) Specify the calculation of the quantum of direct materials costs included in the unit cost of materials.	Refer to 15.2 Regulatory Proposal – Appendix 54: Alternative Control Services – Price Cap Services Appendix 57: Metering Strategic Plan Regulatory Template 4.2 Energex Schedule 1 Attachment: Supplementary Information
13.	Fee Based and Quoted Alternative Control Services	
13.1	Energex must provide a description of each fee based and quoted service, explaining the purpose of the service and list the activities which comprise each service. The list of fee based and quoted services should be consistent with those services listed in Energex's annual tariff proposals. (a) Specify if the charges are for fee based and/or quoted alternative control services; (b) Explain the reasons for the different charge with reference to the costs incurred; (c) Explain the method used to set the different charge; and (d) Provide the calculations underpinning the different charge.	Regulatory Proposal Chapters: 24: Alternative Control Services – Connection Services 25: Alternative Control Services – Metering Services 26: Alternative Control Services – Public Lighting 27: Ancillary Network Services Regulatory proposal – Appendix 54: Alternative Control Services – Price Cap Services

		Alternative Services Costing Model
13.2	Energex must identify the tasks involved in providing the service in regulatory templates 4.3 and 4.4 (a) Map the class of labour required to provide the service listed in regulatory templates 4.3 and 4.4. (b) The number of workers required to undertake the task and deliver the service (c) The average time required to complete the task and deliver the service	Regulatory Proposal Appendices: 54: Alternative Control Services – Price Cap Services
13.3	If materials are required to provide the service, Energex must specify each material category.	Refer to 12.8 Regulatory Proposal Appendices: 54: Alternative Control Services – Price Cap Services
13.4	Energex must provide all current and proposed charges for each fee based and quoted alternative control service in the current and forthcoming regulatory control periods.	Regulatory Proposal Appendices: 54: Alternative Control Services – Price Cap Services 55: Alternative Control Services provided on a quoted basis Energex 2014/2015 Pricing Proposal submitted to the AER 1/5/2014, approved 13/6/2014.
14.	Metering Alternative Control Services	
14.1	For meter types 5 and 6, for the current regulatory control period and forecast for the forthcoming regulatory control period, Energex must provide details of the: (a) Direct materials and direct labour costs; (b) Installation costs;	(a) to (h): Regulatory Proposal - Chapter 25: Alternative Control Services – Metering Services

	(c) Meter purchase costs; (d) Volumes of work; (e) Other costs associated with providing metering services; (f) Type of meters installed and forecast to be installed, separately for new meters and for replacement meters; (g) The volume of meters by type set out in (f) and the revenue earned and forecast to be earned by each meter type; and (h) The total operating and maintenance costs incurred, and forecast to be incurred, for metering services.	Regulatory Proposal - Appendix 60: Meter Pricing Regulatory Proposal - Appendix 61: Indicative Unbundled Metering Service Charge Regulatory Template 4.2
14.2	For metering works, for each year of the current regulatory control period and forecasts for the forthcoming regulatory control period, Energex must provide a description of: (a) The type of work undertaken (e.g. meter reconfiguration, special meter read) including a description of the activities undertaken to provide the service; (b) The labour costs involved in providing the service, including any overheads; (c) Any materials costs involved in providing the service; (d) The number (volume) of services provided and associated assumptions on which the volume of service was derived or estimated; (e) The charge per service; and (f) The revenue earned by each service.	(a) to (f): Regulatory Proposal - Chapter 25: Alternative Control Services – Metering Services Regulatory Proposal - Appendix 60: Meter Pricing Regulatory Proposal - Appendix 61: Indicative Unbundled Metering Service Charge Regulatory Template 4.2
15.	Public Lighting Alternative Control Services	
15.1	Energex must specify which items are capital expenditure and operational expenditure for each year of the current regulatory control period and forecasts for the forthcoming regulatory control period.	Regulatory Proposal – Chapter 26: Alternative Controls Services – Public Lighting
15.2	Energex must provide unit costs for the current regulatory control period and forecast for the forthcoming regulatory control period for: (a) Luminaires; (b) Dedicated street lighting poles; (c) Brackets; (d) Lamps; (e) Photoelectric cells; (f) Labour rate (per hour);	Regulatory Template 4.1 Energex Schedule 1 Attachment: Supplementary Information

	(g) Miscellaneous materials.	
15.3	Energex must provide the depreciation period in years for each type of luminaire.	Regulatory Proposal - Chapters 11: Depreciation, 26: Alternative Control Services – Public Lighting Regulatory Proposal – Attachment 4: PTRM Standard Control
15.4	Energex must provide the bulk change cycle in years for lamps and photoelectric cells.	Energex Schedule 1 Attachment: Supplementary Information
15.5	Energex must provide details of the average replacement age of each type of luminaire.	Energex Schedule 1 Attachment: Supplementary Information Regulatory Template 5.2
15.6	Energex must provide the number of luminaires, by type.	Regulatory Template 4.1
15.7	Energex must provide the number of luminaires, poles and brackets replaced per year, for the current and forthcoming regulatory control periods.	Regulatory Template 4.1 For every streetlight pole that is replaced, Energex practice is to replace the bracket at the same time
15.8	Energex must provide details, including assumptions used, for any other costs that are incurred for the provision of public lighting services.	Regulatory Proposal Chapter 26: Alternative Control Services – Public Lighting
15.9	Energex must provide models and/or modelling that underpins proposed charges for the forthcoming regulatory control period and the reasons for the assumptions behind those forecasts.	Regulatory Proposal Chapter 26: Alternative Control Services – Public

		Lighting
16	Economic Benchmarking	
16.1	16.1 Complete the Economic Benchmarking regulatory templates (3.1 to 3.7) in accordance with: (a) The instructions and definitions for variables within: Economic benchmarking RIN For distribution network service providers Instructions and Definitions Energex (ABN 40 078 849 055) November 2013; and (b) the instructions in paragraphs 16.1 to 16.10; however, (c) If there is inconsistency between the instructions in paragraphs 16.1 to 16.10 and those in the instructions and definitions for variables within: Economic benchmarking RIN for distribution network service providers Instructions and Definitions Energex (ABN 40 078 849 055) November 2013 the instructions in paragraphs 16.2 to 16.9 take precedence.	Regulatory Templates 3.1 to 3.7
16.2	The forecast revenue groupings in regulatory templates 3.1.1 and 3.1.2 may be developed by trending forward actual historical revenue groupings in previous regulatory years, subject to the following provisions: (a) Total revenues must equal the total forecast revenues proposed by Energex in its revenue proposal, and (b) Revenue groupings must reflect Energex's forecast demand for its services in the Forthcoming Regulatory Control Period in its revenue proposal.	Regulatory Template 3.1
16.3	Information provided in regulatory templates 3.2.1 and 3.2.2 must reflect Energex's Cost Allocation Method to take effect on 1 July 2015.	Regulatory Template 3.2
16.4	The definition of a tree must be applied when completing the variables "Average number of trees per urban and CBD vegetation maintenance span" (DOEF0208) and "Average number of trees per rural vegetation maintenance span" (DOEF0209)	Regulatory Template 3.7
16.5	In calculating responses to the variables DOEF0202 to DOEF0205, spans in the network service area where Energex is not responsible for the vegetation management associated with the span are not to be counted.	Regulatory Template 3.7
16.6	"Total number of spans" (DOEF0205) does not include service line spans.	Regulatory Template 3.7

16.7	Energex must report the route line length of feeders classified as either short rural or long rural divided by the total route feeder line length (this is the total feeder route line length for all CBD, urban, short rural and long rural feeders) against “Rural proportion” (DOEF0201).	Regulatory Template 3.7
16.8	For the purposes of calculating the “Route line length” variable (DOEF0301) or other variables measured in terms of route line length: (a) The length of service lines are not to be counted (b) the length of a span that shares multiple voltage levels is only to be counted once (c) the lengths of two sets of lines that run on different sets of poles (or towers) but share the same easement are counted separately	Regulatory Template 3.7
16.9	All forecast variables in the Economic Benchmarking regulatory templates must correspond with equivalent variables (or derivations of them) in Energex’s regulatory proposal. For the avoidance of doubt this includes forecast: (a) opex and capex; (b) Maximum demand, customer numbers, Energy delivery; (c) Revenues; (d) quality of services variables including SAIDI and SAIFI; and (e) Quantities of physical assets	Regulatory Templates 3.1 to 3.7
16.10	RAB asset financial data in the Assets (RAB) regulatory template must reconcile to that in Energex’s regulatory proposal PTRM and RFM.	Regulatory Template 3.3
17.	Provisions	
17.1	For each of Energex’s provisions, provide the information required in regulatory template 2.13 in accordance with: (a) regulatory template 2.13; and (b) Australian Accounting Standard AASB 137 Provisions, Contingent Liabilities and Contingent Assets.	Regulatory Template 2.13
17.2	If, in a given year, there is an increase in the amount of a provision, Energex must provide reasons for this increase, including:	BoP 2.13 – Provisions

	(a) the expected timing of any resulting outflows of economic benefits; (b) an explanation of the uncertainties about the amounts or timing of the outflows; (c) any supporting consultant's advice, including actuarial reports; and (d) if there is no supporting consultant's advice, the process and assumptions Energex used in determining the increase in the provision.	
17.3	Energex must provide the allocation of the movement in total provisions in, regulatory template 2.13.2 to: (a) opex; (b) as-incurred capex by roll forward model asset class; and (c) other, where the movement in the provision is neither capex nor opex.	Regulatory Template 2.13 – table 2.13.2
17.4	Energex must identify and explain any assumptions applied for the allocation of asset class provided under paragraphs 17.3(b).	BoP 2.13 – Provisions
18.	Forecast Price Changes	
18.1	Energex must provide, in regulatory template 2.14, the labour and material price changes assumed by Energex in estimating Energex's forecast capex proposal and the forecast opex proposal. All price changes must be expressed in percentage year on year real terms.	Regulatory Template 2.14 – table 2.14.1
18.2	Energex must provide: (a) the model(s) used to derive and apply the materials price changes, including model(s) developed by a third party; (b) in relation to labour escalators, a copy of the current Enterprise Bargaining Agreement or equivalent agreement; and (c) evidence that the forecast price changes accurately explain the change in the price of goods and services purchased by Energex, including evidence that any materials price forecasting method explains the price of materials previously purchased by Energex.	(a) the materials price changes were developed using Jacobs SKM's model. Due to intellectual property restrictions, Energex is unable to provide the Jacobs SKM model to the AER. (b) Energex Union Collective Agreement (c) Refer to SKM report provided in Regulatory Proposal - Appendix 18: Material Cost Escalation Factors – Jacobs SKM and Regulatory Template

		2.14 and BoP 2.14 - Forecast Price Changes.
18.3	In Energex's Basis of preparation document(s), provide a written explanation of: (a) the methodology underlying the calculation of each price change, including: i. sources; ii. data conversions; iii. the operation of any model(s) provided under paragraph 18.2(a); and iv. the use of any assumptions such as lags or productivity gains; (b) whether the same price changes have been used in developing both the forecast capex proposal and forecast opex proposal; and (c) if the response to paragraph 18.3(b) is negative, why it is appropriate for different expenditure escalators to apply.	BoP 2.14 – Forecast Price Changes
18.4	If an agreement provided in response to paragraph 18.2(b) is due to expire during the Forthcoming regulatory control period, Energex must explain the progress and outcomes of any negotiations to date to review and replace the current agreement.	BoP 2.14 – Forecast Price Changes The Enterprise Bargaining Agreement provided in response to paragraph 18.2(b) has a nominal expiry date of 21 November 2014. Energex Limited has commenced negotiations for a replacement Enterprise Bargaining Agreement offering wage increases of **up to** 3% per annum fully funded by productivity initiatives. The new agreement will be in place for 3 years.
19.	Related Party Transactions	
19.1	Energex must identify and describe all entities which: (a) are a related party to Energex; (b) are a related party to Energex and contribute to the provision of distribution services; or (c) have the capacity to determine the outcome of decisions about Energex's financial and operating policies.	Energex Schedule 1 Attachment: Supplementary Information

19.2	Energex must provide a diagram of the organisational structure depicting the relationships between all the entities identified in the response to paragraph 19.1.	Refer to 30.1
19.3	Energex must identify: (a) all arrangements or contracts between Energex and any of the other entities identified in the response to paragraph 19.1 which relate directly or indirectly to the provision of distribution services; and (b) the service or services the subject of each arrangement or contract.	Refer to 19.4
19.4	For each service identified in the response to paragraph 19.3(b), Energex must (a) provide: i. a description of the process used to procure the service; and ii. supporting documentation including, but not limited to, requests for tender, tender submissions, internal committee papers evaluating the tenders, contracts between Energex and the relevant provider; (b) explain: i. why that service is the subject of an arrangement or contract (i.e. why it is outsourced) instead of being undertaken by Energex itself; ii. whether the services procured were provided under a standalone contract or provided as part of a broader operational agreement (or similar); iii. whether the services were procured on a genuinely competitive basis and if not, why; and iv. whether the service (or any component thereof) was further outsourced to another provider.	Energex Schedule 1 Attachment: Supplementary Information
20.	Proposed Contingent Projects	
20.1	For each contingent project proposed in the regulatory proposal, Energex must provide: (a) a description of the proposed contingent project, including reasons why Energex considers the project should be accepted as a contingent project for the forthcoming regulatory control period; (b) the proposed contingent capital expenditure which Energex considers is reasonably required for the purpose of undertaking the proposed contingent project; (c) the methodology used for developing that forecast and the key assumptions that underlie it; (d) information that demonstrates that the undertaking of the proposed contingent project is reasonably required to meet one or more of the objectives referred to in clause 6.6A.1(b)(1) of the NER; (e) a demonstration that the proposed contingent capital expenditure for each proposed contingent project:	Energex does not have any proposed contingent projects for the forthcoming regulatory control period.

	i. is not included (either in part of in whole) in Energex's proposed total forecast capital expenditure for the forthcoming regulatory control period; ii. reasonably reflects the capital expenditure criteria, taking into account the capital expenditure factors, in the context of the proposed contingent project; and iii. exceeds either $30 million ($nominal) or 5 per cent of Energex's proposed annual revenue requirement for the first year of the forthcoming regulatory control period, whichever is larger amount. (f) the proposed trigger events relating to the proposed contingent project.	
20.2	For each proposed trigger event relating to the proposed contingent project referred to in 20.1(f), Energex must demonstrate: (a) the proposed trigger event is reasonably specific and capable of objective verification (b) the occurrence of the proposed trigger event makes the undertaking of the proposed contingent project reasonably necessary in order to achieve any of the capital expenditure objectives; (c) the proposed trigger event generates increased costs or categories of costs that relate to a specific location rather than a condition or event that affects the distribution network as a whole; (d) the proposed trigger event is described in such terms that the occurrence of that event or condition is all that is required for the distribution determination to be amended under clause 6.6A.2 of the NER; (e) the proposed trigger event is a condition or event, the occurrence of which is probable during forthcoming regulatory control period, but the inclusion of capital expenditure in relation to the proposed trigger event under clause 6.5.7 of the NER is not appropriate because: i. it is not sufficiently certain that the event or condition will occur during the forthcoming regulatory control period or if it may occur after that regulatory control period or not at all; or ii. the costs associated with the event or condition are not sufficiently certain.	Energex does not have any proposed contingent projects for the forthcoming regulatory control period.
20.3	Energex must provide a summary of Energex's proposed contingent projects for the forthcoming regulatory control period including the proposed contingent capital expenditure and trigger events for each proposed contingent project in the regulatory template 7.2.	Energex does not have any proposed contingent projects for the forthcoming regulatory control period.
21.	Non-Network Alternatives	
21.1	Energex must identify the Policies and Strategies and Procedures which relate to the selection of efficient non-network solutions.	Regulatory Template 7.1 – Policies and Procedures

		Energex Schedule 1 Attachment: Supplementary Information
21.2	Energex must explain the extent to which the provision for efficient non-network alternatives has been considered in the development of the forecast capex proposal and the forecast opex proposal.	Energex Schedule 1 Attachment: Supplementary Information
21.3	Energex must identify each non-network Project that Energex has: (a) commenced during the current regulatory control period; and (b) selected to commence during, or will continue into, the Forthcoming regulatory control period.	Energex Schedule 1 Attachment: Supplementary Information
21.4	For each non-network Project identified in the response to paragraph 21.3, Energex must provide a description, including cost and location.	Energex Schedule 1 Attachment: Supplementary Information
21.5	Energex must provide, for each year of the current regulatory control period, and for the forthcoming regulatory control period, details of each payment made, or expected to be made, by Energex to an Embedded Generator in reflection any costs avoided by deferring augmentation of: (a) Energex's distribution network; or (b) the relevant transmission network.	Energex Schedule 1 Attachment: Supplementary Information
22.	Efficiency Benefit Sharing Scheme	
22.1	To calculate the carryover amounts that arise from applying the efficiency benefit sharing scheme during Energex's current regulatory control period: (a) provide the forecast and actual operating expenditure amounts in regulatory template 7.5; (b) identify all changes to Energex's Capitalisation Policy during the current regulatory control period.	(a) Regulatory template 7.5 (b) BoP 7.5 – EBSS No changes were made to Energex's Capitalisation Policy, refer to Regulatory Proposal - RIN supporting documentation 32.1
22.2	For each change identified in the response to paragraph 22.1(b):	BoP 7.5 – EBSS

	(a) state, if any, the financial impact of the change; (b) state the reasons for the change; (c) explain the effect of the change, if any, on the forecast operating expenditure for each year of Energex's current regulatory control period; and (d) explain the effect of the change, if any, on the actual operating expenditure for each year of Energex's current regulatory control period.	Energex did not make any changes
22.3	For the purposes of applying the efficiency benefit sharing scheme: (a) identify all cost categories proposed to be excluded from the operation of the efficiency benefit sharing scheme; (b) explain for each cost category identified in the response to paragraph 22.3(a) the reasons for the proposed exclusion.	BoP 7.5 – EBSS Energex has not proposed any exclusions
23.	Service and Quality	
23.1	Energex must provide Energex's detailed methodology for calculating the following parameters used in the Service Target Performance Incentive Scheme (STPIS); (a) the SAIDI and SAIFI targets for each supply reliability area; (b) the customer service parameters and targets; (c) daily SAIDI, SAIFI and customer service performance derived from the individual interruption data under 23.2; (d) the MED threshold derived from the daily SAIDI data; (e) The incentive rates to apply to each supply reliability area. Note: All calculations must be made in accordance with the STPIS and using data which complies with the STPIS definitions.	Regulatory Proposal – Chapter 18: STPIS Regulatory Proposal – Appendix 47: STPIS Reliability of Supply Target Setting Methodology (a) Regulatory Proposal - Appendix 47: section 5.1 and 5.2 (b) Regulatory Proposal – Chapter 18: section 18.6.1 (c) Reset RIN table 6.2 and 6.4 (d) Energex Schedule 1 Attachment: Supplementary Information (e) Regulatory Proposal – Chapter 18: section 18.7.1
23.2	If Energex proposes adjustments to the STPIS targets away from those based upon raw historical data Energex must provide, in respect of each adjustment:	Regulatory Proposal – Chapter 18: STPIS

	(a) the reasons for the adjustment; (b) the quantum of the adjustment, and the effect of the adjustment on the targets for each of the supply reliability areas; and (c) the method, basis and empirical data used as justification for the adjustment.	Regulatory Proposal – Appendix 47: STPIS Reliability of Supply Target Setting Methodology Appendix 48: Report on STPIS Parameter Values -Parsons Brinkerhoff (a) Regulatory Proposal – Appendix 47: sections 5.1 and 5.2 (b) Regulatory Proposal – Appendix 47: section 6 (c) Regulatory Proposal – Appendix 47: section 5.2, Appendix 2
24.	Shared Assets	
24.1	Energex must provide Energex's shared assets information in regulatory template 7.4.	Regulatory Template 7.4
25.	Revenues and Prices for Standard Control Services	
25.1	Energex must provide Energex's calculation of the unsmoothed and smoothed revenues, and prices for the purposes of the control mechanism proposed by Energex using the AER's post-tax revenue model, which is to be submitted as part of the regulatory proposal.	Regulatory Proposal – Chapter 21: Annual Revenue Requirements
25.2	Energex must provide details of each departure from the AER's post-tax revenue model for the calculations referred in paragraph 25.1 and the reasons for that departure.	Regulatory Proposal – Chapter 21: Annual Revenue Requirements Energex has not departed
26.	Indicative Impact on Annual Electricity Bills	

26.1	For the purposes of calculating the impact of Energex's Regulatory proposal on the annual electricity bill of typical residential and business customers in Queensland, Energex must provide the data/information required in regulatory template 7.6. Provide the data source for each input used for the calculation.	Regulatory Template 7.6 Regulatory Proposal - Chapter 23: Indicative Pricing
27.	Regulatory Asset Base	
27.1	Energex must provide Energex's calculation of the regulatory asset base for the relevant distribution system in respect of standard control services for each regulatory year of current regulatory control period using the AER's roll forward model, which is to be submitted as part of the regulatory proposal.	Regulatory Proposal – Chapter 12: Regulatory Asset Base Energex has not departed
27.2	Energex must provide details of each departure from the underlying methods in the AER's roll forward model for the calculation referred in 27.1 and the reasons for that departure.	Regulatory Proposal – Chapter 12: Regulatory Asset Base Regulatory Proposal – Attachment 2: RFM Standard Control Energex has not departed
27.3	If the value of the regulatory asset base as at the start of the forthcoming regulatory control period is proposed to be adjusted because of changes to asset service classification, Energex must provide details including relevant supporting information used to calculate that adjustment value.	Regulatory Proposal – Chapter 12: Regulatory Asset Base Regulatory Proposal – Attachment 2: RFM Standard Control
27.4	When reporting the value of its regulatory asset base for regulatory years prior to 2015-16, including forecasting this value for 2014-15, Energex is not required to make adjustments for the new cost allocation method and service classifications to take effect from 1 July 2015.	Regulatory Template 3.3
28.	Depreciation Schedules	

28.1	Energex must provide Energex's calculation of the depreciation amounts for the relevant distribution system in respect of standard control services for each regulatory year of: (a) the current regulatory control period using the AER's roll forward model, which is to be submitted as part of the regulatory proposal (b) the forthcoming regulatory control period using the AER's post-tax revenue model, which is to be submitted as part of the regulatory proposal.	Regulatory Proposal – Chapter 11: Depreciation
28.2	Energex must provide details of each departure from the underlying methods in the AER's roll forward model and post-tax revenue model for the calculations referred to in 28.1 and the reasons for that departure.	Regulatory Proposal – Chapter 11: Depreciation Energex has not departed
28.3	Energex must identify each change to standard asset lives for existing asset classes from the previous determination. Explain the reason(s) for the change and provide relevant supporting information.	Regulatory Proposal – Chapter 11: Depreciation
28.4	For each proposed new asset class, Energex must explain the reason(s) for using these new asset classes and provide relevant supporting information on their proposed standard asset lives.	Regulatory Proposal – Chapter 11: Depreciation
28.5	If existing asset classes from the previous determination are proposed to be removed and their residual values to be reallocated to other asset classes, Energex must explain the reason(s) for the change and provide relevant supporting information. This should include a demonstration of the materiality of the change on the forecast depreciation allowance.	Regulatory Proposal – Chapter 11: Depreciation
28.6	Energex must describe the method used to calculate the remaining asset lives for existing asset classes as at 1 July 2015 (the start of the forthcoming regulatory control period) and provide supporting calculations if the approach differs from that in the roll forward model.	Regulatory Proposal – Chapter 11: Depreciation
29.	Corporate Tax Allowance	
29.1	Energex must provide Energex's calculation of the estimated cost of corporate income tax for the forthcoming regulatory control period using the AER's post-tax revenue model, which is to be submitted as part of the regulatory	Regulatory Proposal: Chapter 14: Estimated Cost of Corporate Tax

	proposal.	Appendices 45: Value of Imputation Credits (gamma) and 46: An appropriate Regulatory Estimate of Gamma - SFG Regulatory Proposal – Attachment: PTRM - Standard Control
29.2	Energex must provide a demonstration that the calculation referred to in 29.1 complies with clause 6.5.3 of the NER.	Regulatory Proposal: Chapter 14: Estimated Cost of Corporate Tax Appendices 45: Value of Imputation Credits (gamma) and 46: An appropriate Regulatory Estimate of Gamma - SFG
29.3	Energex must provide details of each departure from the AER's post-tax revenue model for the calculations referred to in 29.1 and the reasons for that departure.	Regulatory Proposal: Chapter 14: Estimated Cost of Corporate Tax Appendices 45: Value of Imputation Credits (gamma) and 46: An appropriate Regulatory Estimate of Gamma - SFG Energex has not departed
29.4	Energex must identify each change to standard tax asset lives for existing asset classes from the previous determination. Explain the reason(s) for the change and provide relevant supporting information, including Federal tax laws governing depreciation for tax purposes.	Regulatory Proposal - Chapter 14: Estimated Cost of Corporate Tax Appendices 45: Value of Imputation Credits (gamma) and 46: An appropriate Regulatory Estimate of Gamma – SFG
29.5	Energex must describe the method used to calculate the remaining tax asset lives as at 1 July 2015 and provide supporting calculations, if the approach differs from that in the AER's roll forward model.	Regulatory Proposal - Chapter 14: Estimated Cost of Corporate Tax

		Appendices 45: Value of Imputation Credits (gamma) and 46: An appropriate Regulatory Estimate of Gamma – SFG
29.6	Energex must provide Energex's calculation of the tax asset base for the relevant distribution system in respect of standard control services for each regulatory year of the current regulatory control period using the AER's roll forward model, which is to be submitted as part of the regulatory proposal.	Regulatory Proposal - Chapter 14: Estimated Cost of Corporate Tax Appendices 45: Value of Imputation Credits (gamma) and 46: An appropriate Regulatory Estimate of Gamma – SFG
29.7	Energex must provide details of each departure from the underlying methods in the AER's roll forward model for the calculation referred to in 29.6 and the reasons for that departure.	Regulatory Proposal - Chapter 14: Estimated Cost of Corporate Tax Appendices 45: Value of Imputation Credits (gamma) and 46: An appropriate Regulatory Estimate of Gamma - SFG Energex has not departed
29.8	Energex must identify each difference in the capitalisation of expenditure for regulatory accounting purposes and tax accounting purposes. Provide reasons and supporting calculations to reconcile any differences between the two forms of accounts.	Regulatory Proposal - Chapter 14: Estimated Cost of Corporate Tax Appendices 45: Value of Imputation Credits (gamma) and 46: An appropriate Regulatory Estimate of Gamma – SFG
29.9	Energex must provide calculations to demonstrate if a tax loss carried forward will exist as at 1 July 2015. The figures used in these calculations, such as the revenue and operating expenses, should be actuals (with the exception of the final year of the current regulatory control period that requires an estimate). Identify and provide reasons for any assumptions applied to determine the value of any tax loss carried forward.	Regulatory Proposal - Chapter 14: Estimated Cost of Corporate Tax Appendices 45: Value of Imputation Credits (gamma) and 46: An appropriate Regulatory Estimate of

		Gamma - SFG
30.	Corporate Structure	
30.1	Energex must provide charts that set out: (a) the group corporate structure of which Energex is a part; and (b) the organisational structure of Energex.	Energex Schedule 1 Attachment: Supplementary Information
31.	Forecast Map of Distribution System	
31.1	Energex must provide a forecast map of Energex's distribution system for the forthcoming regulatory control period. This map, together with any appropriate accompanying notes, should also indicate the location of new major network assets proposed to be constructed over the forthcoming regulatory control period.	Energex Schedule 1 Attachment: Supplementary Information
32	Audit Reports	
32.1	32.1 Provide a Regulatory Audit report in the form of: (a) a Special Purpose Financial Report in accordance with the requirements set out at Appendix C; and (b) a Review report (for non-financial information) in accordance with the requirements set out at Appendix C.	Final Audit Report Queensland Audit Office – provided by KPMG Final Audit Report Parsons Brinkerhoff
32.2	Energex must provide all reports from the Auditor to Energex's management regarding the audit review and/or auditors' opinions or assessment.	All audit reports have been provided
33.	Board Resolution	
33.1	Energex must provide proof (such as an extract from the board minutes, or a resolution signed by a necessary majority of directors) that Energex's board has resolved that, to the best of the Board's information, knowledge and belief, the information provided in the response to paragraph 1.1 (being the information to be provided in the Microsoft Excel Workbooks attached at Appendix A) is: (a) for Actual Information, true and accurate; and	Energex Limited Board Resolution from 29 October 2014

	(b) where Energex cannot provide Actual Information, Energex's best estimate in relation to historical information, or best forecast in relation to forecast information.	
34.	Transitional Issues	
34.1	Energex must provide information on transitional issues (expressly identified in the Rules or otherwise) which Energex expects will have a material impact on it and should be considered by the AER in making its distribution determination. For each issue, set out the following information: (a) the transitional issue; (b) what has caused the transitional issue; (c) how the transitional issue impacts on Energex; and (d) how Energex considers the transitional issue could be addressed.	There are no transitional issues
35.	Confidential Information	
35.1	This clause applies to any information Energex provides: (a) in response to Schedule 1; (b) in a regulatory proposal, revenue proposal, proposed negotiating framework, proposed pricing methodology, access arrangement proposal or access arrangement for the forthcoming regulatory control period (a Proposal) (c) in a revision or amendment to a Proposal; and (d) in a submission Energex makes regarding a Proposal or a revised or amended Proposal; (together, Energex's Information).	Regulatory Proposal – Appendix 1: Confidential Information Template
35.2	If Energex wishes to make a claim for confidentiality over any of Energex's Information, Energex must provide the details of that claim in accordance with the requirements of the AER's Distribution Confidentiality Guideline, as if it extended and applied to that claim for confidentiality.	Regulatory Proposal – Appendix 1: Confidential Information Template
35.3	Energex must provide any details of a claim for confidentiality in response to clause 1.2 at the same time as making the claim for confidentiality. Confirm, in writing, that Energex consents to the AER disclosing all other of Energex's Information on the AER website.	Energex consents to the AER disclosing all other Energex information than that expressly contained in Regulatory Submission Appendix 1: Confidential Information Template

Energex

Schedule 1

Supplementary Information 2014

energex

positive energy

Version control

Version	Date	Description
1	10/10/2014	Draft 1 – Schedule 1 Supplementary Information

Energex Limited (Energex) is a Queensland Government Owned Corporation that builds, owns, operates and maintains the electricity distribution network in the growing region of South East Queensland. Energex provides distribution services to almost 1.4 million domestic and business connections, delivering electricity to a population base of around 3.2 million people.

Energex's key focus is distributing safe, reliable and affordable electricity in a commercially balanced way that provides value for its customers, manages risk and builds a sustainable future.

Group Manager
Corporate Communications
Energex
GPO Box 1461
BRISBANE QLD 4001

Table of Contents

1 Schedule 1 Supplementary Information

This document provides information requested by the Australian Energy Regulator in the Regulatory Information Notice issued 25 August 2014 that is not provided in the Subsequent Regulatory Proposal, regulatory templates or in a separate attachment.

Capital Expenditure

5.2	**Energex must provide the model(s) and methodology Energex used to develop its total forecast capex, including;** **(a) A description of how Energex prepared the forecast capex, including:** **i. how its preparation differed or related to budgetary, planning and governance processes used in the normal running of Energex's business;** **ii. the processes for ensuring amounts are free of error and other quality assurance steps; and** **iii. if and how Energex considered the resulting amounts, when translated into price impacts, were in the long term interest of consumers.** **(b) any source material used (including models, documentation or any other items containing quantitative data): and** **(c) calculations that demonstrate how data from the source material has been manipulated or transformed to generate data provided in the regulatory templates.**

The methodology used to develop its total forecast capex is explained in Regulatory Proposal Chapter 9 – Forecast Capital Expenditure and Appendix 19 – Expenditure forecasting methodology.

Energex uses a bottom up approach to developing its capex programs. There is no single model, rather a number of different models and methodologies depending on the expenditure driver.

Energex's Primavera system consolidates individual projects and associated estimates into a program of work. The output of Primavera is an input into Energex's COGNOS financial modelling environment.

Both Primavera and COGNOS are integrated software solutions and therefore Energex is unable to provide the model in isolation. Energex is happy to work with the AER to facilitate any review, assessment or modelling for the regulatory proposal.

5.3	**Energex must Identify which items of Energex's forecast capex have been:** **(a) derived directly from competitive tender processes;** **(b) based upon competitive tender processes for similar projects;** **(c) based upon estimates obtained from contractors or manufacturers;** **(d) based upon independent benchmarks;** **(e) based upon actual historical costs for similar projects; and** **(f) reflective of any amounts for risk, uncertainty or other unspecified contingency factors, and if so, how these amounts were calculated and deemed reasonable and prudent.**

(a) No items in the forecast capex have been derived from competitive tender.

(b) No items in the forecast capex have been based upon a competitive tender process for similar projects however historical costs project are built into Energex's estimating process as part of continuous feedback.

(c) No items in the forecast capex have been derived from estimates obtained from contractors or manufacturers.

(d) No items in the forecast capex have been derived from independent benchmarks however Energex unit rates have been independently reviewed (Appendix 23 Unit rate review – AECOM).

(e & f) Energex uses a combination of comparative, standard cost and bottom-up estimating methodologies to develop the capex program.

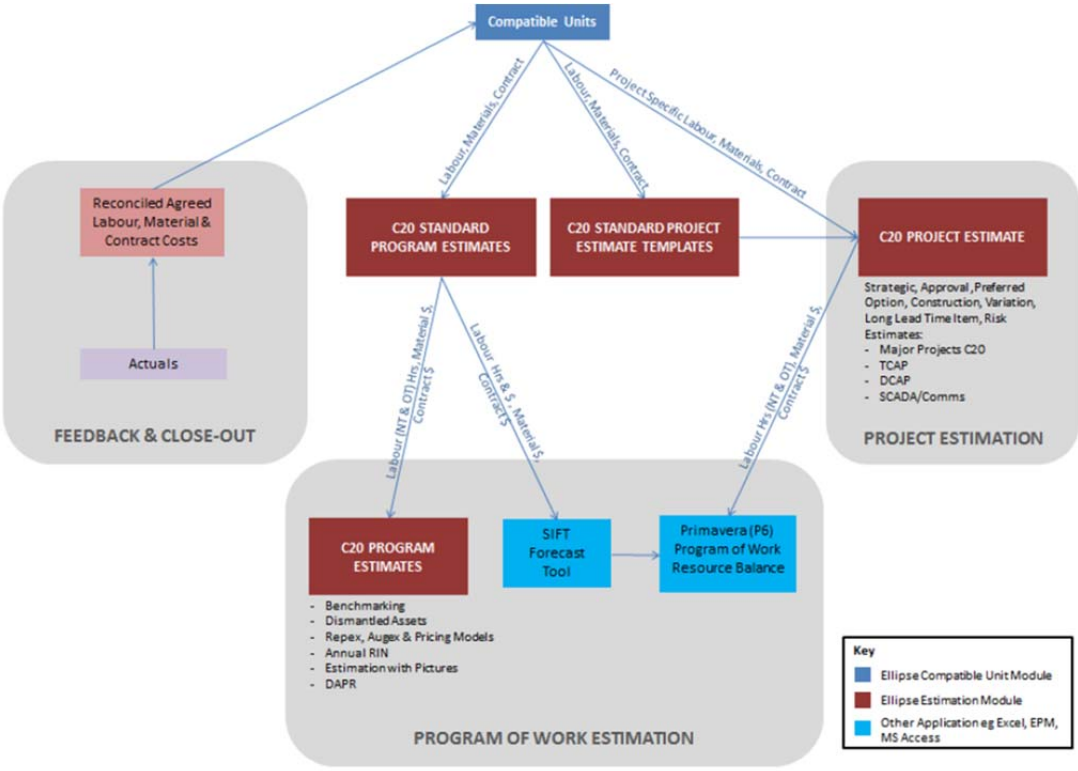
Standard cost estimation forms the basis of typical larger, lower volume high complexity type network projects. These cover a wide range of activities, and may be adjusted on application to cater for site specific identified requirements through a bottom-up quantification of project scope and application. This approach is typically employed for large sub-transmission and distribution type projects and incorporates the experience and knowledge of standard ways of construction of network components.

Comparative costing is used where a statistically significant historical sample size exists, whereby actual project or program costs are reconciled and assessed, which forms the basis of the cost estimate. This approach is typically employed for situations where there are high volumes of interrelated, consistent "project types" or "work" undertaken whereby a "unit rate" can be determined.

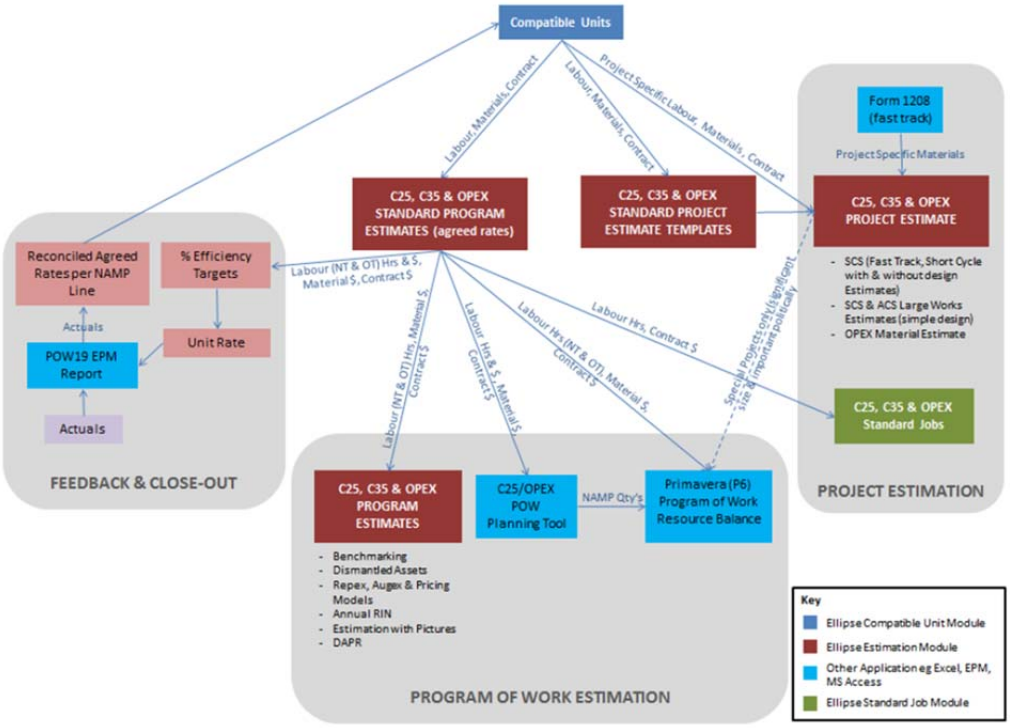
Underpinning both the comparative and standard cost estimation methodologies is a bottom up approach that consolidates associated labour, materials, external/contract costs with the defined scope of works. Standard costs are refined and adjusted based on project specific and expert knowledge through this approach.

The estimating approach for large and small projects are shown in diagrams below.

Estimation approach for large capital projects



Estimation approach for small capital projects



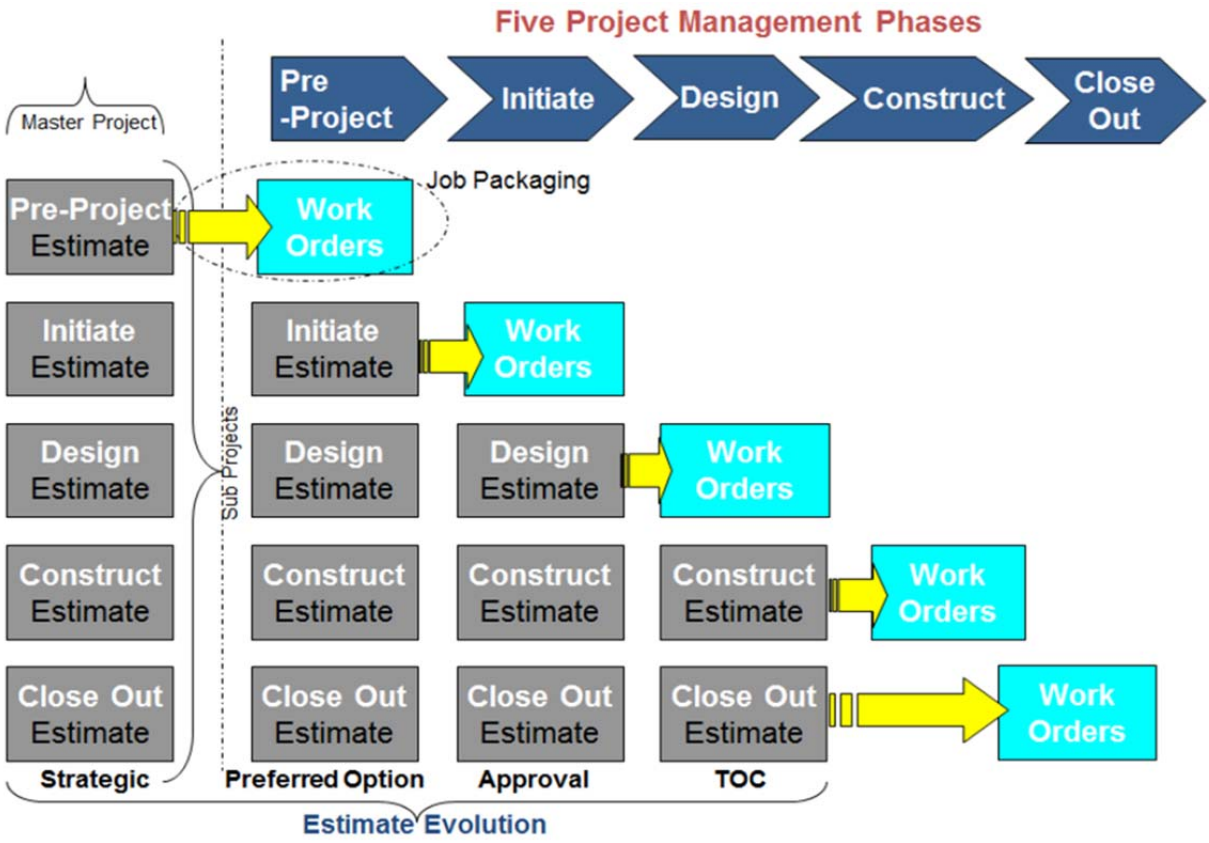
Estimation lifecycle

Project estimates are considered at key stages in the planning, design and construction process.

- Strategic estimates represent the initial determination of what the project may cost and are prepared based on minimal scoping for the purpose of program of works prioritisation and development.
- Preferred option estimates are produced with greater accuracy reflecting the more detailed scoping of the chosen network solution. This estimate is used for RIT-D purposes.
- Approval estimates are developed from detailed planning analysis of individual network limitations used for formal approval of capital expenditure. Project approval estimates are used to forecast capital requirements typically in the zero to three year timeframe.
- A Total Out-Turn Cost (TOC) estimate is produced following the detailed design for an approved project.

The majority of the projects and programs in Energex's 2015-20 capex forecast are based on Strategic estimates.

For large capital projects the project estimate incorporates costs associated with identified risks and uncertainty. These cost items are removed from the program build to reflect that project risk will balance out across the entire program.



5.4	**Energex is required to provide all documents which were taken into account and relate to the deliverability of forecast capex and explain the proposed deliverability.**

The estimation methodology (described above) is used to develop the combined capex and opex labour forecast. This labour forecast (by skill type) when combined with information on the existing internal and contractor resourcing levels is used as the basis for future resourcing requirements.

Reductions in volume of network capacity projects (primarily due to lower demand growth) is expected to change the mix of skilled workers required to deliver the program. Resourcing strategies are focussed on enabling a more efficient, flexible and sustainable workforce comprising both internal and contracted resources.

Materials, equipment and services necessary to deliver our program will continue to be purchased in accordance with the Queensland State Purchasing Policy.

Operating and Maintenance Expenditure

10.1	**Energex must provide:** **(a) the model(s) and the methodology Energex used to develop its total forecast opex;** **(b) justification for Energex's total forecast opex, including:** **i. why the total forecast opex is required for Energex to achieve each of the objectives in clause 6.5.6(a) of the NER;** **ii. how Energex's total forecast opex reasonably reflects each of the criteria in clause 6.5.6(c) of the NER; and** **iii. how Energex's total forecast opex accounts for the factors in clause 6.5.6(e) of the NER;**

(a) Energex developed its forecast opex predominantly on a Base Step Trend (BST) methodology. As BST was a new methodology that had not been previously used, Energex was required to design and develop an appropriate model. Energex determined that it was prudent to develop the modelling for the regulatory proposal within one of its corporate financial systems. The COGNOS Business Intelligence and Performance Management Suite of software (COGNOS) was used to model the regulatory proposal financial information. Use of COGNOS enabled Energex to incorporate the complexities of BST forecasting, application of Energex's revised Cost Allocation Methodology and development of Energex's total expenditure forecast in a controlled and structured environment. Consequently as COGNOS is an integrated software solution Energex is unable to provide the model used to develop the regulatory proposal in isolation. Energex is happy to work with the AER to facilitate any review, assessment or modelling for the regulatory proposal.

10.9	**Energex must provide an explanation of:** **(a) how, in developing the amount of total forecast opex attributable to changes in the price of labour and materials, Energex applied the real price measures in regulatory template 2.14; and** **(b) whether Energex's labour price measure compensates for any form of labour productivity change.**

(b) The approach used for the calculation of Energex's labour price measures is detailed in PwC's report on Forecast Cost Escalation Rates (4 March 2014) as well as PwC's Addendum to the Final Report (11 August 2014). The proposed labour cost escalation rates are based on the WPI which does not explicitly compensate for any form of labour productivity change. However, in developing its proposed forthcoming operating expenditure, Energex has incorporated on-going productivity improvements - these are discussed in Appendix 8: Base Step Trend Methodology.

Risk Management and Insurance

11.1	**11.1 Provide information that sets out Energex's governance arrangements in relation to the management of risk, including:** **(a) a risk appetite statement, which details the level of risk Energex's board is willing to accept including the nature and level of risks and the level of loss that can be sustained;** **(b) a risk management strategy that describes Energex's strategy for managing risk and the key elements of the risk management framework that give effect to this strategy; and** **(c) any other information that demonstrates Energex's governance arrangements in relation to risks and their management.**

Enterprise Risk Management Framework

Energex has adopted AS/NZS ISO 31000:2009 'Risk management–Principles and guidelines' (ISO 31000), including ISO Guide 73:2009 'Risk management–Vocabulary', as a guiding reference in the development of the Energex Enterprise Risk Management (ERM) Framework and Standard. Whilst the ERM Framework provides the overarching structure for the management of Risk within Energex, it also benefits from integrated specialist risk sub-frameworks, including Corporate Emergency Response Management and Business Continuity Management, triggered by events such as interruption of supply, natural disasters, storms events, terrorism and other security threats.

Consistent with ISO 31000, Energex's ERM Framework addresses the identification and management of Risk through a structured process, namely communicating and consulting, contextualising, identifying, analysing, evaluating, treating, monitoring and reporting of all Risks to which Energex is exposed, as detailed in the following diagram:

Source: ISO 31000:2009 Risk management–Principles and guidelines`

a) Risk Appetite

The Energex Limited Board has authorised the ERM Policy including the determining Risk Appetite statement that: “Energex will manage risk in the pursuit of balanced commercial outcomes to a level that is ‘as low as reasonably practicable’ within business constraints.’

The Executive Management Team is accountable to the Chief Executive Officer (CEO) and to the Board and is responsible for ensuring that Risks in their Divisions are managed to a tolerable level.

Key Risk responsibilities include:

- identifying material Risks to which Divisions are exposed
- analysing the Consequence of identified Risks on Divisional objectives and their Likelihood of occurrence to result in semi-quantitative assessment of the Level of Risk
- developing cost-effective Risk Treatments and strategies to reduce Risk Consequences and Likelihoods to tolerable levels, where feasible
- developing and implementing monitoring processes to ensure that Risk Treatments and strategies are working effectively and efficiently
- developing and implementing reporting processes to provide stakeholders with timely and accurate information on Risk Management performance.

The Risk Tolerability Table (as set out below) is essentially a pictorial representation of the Energex Risk Appetite and provides guidance on Risk tolerability criteria and action requirements.

Risk Tolerability Table				
Level of Risk	Risk Descriptor	Risk Tolerability Criteria and Action Requirements		
30 – 36	Extreme Risk	Intolerable (stop exposure immediately)		
24 – 29	Very High Risk	**Risk** must be managed in line with the **ALARP** Principle[1]	Executive Management Team Approval (required to continue risk exposure)	May need full Quantitative Risk Assessment Establish & implement appropriate mix of hard and soft Controls[2] according to Hierarchy of Risk Controls and Cost-Benefit Analysis Review their effectiveness
18 – 23	High Risk		Divisional Manager / Executive General Manager Approval (required to continue risk exposure)	Establish & implement appropriate mix of hard and soft Controls[2] according to Hierarchy of Risk Controls and Cost-Benefit Analysis Review their effectiveness
11 – 17	Medium Risk		Group Manager / Process Owner Approval (required to continue risk exposure)	Review existing Controls for effectiveness Introduce new or changed risk controls if Cost-Benefit justifiable
6 – 10	Low Risk		Line Manager (or equivalent) Approval (required to continue risk exposure)	Continual review of existing Controls for effectiveness Introduce new or changed risk controls if Cost-Benefit justifiable
1 – 5	Very Low Risk		Supervisor / Coordinator (or equivalent) Approval (required to continue risk exposure)	Continual review of existing Controls for effectiveness

[1] **ALARP** Principle - BMS03034 Enterprise Risk Management Policy - "Energex will manage Risk in the pursuit of balanced commercial outcomes to a level that is 'as low as reasonably practicable' within business constraints."
[2] Hard Controls = Rules e.g. Policies, Delegations | Soft Controls = Intangibles e.g. Ethics, Culture

b) Risk Management Strategy

The ERM strategy supports a decentralised approach where Managers are required to understand the operational and strategic Risks to which the business is exposed, assess the exposures and implement necessary mitigations in a cost-effective manner. The methodology adopted to satisfy this requirement is based on a structured approach to Risk profiling, as detailed in the ERM Standard and the ERM Manual.

Key elements of the Risk Management Framework that give effect to this strategy are:

- Policies create the Framework for reflecting the plans and intentions of the Board and management. Compliance with Policies is monitored by the various Board and Management Committees. Principal elements that underpin the organisation's ERM Framework are:
  - The ERM Policy is a formal statement of the Board's approach to Risk Management. This Policy is approved by the Board and is reviewed annually by management and the Board's Audit and Risk Committee (ARC).
  - The ERM Standard outlines the process of Risk Management to be used to support decision-making at Energex. It is regularly reviewed for currency and updated as required.
  - The ERM Manual is the primary document detailing the Risk Management process at Energex. Other subsidiary frameworks exist, such as those pertaining, but not limited, to Compliance, Safety and Network. These are also reviewed regularly and updated as required.

- Risk Registers (regularly refreshed by the business to aid management decision-making) containing assessments of both the Inherent and Residual Levels of Risks
- Risk Management Reporting – (evidencing ownership, relevance and progress of Risk Management Controls)
- Rolling Corporate Risk Plans (to evidence awareness of Risks that may affect the business from both near and long-term strategic perspectives).
- Risk appetite (as set out in the above section)

c) ERM Governance

The Board is responsible for oversight of Energex's ERM Framework. Key responsibilities of the Board include:

- setting Energex's Risk Appetite
- approving Enterprise Risk Management policies
- overseeing Energex's material Risks
- overseeing the adequacy and effectiveness of Energex's ERM Framework.

The ARC has overall oversight of the ERM Framework, however other Board Committees have responsibility for advising the Board of specific Risk matters that are brought to their attention in the course of the execution of their respective Charters. These committees are:

- Remuneration Committee
- Network Technical Committee
- Regulatory Committee.

The role of the ARC is to provide assistance and recommendations to support the Board in discharging its responsibilities for oversight of relevant matters, and in particular in relation to the following:

- Financial Integrity
- Risk Management
- Effectiveness of Control Framework
- Ethics and Integrity
- Assurance over Business Operations.

The CEO is ultimately responsible and accountable to the Energex Board for ensuring that policies, procedures, systems and Controls are operating effectively so that Risks are

managed to a tolerable level within the commercial constraints of the business as required to achieve balanced commercial outcomes.

Risk Management and Insurance - Insurance

11.2	**General instructions:** **(a) Regulatory template 2.15.1 must provide a summary of all Energex's proposed insurance costs.** **(b) Regulatory template 2.15.2 and 2.15.3 seek more detailed information regarding total property and liability premiums only. The total property premiums forecast in regulatory template 2.15.2 must equal the sum of the premium forecasts classed as property insurance in regulatory template 2.15.1. The total liability forecast in regulatory template 2.15.3 must equal the sum of the premium forecasts classed as liability insurance in regulatory template 2.15.1.** **(c) Amounts are exclusive of GST.**

(a) Table 2.15.1 in Regulatory template 2.15 provides a summary of all of Energex's proposed insurance costs.

(b) Refer to Regulatory template 2.15.

Total property premiums forecasts in table 2.15.2 equate to the sum of the premium forecasts classed as property insurance in *regulatory template* 2.15.1 (exclusive of Stamp duty). The total liability forecast in table 2.15.3 equate to the sum of the premium forecasts classed as liability insurance in *regulatory template* 2.15.1 (exclusive of Stamp duty).

(c) Amounts are exclusive of GST.

11.3	**Energex must provide the following information for each commercially insured risk listed in regulatory template 2.15.1:** **(a) the name and description of each insured risk, including policy limits and sub-limits;** **(b) a description of the general method used to forecast premiums (this may be in the form of an insurance premium forecast report by a qualified risk specialist); and** **(c) any changes in insurance cover between the current and forthcoming regulatory control periods.**

(a)

Risk Class	Description	Policy Limit
Public and Products Liability	Compensation to third parties in respect of death, illness, personal injury and / or property damage	See Table 2.15.1
Directors and Officer's Liability	Financial loss of insured persons which arises from or is a	See Table 2.15.1

	consequence of any claim first made against such insured person	
Employment Practices Liability	All loss arising from a claim against the insured for an Employment Practice Breach	See Table 2.15.1
Statutory Liability	Financial loss arising out of fines, penalties and legal fees resulting from an accidental breach of law	See Table 2.15.1
Group Personal Accident	Sickness benefits for 12 months for employees made redundant	See Table 2.15.1
Medical Malpractice	Professional Indemnity specifically to cover the provision of psychology services to Energex Employees	See Table 2.15.1
Trade Credit Insurance	Credit insurance to protect Energex against Retailer debts not paid.	See Table 2.15.1
WH&S	Coverage for defence costs incurred as a result of WH&S incidents.	See Table 2.15.1
Industrial Special Risks	Material Loss or Damage to Energex premises and property stored, including Increased Costs of Working and Professional fees for claims preparation.	See Table 2.15.1
Corporate Travel	Travel insurance cover for employees and Directors travelling for Business	See Table 2.15.1
Contract Works	Covers Loss or damage to Energex premises during construction works, including renovations.	See Table 2.15.1
Marine Transit	Covers Loss or damage to Energex property and equipment which occurs during transit.	See Table 2.15.1
General Property	Portable equipment policy – covers personal belongings of employees in Energex vehicles	See Table 2.15.1

(b) Refer to the Basis of Preparation document for forecast premium calculation method.

1) Value of Insured Assets for 2015 -2020 was based on 2010 – 2014 actual figures + 15% growth assumption

2) Premiums for periods 2015 – 2020 were based on 2010 – 2014 actual +10% projected premium growth

3) Value of Total Liability for 2015 – 2020 was based on 2010 – 2015 actual figures plus 10% growth assumption

4) Statutory Charges for table 2.15.2 were calculated as average of applicable Stamp Duty averaged out over all Property classes

5) Statutory Charges for table 2.15.3 were calculated as average of applicable Stamp Duty averaged out over all Liability classes

6) Other rules and logic – all calculations pertaining to Premiums were G.S.T. and Stamp Duty exclusive

- Forecast premiums were arrived at based on the previous five year average increases and the appropriate formulaic approach was adopted throughout the Regulatory Reporting template. Historical data was analysed to obtain a substantive average calculation basis to apply to the new Regulatory Period, in addition to this contact was made with stakeholders within the Company to establish if there were to be any extraordinary items to take into account over the upcoming Regulatory Period.

- Policy Limits were set after discussion with the relevant Stakeholders to determine maximum exposure based on current and projected Asset base.

- Premiums were arrived at by Insurance Brokers Willis obtaining best Market outcome for the level and nature of risk for Energex. Total Premiums calculated on assumed average % increase less G.S.T. component

- Liability Cap calculation basis is directly linked to the overall coverage and reflects an appropriate level of exposure for Energex in the event of a large loss scenario

- In addition to the above discussions were held with Energex's Brokers to ascertain any trend within the Insurance Market that could have any adverse impact on the basis of calculation going forward

- Self Insurance elements are based on the most cost effective manner in which smaller loss issues can be dealt with in order to set the maximum benefit for Energex in relation to appropriate and prudent coverage cost's

- Property values were based on current portfolio and data supplied by the Property group regarding any potential variations over the life of the determination

- The calculation basis that was arrived at was applied across the various sub classes of Insurance to obtain a result based on extrapolated expectations of cost, coverage and deductable

(c) No changes to insurance cover has been confirmed at the time of preparing the regulatory submission, however, the insurance cover is assessed annually to insure it is adequate and appropriate in line with Energex's current risk profile.

11.4	**Energex must provide the following information regarding total property and total liability insurance reported in regulatory templates 2.15.2 and 2.15.3 respectively:** **(a) a description of the systematic drivers of insurance premiums;** **(b) a description of the circumstances that have led to any premium changes over the current regulatory control period;** **(c) a description of the method used to forecast premiums for the forthcoming regulatory control period, including estimated exposure growth and premium rate changes and any other adjustments made. Provide supporting evidence for exposure, premium rate changes, or any other proposed adjustments; and** **(d) an explanation of how the value of insured assets is derived for property insurance (e.g. replacement costs, insured value etc.).**

(a) See attached Willis insurance renewal report outlining the factors that drive insurance premiums.

(b) The insurance coverage is evaluate annually, as outlined in the attached Willis insurance renewal report, to ensure adequate and appropriate coverage, and commercial terms are agreed with insurers.

(c & d) A schedule of the total value of Energex property including equipment, stores, and buildings is provided annually and included in insurance renewal documentation to insurers.

11.6	**Energex must provide a report from an appropriately qualified risk specialist verifying that Energex's forecast insurance premiums are efficient.**

See attached Willis insurance renewal report outlining the robust process that Energex and Willis use to ensure premiums are efficient.

Alternative Control Services

12.6	**For metering and public lighting alternative control services. Energex must specify the number of customers in each year of the current regulatory control period, and forecasts for the forthcoming regulatory control period.**

Metering customer numbers have been specified in table 4.2.1 in regulatory template 4.2.

The current public lighting customers include the road authorities (Council's and Transport and Main Roads) in South East Queensland. There is expected to be no change in number of customers in each of the current regulatory control periods.

- Scenic Rim Council
- Gold Coast City Council
- Brisbane City Council
- Redlands City Council
- Ipswich City Council
- Logan City Council
- Moreton Regional Council

- Sunshine Coast Regional Council
- Noosa Council
- Gympie Regional Council
- Lockyer Valley Regional Council
- Somerset Regional Council
- Department of Transport and Main Roads

12.8	**Energex must list each material category (e.g. meters, poles, brackets) required for the provision of alternative control services listed in the response to paragraphs 12, 13, 14 and 15.** **(a) Provide a description of each material category** **(b) Provide the average unit costs for each material category** **(c) List all direct costs included in the unit costs** **(d) Specify the calculation of the quantum of direct materials costs included in the unit cost of materials.**

The table below demonstrates the costs associated with metering, specifically Type 6 meters for alternative control services only. Costings no longer include the cost of relays.

2013-2014

Installation Type	Material Costs			Internal Labour Rate per hour
	Meter	CT Kit [1]	Misc. Material Costs [2]	
Single phase	$ 50.00	$ 0.00	$ 0.28	$ 67.55
Single phase integrated	$ 125.00	$ 0.00	$ 0.28	$ 67.55
Poly phase DC	$ 173.00	$ 0.00	$ 0.28	$ 67.55
Poly phase CT	$ 173.00	$ 284.00	$ 2.00	$ 67.55

Notes:

1. Materials included in CT kit are purchased separately however they are bundled in when issued for installation. There are three separate categories of instrument transformers (CT ratios 200/5, 800/5 & 1500/5) with slight differences in pricing, average cost of kit has been displayed.
2. Miscellaneous material cost includes average total cost of consumables such as screws and meter cover seals.

Public Lighting Alternative Control Services

15.2	**Energex must provide unit costs for the current regulatory control period and forecast for the forthcoming regulatory control period for:** **(a) Luminaires;** **(b) Dedicated street lighting poles;** **(c) Brackets;** **(d) Lamps;** **(e) Photoelectric cells;** **(f) Labour rate (per hour);** **(g) Miscellaneous materials.**

Variation in the installation costs of differing lamp types is negligible in comparison with the average installation cost of Energex's standard street light constructions. On this basis, the information provided in Table 4.1.3 of the regulatory template 4.1 is based on Energex's estimated cost of standard street light constructions, which are largely lamp type agnostic for standard luminaires.

At present, Energex has 5 types of standard constructions for public lighting, namely:

- Wood Pole Major –the estimated unit cost includes installation of an S150 luminaire and a 3m bracket, and assumes the wood pole exists and low voltage supply is available.
- Steel Overhead Major – the estimated unit cost includes installation of an S250 luminaire and a 3m bracket, a new steel pole and provision of a 40 metre span of overhead service.
- Underground Major – the estimated unit cost includes installation of an S250 luminaire and a 3m bracket, a new steel pole and provision of a 30 metre length of underground supply.
- Wood Pole Minor – the estimated unit cost includes installation of a 32CFL luminaire and a 1.2 m bracket, and assumes the wood pole exists and low voltage supply is available.
- Minor Road Steel – the estimated unit cost includes the installation of a 32CFL luminaire, a new decorative steel pole (inc integral bracket) and provision of a 5 metre length of underground supply.

The unit costs by component for each of the 5 standard construction types are as follows:

2013-14

Type	Materials Cost				Internal Labour Rate
	Luminaire cost (inc PE and lamp)	Dedicated SL Pole Cost	Bracket Cost	Miscellaneous Material Costs	
Wood Pole Major	$ 236.47	$ -	$ 369.40	$ 36.26	$ 66.41
Steel Overhead Major	$ 245.82	$ 1,106.28	$ 419.65	$ 148.98	$ 63.31
Underground Major	$ 245.82	$ 1,086.20	$ 419.65	$ 624.67	$ 61.30
Wood Pole Minor	$ 158.99	$ -	$ 63.40	$ 55.06	$ 62.24
Steel Pole Minor $_2$	$ 410.07	$ 841.23	$ -	$ 52.15	$ 61.32

2014-15

Type	Materials Cost				Internal Labour Rate
	Luminaire cost (inc PE and lamp)	Dedicated SL Pole Cost	Bracket Cost	Miscellaneous Material Costs	
Wood Pole Major	$ 241.20	$ -	$ 376.79	$ 36.99	$ 68.40
Steel Overhead Major	$ 250.74	$ 1,128.41	$ 428.04	$ 151.96	$ 65.21
Underground Major	$ 250.74	$ 1,107.92	$ 428.04	$ 637.16	$ 63.14
Wood Pole Minor	$ 162.17	$ -	$ 64.67	$ 56.16	$ 64.11
Steel Pole Minor $_2$	$ 418.27	$ 858.05	$ -	$ 53.19	$ 63.16

2015-16

Type	Materials Cost				Internal Labour Rate
	Luminaire cost (inc PE and lamp)	Dedicated SL Pole Cost	Bracket Cost	Miscellaneous Material Costs	
Wood Pole Major	$ 247.95	$ -	$ 387.34	$ 38.03	$ 70.62
Steel Overhead Major	$ 257.76	$ 1,160.01	$ 440.03	$ 156.21	$ 67.33
Underground Major	$ 257.76	$ 1,138.94	$ 440.03	$ 655.00	$ 65.19
Wood Pole Minor	$ 166.71	$ -	$ 66.48	$ 57.73	$ 66.19
Steel Pole Minor $_2$	$ 429.98	$ 882.08	$ -	$ 54.68	$ 65.21

2016-17

Type	Materials Cost				Internal Labour Rate
	Luminaire cost (inc PE and lamp)	Dedicated SL Pole Cost	Bracket Cost	Miscellaneous Material Costs	
Wood Pole Major	$ 253.66	$ -	$ 396.25	$ 38.90	$ 73.09
Steel Overhead Major	$ 263.69	$ 1,186.69	$ 450.15	$ 159.81	$ 69.68
Underground Major	$ 263.69	$ 1,165.14	$ 450.15	$ 670.07	$ 67.47
Wood Pole Minor	$ 170.55	$ -	$ 68.01	$ 59.06	$ 68.51
Steel Pole Minor $_2$	$ 439.87	$ 902.36	$ -	$ 55.94	$ 67.50

2017-18

Type	Materials Cost				Internal Labour Rate
	Luminaire cost (inc PE and lamp)	Dedicated SL Pole Cost	Bracket Cost	Miscellaneous Material Costs	
Wood Pole Major	$ 259.74	$ -	$ 405.76	$ 39.83	$ 75.65
Steel Overhead Major	$ 270.02	$ 1,215.17	$ 460.95	$ 163.64	$ 72.12
Underground Major	$ 270.02	$ 1,193.10	$ 460.95	$ 686.15	$ 69.84
Wood Pole Minor	$ 174.64	$ -	$ 69.64	$ 60.48	$ 70.91
Steel Pole Minor $_2$	$ 450.43	$ 924.02	$ -	$ 57.28	$ 69.86

2018-19

Type	Materials Cost				Internal Labour Rate
	Luminaire cost (inc PE and lamp)	Dedicated SL Pole Cost	Bracket Cost	Miscellaneous Material Costs	
Wood Pole Major	$ 266.24	$ -	$ 415.90	$ 40.83	$ 78.30
Steel Overhead Major	$ 276.77	$ 1,245.55	$ 472.47	$ 167.73	$ 72.12
Underground Major	$ 276.77	$ 1,222.93	$ 472.47	$ 703.30	$ 69.84
Wood Pole Minor	$ 179.00	$ -	$ 71.38	$ 61.99	$ 70.91
Steel Pole Minor $_2$	$ 461.69	$ 947.12	$ -	$ 58.71	$ 69.86

2019-20

Type	Materials Cost				Internal Labour Rate
	Luminaire cost (inc PE and lamp)	Dedicated SL Pole Cost	Bracket Cost	Miscellaneous Material Costs	
Wood Pole Major	$ 273.16	$ -	$ 426.72	$ 41.89	$ 81.04
Steel Overhead Major	$ 283.96	$ 1,277.93	$ 484.76	$ 172.10	$ 74.64
Underground Major	$ 283.96	$ 1,254.72	$ 484.76	$ 721.59	$ 72.28
Wood Pole Minor	$ 183.66	$ -	$ 73.24	$ 63.60	$ 73.39
Steel Pole Minor [2]	$ 473.69	$ 971.75	$ -	$ 60.24	$ 72.30

Notes:

1. Luminaires are purchased complete with PE cell and lamp, hence individual costs for these items could not be separated as requested.
2. Steel Pole Minor luminaire cost includes integral decorative bracket

15.4	**Energex must provide the bulk change cycle in years for lamps and photoelectric cells.**

Generally, public lighting system maintenance is performed as a result of an inspection patrol or reports. However, reports from the general public, local authorities and staff members are used in addition to this baseline approach to further identify problems.

Inspection Intervals – Off By Night:

These inspection programs ensure that all public lighting systems (excepting bulk replacement areas) are inspected and assessed as follows:

- on a 6 week cycle for major roads
- on a 12 week cycle for minor roads

Inspection Intervals – On By Day:

These inspection programs ensure that all public lighting systems (excepting bulk replacement areas) are inspected and assessed (patrolled) as follows:

- on a 6 monthly cycle for major roads
- on a 6 monthly cycle for minor roads

In certain situations (eg. rural towns or island communities, isolated roads etc), it is not cost effective or efficient to patrol the public lighting systems at the above intervals. These locations include approximately 69 locales with approximately 4200 streetlights. In these cases an annual inspection is undertaken followed by spot replacement of defects identified. (lamps, PE cells, etc). Similar to the more frequent inspections reports from the general public, local authorities and staff members are used in addition to this baseline approach to further identify problems.

As such Energex has no bulk change/replacement program in place for lamps and PE Cells. It should be noted that for Highways and Motorways with Energex's area, generally the street lighting is owned and maintained by the Road Authority, hence Energex has no involvement in these type of installations that are most economically maintained via bulk replacement programs.

15.5	**Energex must provide details of the average replacement age of each type of luminaire.**

Luminaires in service within Energex are predominately the following types, with current standard luminaires shown in **bold**:

- Mercury Vapour - M50, **M80**, M125, M250, M400,
- High Sodium Vapour - S50, **S70, S100, S150, S250, S400**
- Metal Halide – **H70, H100,H150,H250.**
- Fluoro (inc Compact) - 1 x 18W, 2 x 18W, 3 x 18W, **32W CFL, T5 2x14W, T5 2x24W.**

Energex does not maintain average service life data for each luminaire, hence this is estimated at 20 years as detailed in Table 5.2.1 of the regulatory template 5.2.

Related Party Transactions

19.1	**Energex must identify and describe all entities which:** **(a) are a related party to Energex;** **(b) are a related party to Energex and contribute to the provision of distribution services; or** **(c) have the capacity to determine the outcome of decisions about Energex's financial and operating policies.**

Energy Impact

Energy Impact Pty Ltd (EI) is a wholly owned subsidiary of Energex and as such is considered a related party. EI provides Distributed Energy Solutions Services to Energex in areas of the network that are constrained. This is achieved by contracting onsite customer Generators that can be activated at times when the Energex network is operating at peak capacity in those localised areas.

Currently Energex has 4 contracts in place with EI covering 17 sites across the Energex network. Under ring fencing requirements Energex is not able to undertake energy generation activities and outsources such network support activities to third parties.

As EI is a subsidiary of Energex it is necessary for Energex to demonstrate that the related party transactions are comparable to two companies dealing with each other at arm's length. Energex essentially enters into single source arrangements with EI dependent upon the availability of customer generation capacity in the localised constrained areas of the network. To ensure that a competitive price is received from EI Energex conducts a market sounding exercise to compare the costs of services against those provided by similar operators in other geographic areas.

SPARQ Solutions

SPARQ is the dedicated information and communications technology products, services and solutions provider for Energex and Ergon Energy. An umbrella SLA is in place which outlines standard services and support arrangements including those related to distribution services.

By having a dedicated ICT relationship SPARQ is able to partner closely with Energex to provide; efficient and effective ICT network enabled by a single ICT team; and improved value for money for the Energex business with a reduction in duplication of ICT services provision through a consolidation of SPARQ functions.

SPARQ plays an important role in helping Energex maintain network services by prioritising resources to critical network systems during events such as storms. The SLA outlines SPARQ responsibilities for maintaining critical business systems and ensuring these are available and can be relied upon for network purposes.

SPARQ will as a course of business further outsource work to contractors to manage peak workloads, reduce costs and obtain specialist services when required.

SPARQ operates as a cost recovery business therefore it does not include any commercial margin in their charges to Energex.

19.4	**For each service identified in the response to paragraph 19.3(b), Energex must** **(a) provide:** **i. a description of the process used to procure the service; and** **ii. supporting documentation including, but not limited to, requests for tender, tender submissions, internal committee papers evaluating the tenders, contracts between Energex and the relevant provider;** **(b) explain:** **i. why that service is the subject of an arrangement or contract (i.e. why it is outsourced) instead of being undertaken by Energex itself;** **ii. whether the services procured were provided under a standalone contract or provided as part of a broader operational agreement (or similar);** **iii. whether the services were procured on a genuinely competitive basis and if not, why; and** **iv. whether the service (or any component thereof) was further outsourced to another provider.**

The following table supports the requirements of 19.3 and 19.4. Supporting documentation is available to the AER upon request.

Entity	Arrangements or Contracts in place	Service or subject	Description of procurement process	Supporting documentation	Justification for outsourced arrangement	Standalone contract or part of broader operational agreement	Whether procured on competitive basis and why/why not	Whether service was further outsourced to another provider
Energy Impact (EI)	Contract for the Supply of meters (to EI by Energex Ltd T/A Metering Dynamics	Supply of meters for EI Generation sites	Single Source	Agreement	Installation of appropriate metering at EI Generation sites	Standalone (but related to other EI contracts with Energex)	Not Competitive: Metering Dynamics is a wholly owned subsidiary of Energex and preferred supplier	NA
	Demand Response generation capacity in areas of network constraint	• Contract for use of Embedded Generation Units at Bromelton	Single Source	Agreement	Energex is not allowed to provide energy generation services.	Standalone	Single source procurement limited by nature of geographic location of customer and network constraints	NA
	Demand Response generation capacity in areas of network constraint	Contract for use of Embedded Generation Units at: • Prince Charles Hospital (co-generation) • Royal Pines Resort • Prince Charles Hospital • Princess Alexandria Hospital • Caboolture Admin Building • Caboolture CBD Building • Energex Control Centre • Royal Brisbane Hospital • Scientific Services APN Yandina	Single Source	Agreement	Energex is not allowed to provide energy generation services.	Standalone	Single source procurement limited by nature of geographic location of customer and network constraints	NA
	Demand Response generation capacity in areas of network constraint	Contract for Use of embedded Generation Units at: • Morayfiled North • Lytton • Carole Park • Wacol • Nudgee • Carole Park Central	Single Source	Agreement	Energex is not allowed to provide energy generation services.	Standalone	Single source procurement limited by nature of geographic location of customer and network constraints	NA
SPARQ	SPARQ Service Level Agreement	• Dedicated ICT services, products and systems support	Single Source	Service Level Agreement	SPARQ acts as specialist ICT support closely supporting Energex in network services	The SLA is a broader agreement that outlines conditions and commitments across a large number of services.	Not Competitive: Sparq Solutions is a 50% owned joint venture with Ergon Energy and preferred supplier	SPARQ will as a course of business further outsource work to contractors to manage peak workloads, reduce costs and obtain specialist services when required.

Non-Network Alternatives

21.1	**Energex must identify the Policies and Strategies and Procedures which relate to the selection of efficient non-network solutions.**

Non-network solutions are categorised as Business DM or Residential DM. Policies and strategies that relate to the selection of efficient non-network solutions for Business DM include the Energex Demand Side Engagement Strategy, available online at https://www.energex.com.au/__data/assets/pdf_file/0003/162273/Demand-Side-Engagement-Strategy-Nov13.pdf, together with internal procedures published in the Repository of Energex Documents (RED). Relevant internal documents include:

(i) Update the Energex Demand Side Engagement Strategy – RED 01093.
(ii) Engaging with non-network providers – RED 01090.
(iii) Deliver non-network solution – RED 01089.
(iv) Maintain the Energex Demand Side Engagement Facility – RED 01091.
(v) Network Planning and Expansion – RED 01147.
(vi) Maintain a non-network toolbox – RED 00548.
(vii) Screening for non-network options – RED 01092.
(viii) Produce a transmission planning RIT-D project assessment report – RED 00949.

There are a number of documented procedures for the delivery of Residential DM. Energex's Process-to-Go system contains the high level processes. The detailed procedures and work instructions are maintained in RED.

21.2	**Energex must explain the extent to which the provision for efficient non-network alternatives has been considered in the development of the forecast capex proposal and the forecast opex proposal.**

Efficient non-network alternatives for Residential DM and Business DM were each considered in relation to the forecast capex and opex for the next regulatory period.

Residential DM is offered as broad-based programs to all residential customers in the Energex network. Broad-based delivery of residential programs in 2010-2015 has proven to be the most cost effective method of delivery due to the economies of scale in marketing and education to all residential customers, along with strong industry engagement; specifically, engagement with the swimming pool industry, air-conditioning manufacturers and appliance retailers.

For the 2015 - 2020 regulatory period, Energex's approach to Residential DM has become more sophisticated and has enabled the impact of the program to be better modelled at a localised zone substation level. The impact of DM on the forecast is incorporated in the Substation Investment Forecasting Tool (SIFT) at the zone substation and bulk supply point levels. The forecast produced from SIFT is then used in the identification of network constraints and the consequential capital expenditure Program of Works.

For Business DM, there is a targeted approach which impacts the forecast capex by being incorporated in the planning process. The forecast opex is impacted by the cost of Business DM as the alternative to network augmentation. In other words, the Business DM program results in a direct reduction in forecast network capex, for a direct increase in forecast non-network opex, where is a net overall reduction in costs.

This process is outlined within the regulatory investment test for distribution (RIT-D). Energex fully supports the RIT-D process as the minimum requirement to consider all reasonable credible options, including non-network options without bias. Energex also considers non-network options earlier in the planning process to ensure that they won't be excluded for consideration due to timing. For this reason, Energex approaches network constraints from both the short term (less than five years away) and mid-term (up to 10 years). This ensures more opportunity for DM initiatives to compete with supply side only options on an equal footing. The Brisbane CBD is a good example of an area which faces high future augmentation costs in the mid-term but also has a high concentration of business customers who may be able to provide DM solutions if given sufficient time to respond to incentives.

21.3	**Energex must identify each non-network Project that Energex has:** **(a) commenced during the current regulatory control period; and** **(b) selected to commence during, or will continue into, the Forthcoming regulatory control period.**

For the 2010 to 2015 regulatory period, Energex was provided with significant support from the AER to continue DM. The 2013/14 year saw DM program complete its transition from a pilots and trials and project based program to a business-as-usual model which embeds DM into the Energex business as a normal part of day to day operations. The program continues to be successful, with an overall reduction of 126 MVA from peak demand from July 2010 to June 2014, which is 88% of the 144 MVA target. For the current regulatory period, the DM program includes Residential DM, load management, DM strategy, compliance and reporting, business DM and the Demand Management Innovation Allowance (DMIA) and RIT-D.

(a) DM Programs commencing during the 2010 to 2015 regulatory period:

Regulatory Proposal Appendix 17: Demand Management Program provides a summary of Energex's non-network projects and programs during the current regulatory period. A summary is provided below:

- **Residential DM** - provide customers with options for appliances that have been identified as having the most significant impact on residential peak demand. Energex has successfully managed peak demand with its historical hot water load management program and, more recently, upon the successful establishment of the Positive Payback PeakSmart air-conditioning and pool pump programs. These are offered as broad-based programs to all residential customers in the Energex network. Broad-based delivery of residential programs in 2010-2015 has proven to be the most cost effective method of delivery due to the economies of scale in marketing and education to all residential customers, along with strong industry engagement; specifically, engagement with the swimming pool industry, air-conditioning

manufacturers and appliance retailers. There has been continued strong growth of the uptake of demand response ready (PeakSmart) appliances, with industry support remaining very positive. Programs offering incentives for customers to connect their hot water system or pool pump to a controlled tariff, or to install a new efficient pool pump, have also contributed well to achieving the program target.

- **Load management, DM strategy, compliance and reporting -** Load management is concerned with the day-to-day management of the Energex load control system, which has successfully managed peak demand of hot water on the network. This program monitors its operational integrity, system equipment issues, and development of future life-cycle management strategies

  The development of DM strategies for the future, involvement in national standards and industry groups (eg Energex has been a strong advocate and supporter of development of AS 4755) and compliance and reporting at both a national and local jurisdictional level.

- **Business DM** - . At the outset, the Business DM Program was broad-based as the technology and processes were trialled with customers. As the POW has been adjusted, the direction of the program has shifted now to be targeted to customers in local areas where peak load issues are anticipated to be problematic. Business customers within the targeted areas are incentivised to participate in programs to reduce load at peak times. The targeted areas are updated bi-annually and published on the Energex website. This load reduction has been achieved in targeted areas where constraints are expected to emerge over the next five to ten years.

- **DMIA** – Under the Demand Management Innovation Scheme (DMIS), Energex is encouraged to explore new DM opportunities. The DMIS is funded by the Demand Management Innovation Allowance (DMIA). These projects will enable Energex to prepare for future challenges and emerging DM opportunities. During the 2010 to 2015 regulatory period, there have been six projects approved by Energex's Investment Review Committee.

- **Regulatory Test / RIT-D** – Energex has completed number non-network assessments under the Regulatory Test. In 2013/14, work has also progressed to introduce new processes to support the move from the Regulatory Test framework to the new Regulatory Investment Test for Distribution (RIT-D), including publication of a Demand Side Engagement Strategy on the Energex website.

(b) DM Programs proposed to continue during the 2015 to 2020 regulatory period:

Regulatory Proposal Appendix 17: Demand Management Program provides details of Energex's proposed non-network projects and programs. A summary is provided below:

- **Residential DM** – The residential program offers customers DM options for appliances that have been identified as having the most significant impact on residential peak demand. These programs provide customers with the ability to manage their electricity costs while addressing the major drivers of residential peak

demand being hot water systems, air-conditioners and pool pumps (and potentially in the future batteries and EVs).

- **Load management, DM strategy, compliance and reporting** – This program encompasses the ongoing management of the successful load control system (LCS), including better optimisation of the LCS and monitoring its operational integrity. The program also includes further development of DM strategies (including customer engagement and education), reporting obligations to the Technical Regulator, the Queensland government and the AER.

- **Business DM** – Energex supports the regulatory investment test for distribution (RIT-D) as a minimum obligation when considering network investment alternatives. In addition, Energex runs programs to embed DM into specific targeted areas where it is financially justified, in the years prior to a network constraint arising and the RIT-D process commencing. Larger business customers within targeted areas that are forecast to have localised growth, are incentivised to participate in programs to reduce load at peak times. The targeted areas are updated bi-annually and published on the Energex website.

- Energex is also planning to provide a range of DM solutions for Small to Medium Enterprise (SME) customers.

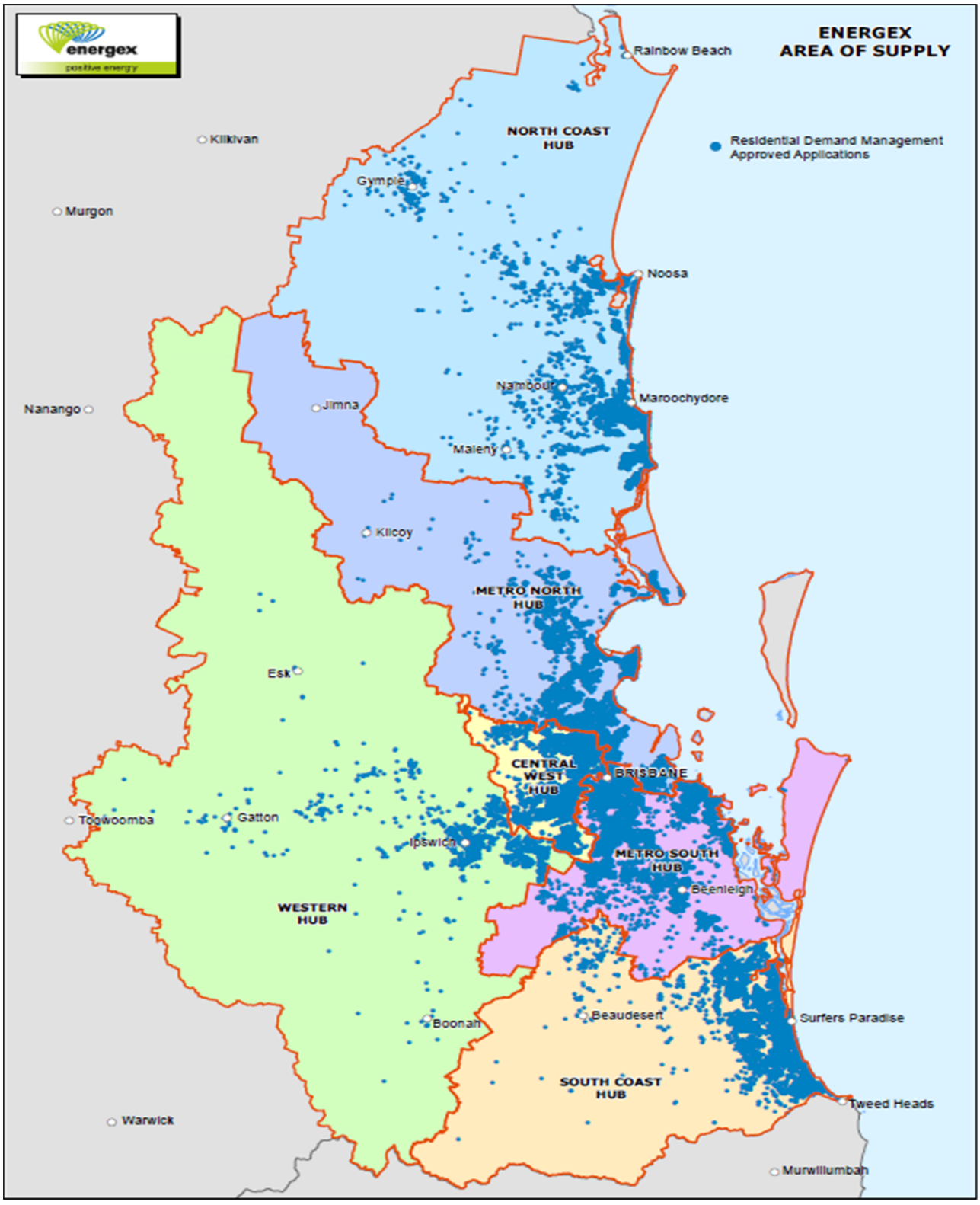
- Demand Management and Innovation Allowance (DMIA) – There are six proposed innovative projects to investigate options to manage demand. Regulatory Proposal Appendix 49: DMIA Proposals provides further information on these initiatives.

21.4	**For each non-network Project identified in the response to paragraph 21.3, Energex must provide a description, including cost and location.**

Please refer to the Regulatory Proposal Appendix 17: Demand Management Program for details of Energex's proposed non-network projects and programs.

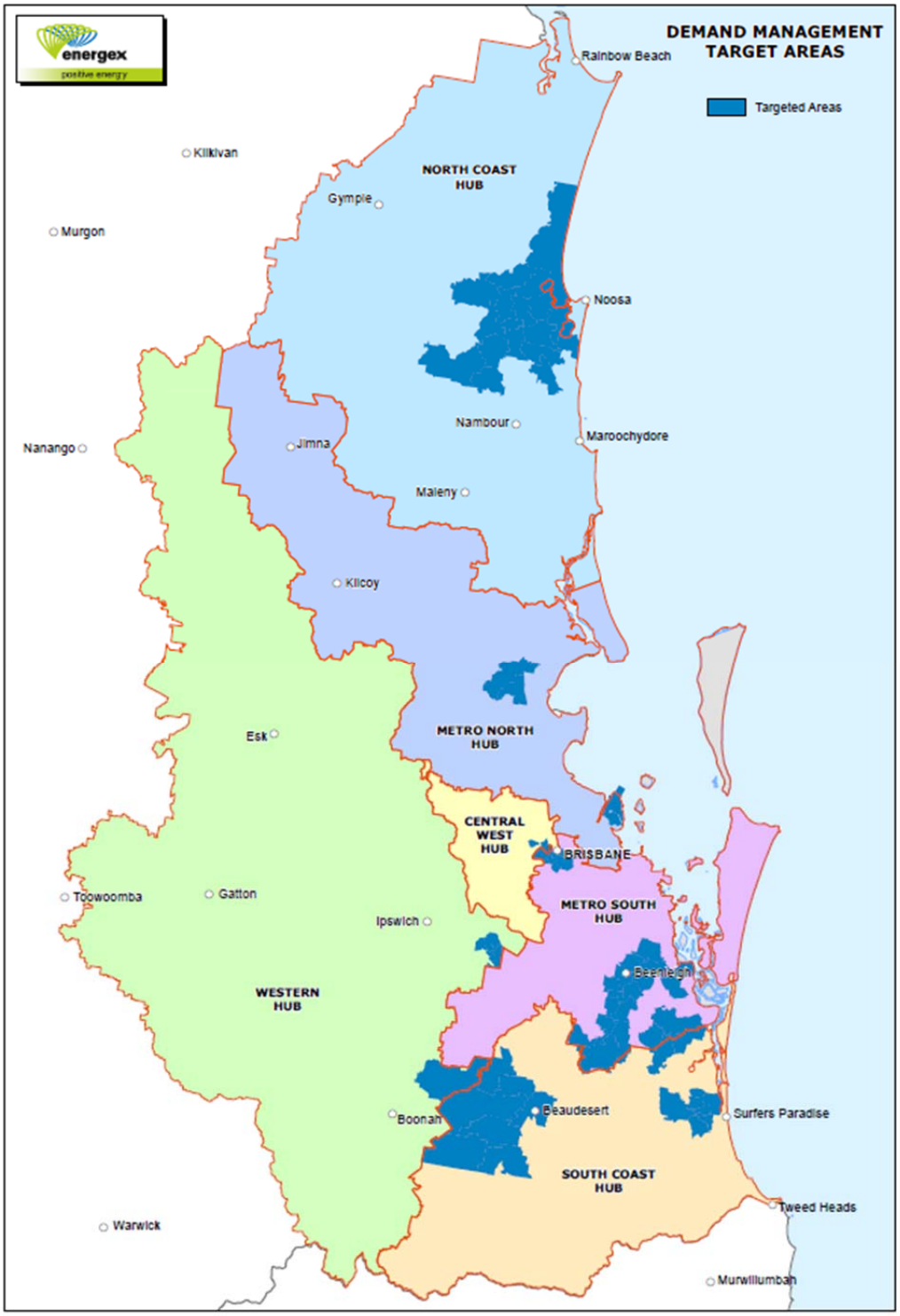
The location of Energex's broad based non-network solutions is provided in Figures 1 and 2.

Figure 1 – Location of residential DM on Energex's network by NMI



The locations of the target areas for the business DM program as at June 2014 are depicted in Figure 2.

Figure 2 – Location of targeted areas for business DM on Energex's network



21.5	**Energex must provide, for each year of the current regulatory control period, and for the forthcoming regulatory control period, details of each payment made, or expected to be made, by Energex to an Embedded Generator in reflection any costs avoided by deferring augmentation of:** **(a) Energex's distribution network; or** **(b) the relevant transmission network.**

The total costs paid for embedded generation to avoid network augmentation relate to the project at Bromelton. The total costs are outlined below in Table 1.

Table 1 – Bromelton project actual costs 2010 to 2015

DM Initiative	2010/11 $'000	2011/12 $'000	2012/13 $'000	2013/14 $'000	2014/15 $'000 Forecast	Total $'000
Bromelton	798	780	814	843	873	**4,108**

The total proposed costs to be paid for embedded generation to avoid network augmentation also relate to the project at Bromelton, as shown in Table 2.

Table 2 – Proposed Bromelton project costs 2015 to 2020 in 2014/15 dollars (direct)

DM Initiative	2015/16 $'000	2016/17 $'000	2017/18 $'000	2018/19 $'000	2019/20 $'000	Total $'000
Bromelton	1,085	1,121	1,158	1,197	1,237	**5,798**

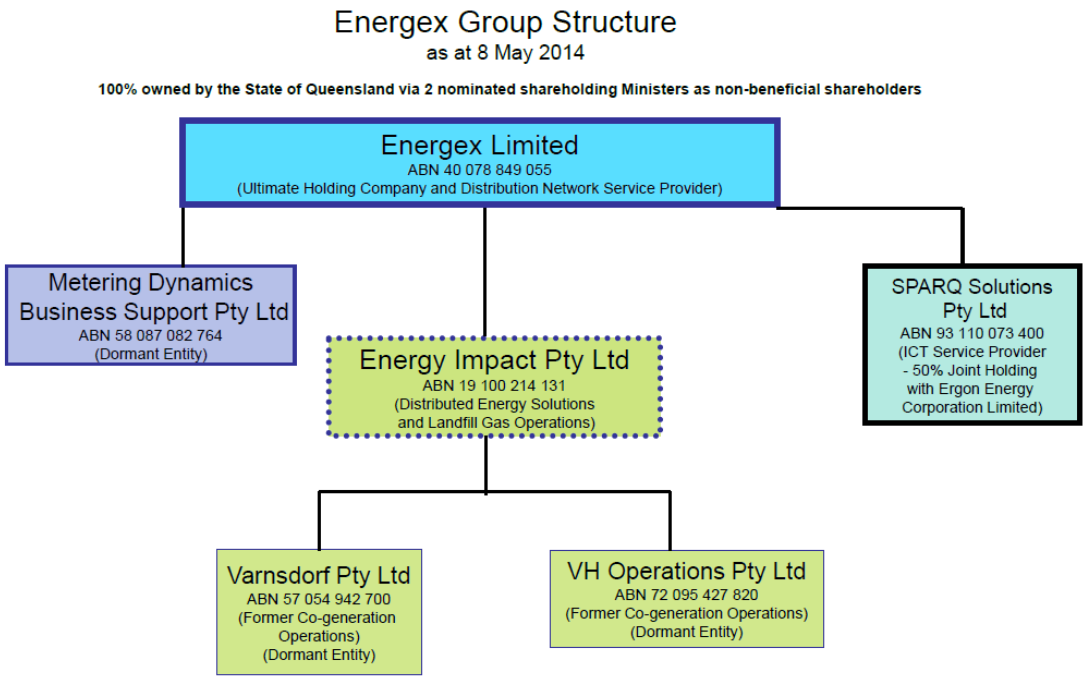
Service and Quality

23.1	**Energex must provide Energex's detailed methodology for calculating the following parameters used in the Service Target Performance Incentive Scheme (STPIS):** **(d) the MED threshold derived from the daily SAIDI data;**

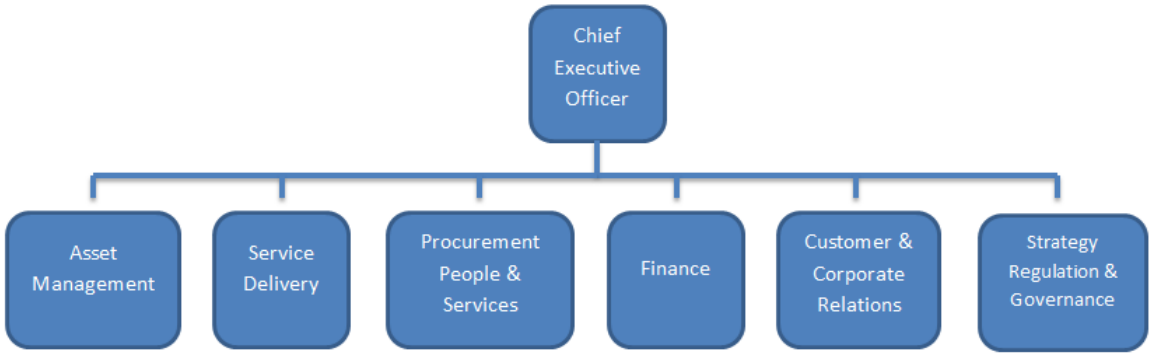
Energex calculates the Major Event Day threshold annually in accordance with the IEEE standard 1366-2003. The previous five years of daily unplanned SAIDI data is collected, reflecting exclusions permitted under Clause 3.3 (a) of the Service Target Performance Incentive Scheme. The threshold is then 2.5 standard deviations from the mean of the log normal distribution of the daily SAIDI data (the '2.5 beta method').

Corporate Structure

30.1	**Energex must provide charts that set out:** **(a) the group corporate structure of which Energex is a part; and** **(b) the organisational structure of Energex.**



NB All subsidiary companies 100% owned except as marked

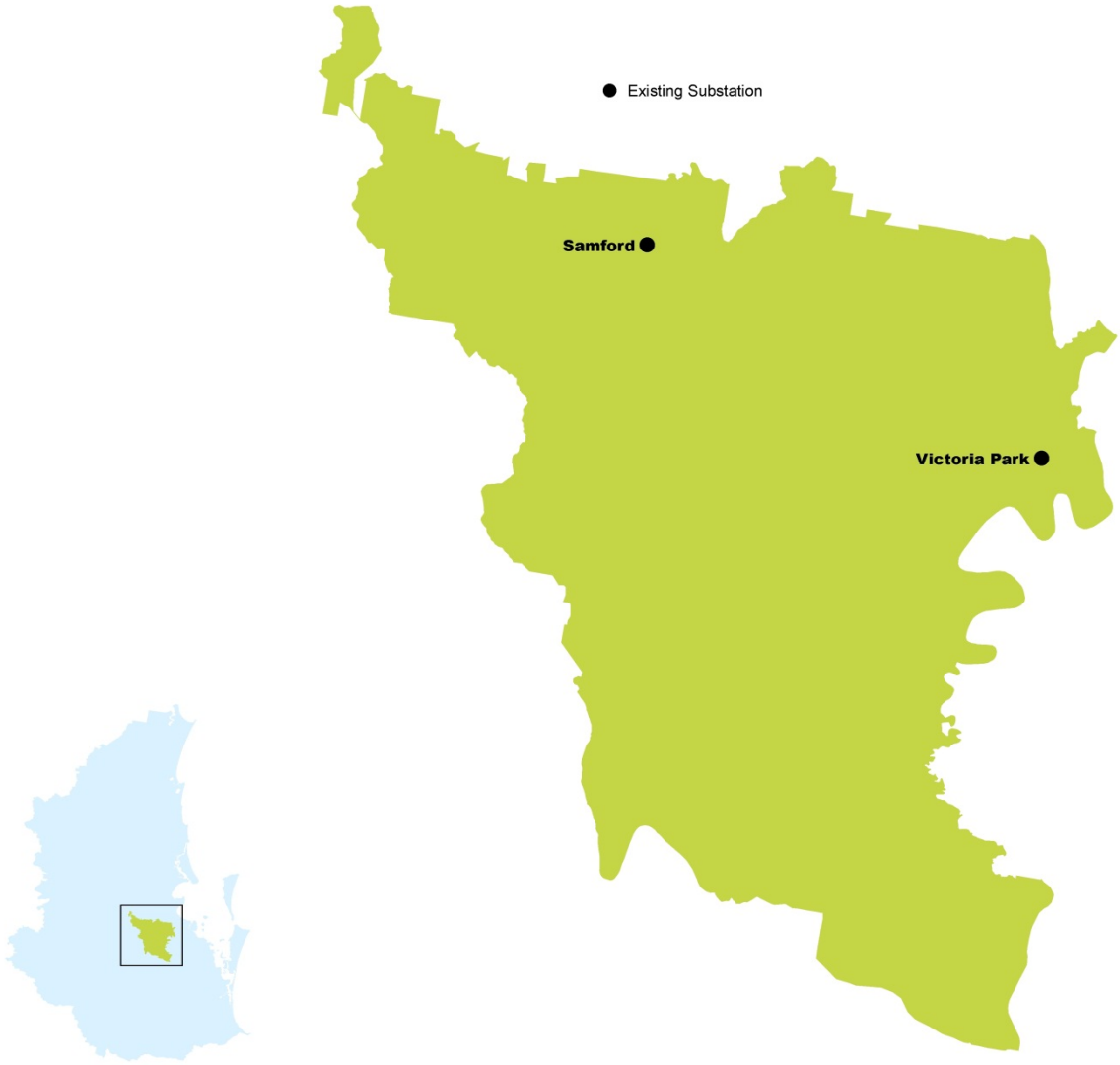


Energex Organisational Structure

Forecast Map of Distribution System

31.1	**Energex must provide a forecast map of Energex's distribution system for the forthcoming regulatory control period. This map, together with any appropriate accompanying notes, should also indicate the location of new major network assets proposed to be constructed over the forthcoming regulatory control period.**

Central West



- Replace existing 33/11 kV power transformers with 110/11 kV power transformers at Victoria Park substation by 2015.

- Upgrade Samford substation with an additional 33/11 kV power transformer and switchgear by 2015.

Metro North

- Build new 33/11 kV substation at Lomandra Drive by 2016

Metro South

- Replace 110/33 kV transformer at Cleveland substation by 2015
- Build new 110 kV feeder from Loganlea substation to Jimboomba substation by 2016.
- Build 2 new 110 kV feeders from Rocklea substation to Southern Portal substation by 2020.
- Build new 110/33 kV substation at Southern Portal substation by 2020.
- Install additional 110/11 kV transformer and replace switchgear at West End substation by 2020.

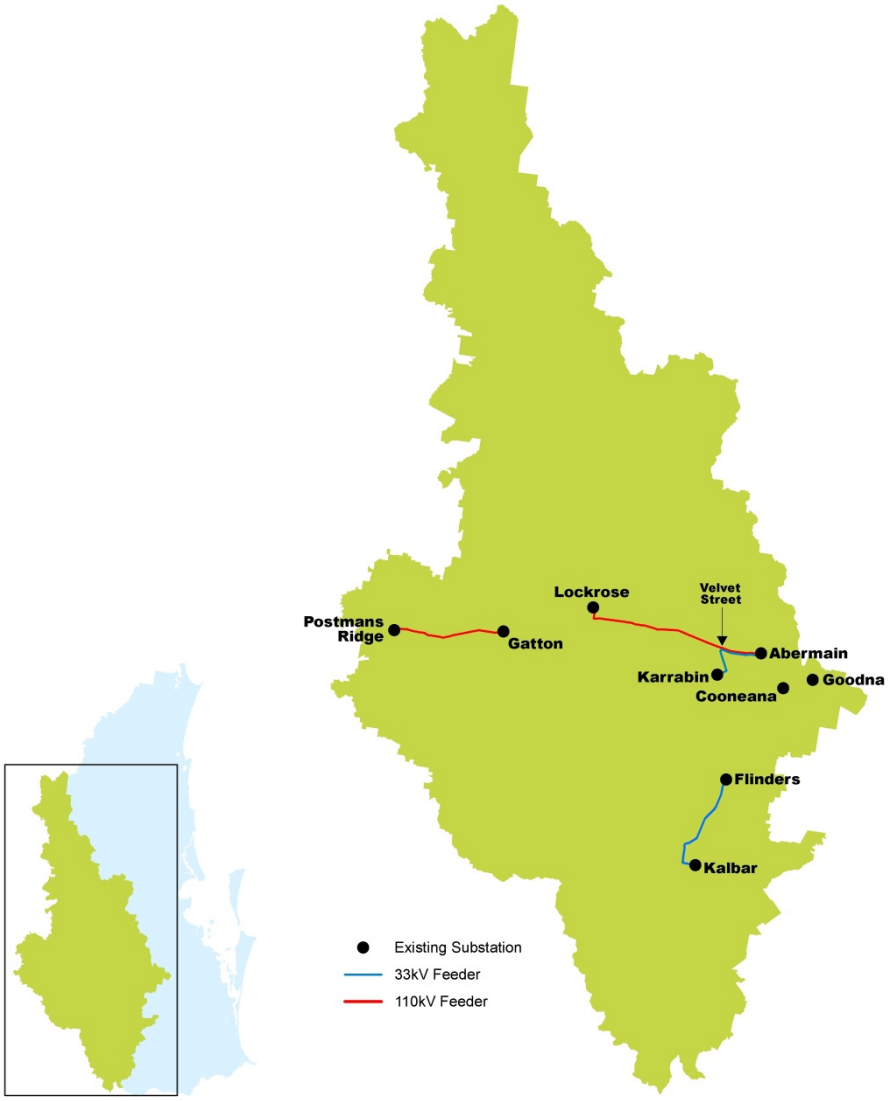
North Coast

- Build new 132/11 kV substation Birtinya by 2015.
- Build 2 new 132 kV feeders from Palmwoods substation to West Maroochydore substation by 2016.
- Upgrade Peregian substation with an additional 33/11 kV power transformer and switchgear by 2017.

South Coast

- Build new 11 kV feeder from Jimboomba substation to the proposed Jimboomba West substation by 2020.

Western



- Build new 33 kV feeder from Abermain to Karrabin by 2016.
- Upgrade Goodna substation with an additional 33/11 kV power transformer by 2017.
- Upgrade Cooneana substation with an additional 33/11 kV power transformer and switchgear by 2017.
- Upgrade 33kV feeder from Flinders to Kalbar by 2018.
- Upgrade 110 kV feeders from Lockrose substation to Abermain substation by 2019.