AER Public Forum

Country Energy's *Regulatory Proposal* 2009 to 2014

Sydney, 30 July 2008

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We live here too.

Introduction

Craig Murray, Managing Director

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Country Energy

One of Australia's largest regional businesses

A decentralised regional management structure, with around 4,200 employees and 770,000 network customers in nine regions

Operating Australia's largest electricity network

Around 200,000 kilometres of powerlines and 1.4 million power poles across urban, coastal, mountain, tableland and outback environments

Investing in customer service and communities

Created more than 700 new apprenticeships since 2001, and the largest direct employer of Indigenous apprentices in New South Wales

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Our key objectives

Country Energy's statutory objectives include

- *To be a successful business and, to this end*
  - *Operate at least as efficiently as any comparable business*
  - *Maximise the net worth of the State's investment in it*
  - *Exhibit a sense of social responsibility by having regard to the interests of the community in which it operates*
- *Protect the environment by conducting its operations in compliance with section 6 (2) of the Protection of the Environment Administration Act 1991*
- *Exhibit a sense of responsibility towards regional development and decentralisation*
- *Operate efficient, safe and reliable facilities for the distribution of electricity and other forms of energy*
- *Be an efficient and responsible supplier of electricity and other forms of energy and of services relating to the use and conservation of electricity and other forms of energy*

These objectives are of equal importance and underpin our overall purpose

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Our key challenges

- Customer expectations and compliance requirements
  - **Safety** of our employees and the public – legislation, industry codes, duty of care
  - **Reliability** of essential services – NSW *Network Design Reliability and Performance Licence Conditions* codify acceptable network customer service standards
  - **Environmental** protection – legislation, planning and assessment, responsibility
- Customer and employee demographics
  - **Growth** in customer numbers is strong and consumption patterns are changing – in general the coast and major regional centres are showing increasing peak demand
  - **Workforce** demographic change – 20 per cent of our meter readers will reach typical retirement age next year
- Efficiency and productivity
  - **Cost of living** pressures – need to provide a satisfactory level of service at an efficient cost
  - **Skills** and development – competition to attract and retain qualified employees, and provide secure and satisfying careers

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Country Energy's strategy

Our strategy for 2008-2009:

Be Australia's best essential services provider.

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We live here too.

Our priorities, objectives and targets for 2008-2009:

Safety
Drive to zero harm

Leader in Safety

Lost Time Injuries (LTIs)	18 and decreasing
Lost Time Injury Severity Rate (LTISR)	15 days and decreasing
Safety Audits	96 per cent

Service
Providing excellent service

Promoted in Communities

Customer Promoter Score	Greater than 25
Stakeholder Promoter Score	Greater than 25

Successful Service Provider

Customer First Contact Completion	95 per cent

Essential Services Provider

SAIDI	Less than 332 minutes per customer

Value
Strong business outcomes

Efficient Business Operator

Operational Excellence Program	Implemented
Planned Outage Performance	Customer expectations met

Innovative Network Operator

Adherence to Distribution Asset Management Plan	100 per cent

Responsible Financial Manager

Earnings Before Interest and Tax (EBIT)	Greater than $298 million

Sustainability
People and environment

Resourceful, Rewarded People

Leave Management Program	Improved
Unscheduled Sick Leave	Improved
Workforce Planning	Implemented

An Environmental Leader

Carbon Reduction Program	Implemented
Environmental Compliance	96 per cent

Our values are • Safety • Accountability • Fun • Excellence • Teamwork • Yes, we'll do it.

Country Energy is finding better ways to deliver essential services, because we live here too.

Safety
Service
Value
Sustainability

Our four key objectives for the next five years

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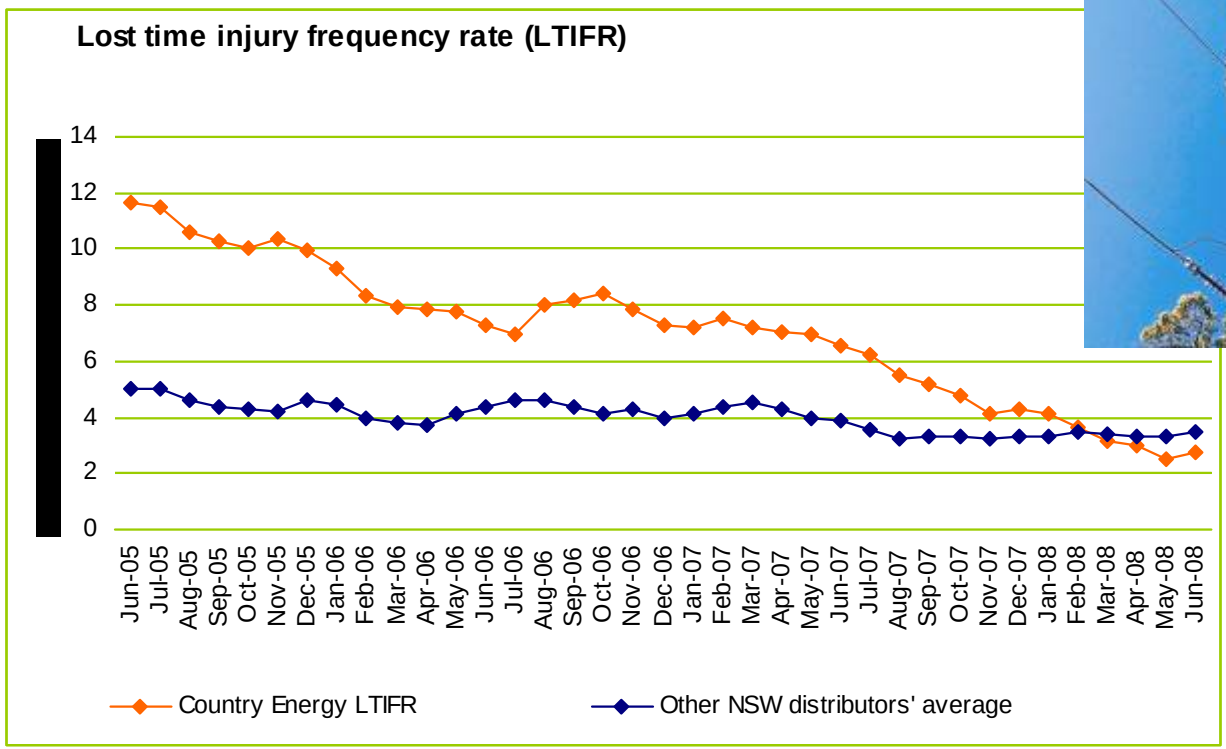
Safety

Safety of the public and our employees

- We have reduced our Lost Time Injury Frequency Rate substantially, and continue to improve and enhance our safety management



- The challenge of 'driving to zero harm' remains our first priority

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Service

Service for customers

- A decentralised regional management structure, of 142 regional offices and service centres
- A dedicated ‘Supply Interruption Group’ call centre providing 24 hour 7 day emergency response – and three regional contact centres
- Together, these services mean we
  - provide fast response to network issues
  - are quick to resolve customer concerns
  - and are responsive to local priorities

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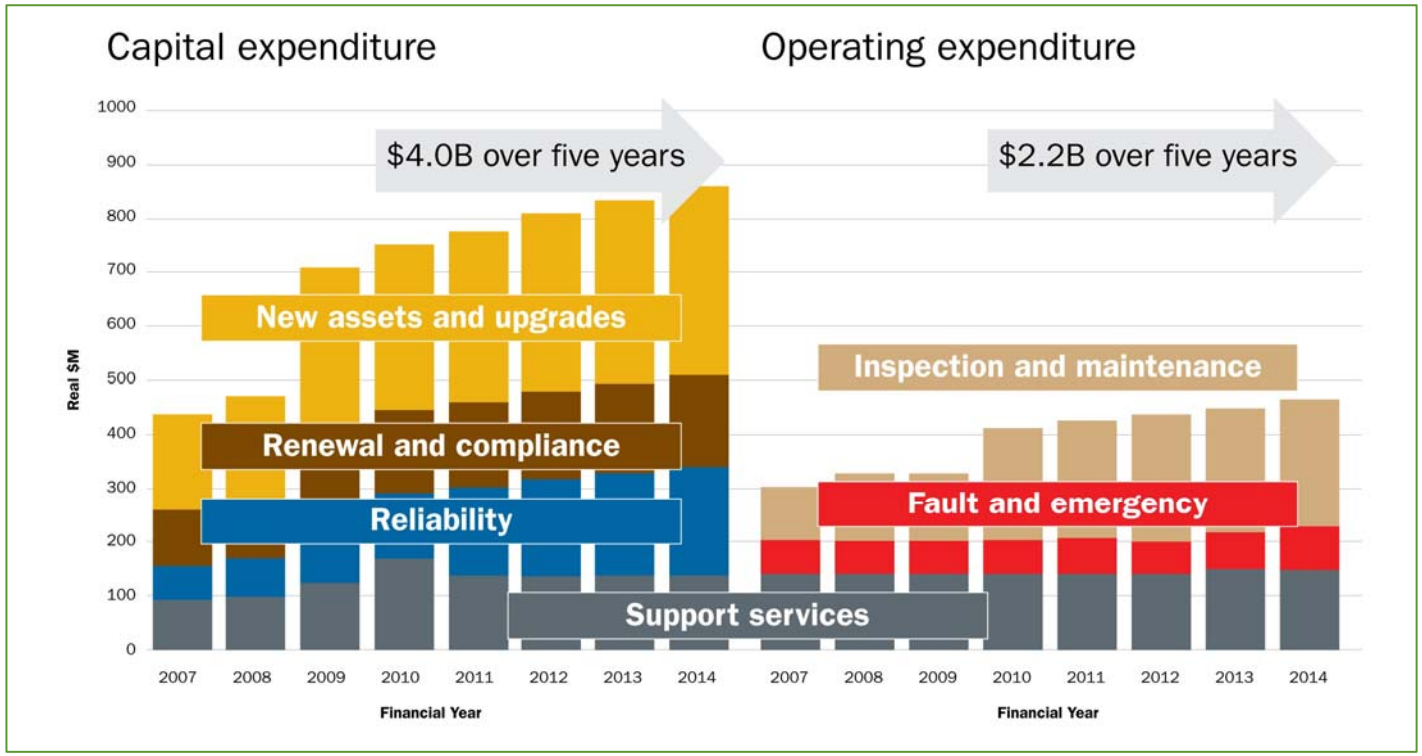
Value – and our expenditure proposal

Value for money

- Meeting customers' service expectations
- Achieving business returns that fully recognise business costs
- Realising productivity improvements



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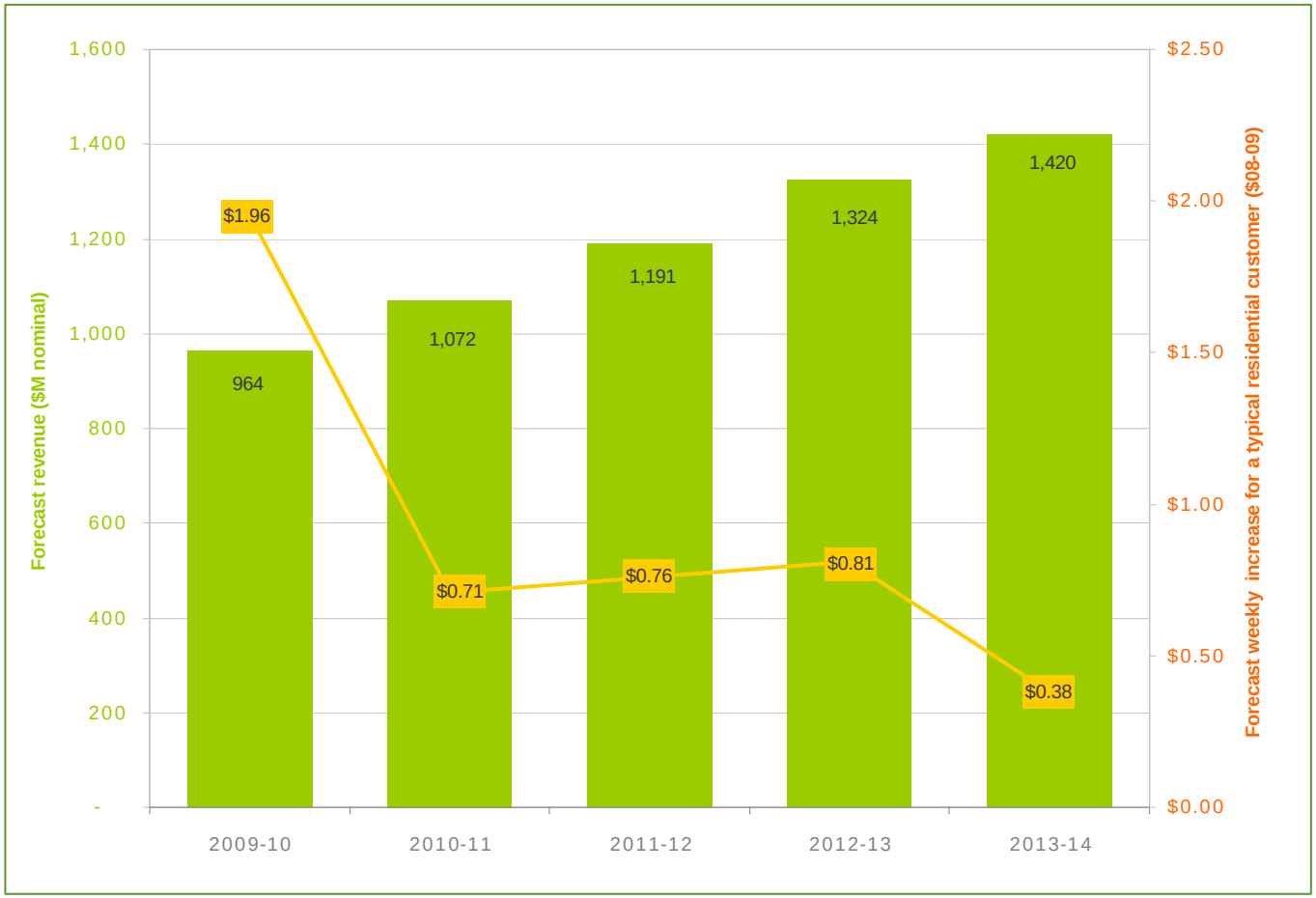
Value – and our revenue proposal



More than one quarter of the forecast first year price change is a direct result of increases in the cost of labour and materials, and necessary additional works, over the last five years

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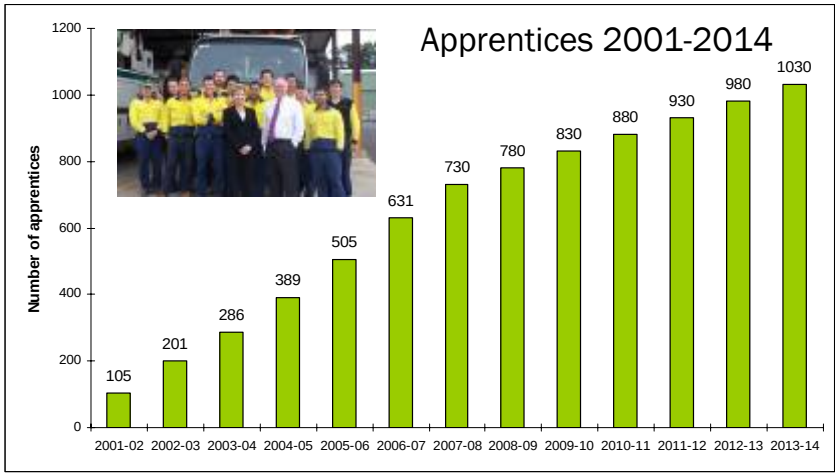
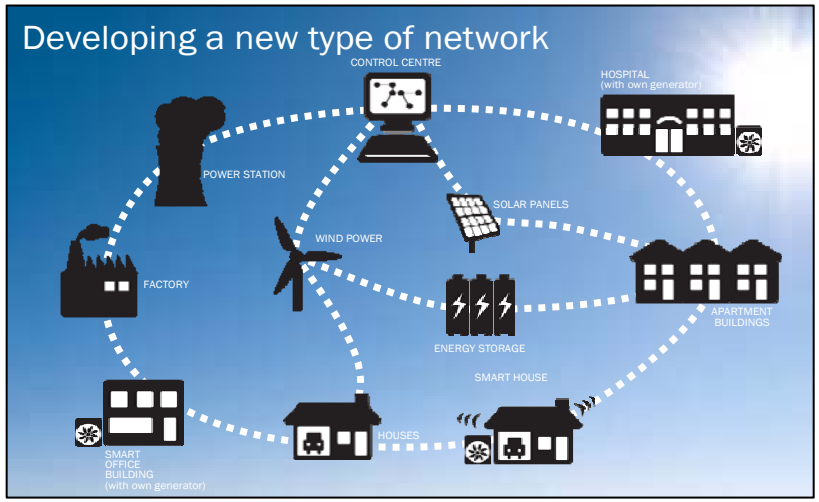
Sustainability

A **sustainable workforce** requires –

- effective recruitment strategies
- effective retirement strategies
- development and mentoring programs
- greater workplace diversity





A **sustainable environment** requires –

- minimisation of environmental impacts
- rigorous planning and assessment
- consideration of network alternatives
- development of a more ‘intelligent network’ building on smart metering

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Our proposal summary

Country Energy's regulatory proposal is designed to deliver a safe and efficient electricity network service through

- a responsive investment program matched to growing populations and changing consumption patterns
- a cost reflective maintenance and refurbishment program aiming to maintain 'end to end' asset condition – from major substations to home service mains and meters
- updated skills, tools and technological capability to resource these tasks, and realise productivity gains

Country Energy believes that its proposals can deliver a reliable, affordable and sustainable electricity network service for customers

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Network proposals

Ken Stonestreet, Group General Manager Networks and Infrastructure

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Australia's largest power network

Almost 200,000 kilometres of powerlines and 1.4 million poles

- vast majority of network is 'overhead'
- 130,000 distribution and 330 zone substations ranging in capacity from 2.5 kVA to 180 MVA
- diverse asset types, three phase, single phase, SWER, operating at 240 to 132,000 Volt
- some customers supplied by > 400 km of line from nearest zone substation
- longest feeder > 1,800 km

Estimated total replacement cost ~ $14 billion

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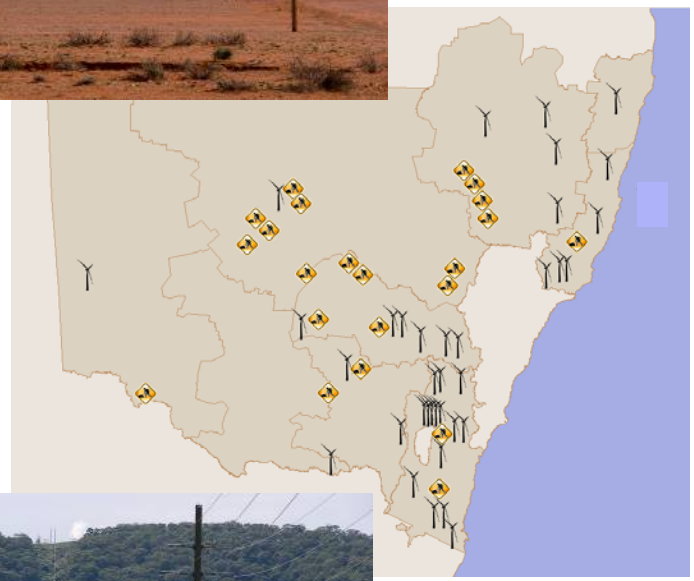
A unique power network

- Extremes of terrain and climate
  - plains, subtropics, snowfields and deserts
  - high degree of exposure to elements
- Extremes of customer densities
  - medium to high density urban
  - sparse rural
  - large ‘spot loads’ – mines and wind farms (map shows proposed new connection applications)
- An ageing network
  - 50 per cent of overhead powerlines are more than 40 years old
  - some network components are more than 70 years
  - weighted average age ~ 30 years



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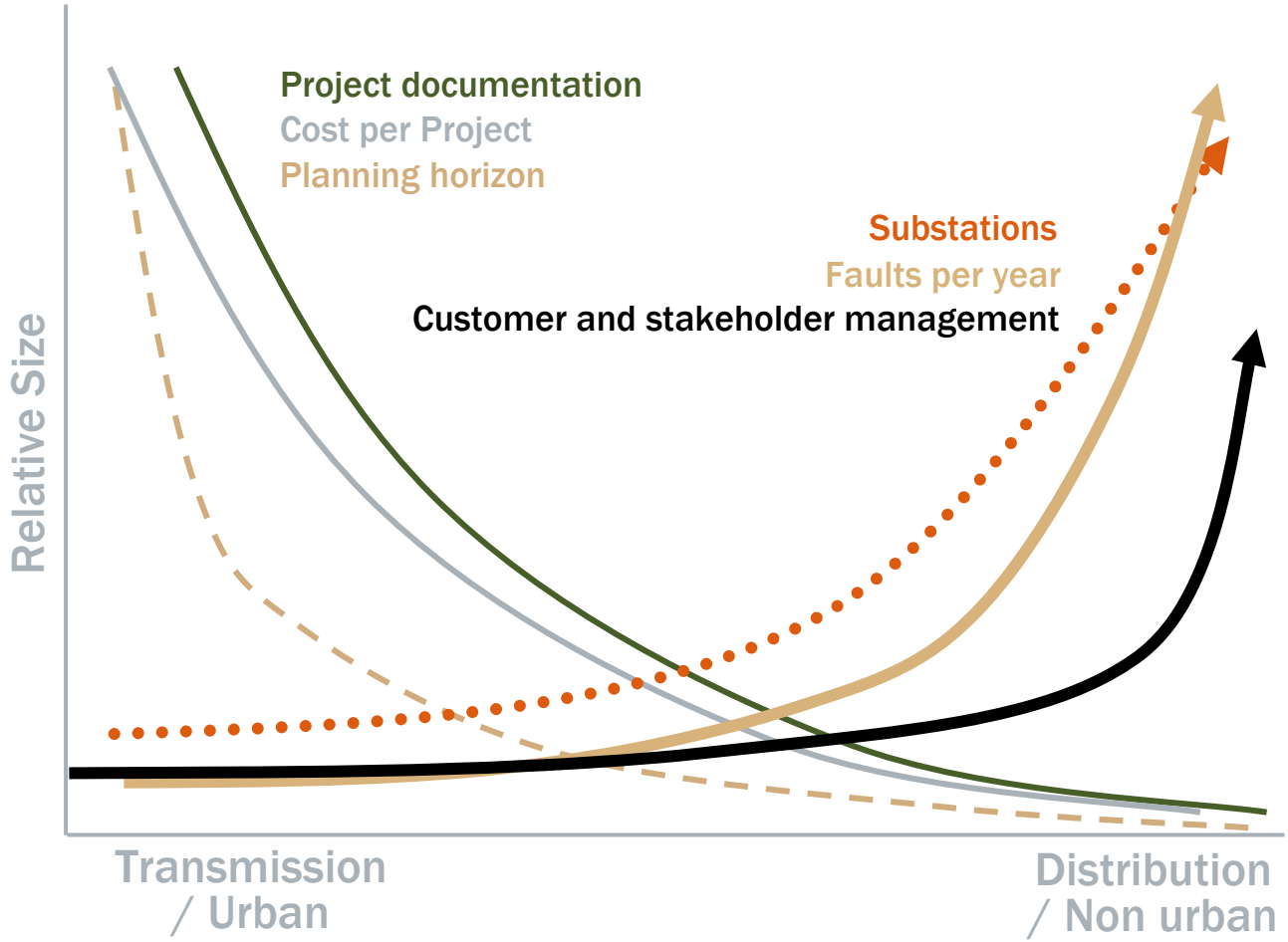
A distinct class of network



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Key network challenges

Country Energy has identified five key network challenges –

- ageing asset profiles and varying asset conditions
- growing populations and changing consumption patterns
- increasing reliability, quality and security of supply expectations
- growing safety and environmental responsibilities
- escalating costs of key inputs including labour, materials and fuel

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Key network considerations

Our overall network expenditure proposal has been developed with a range of factors in mind –

- Past performance trends and customers' expectations
- Regulatory requirements and performance standards – including our network *licence conditions*
- Balance between capital expenditure, operating and maintenance expenditure and demand management opportunities
- Ability to resource our plans
- Efficiency and productivity

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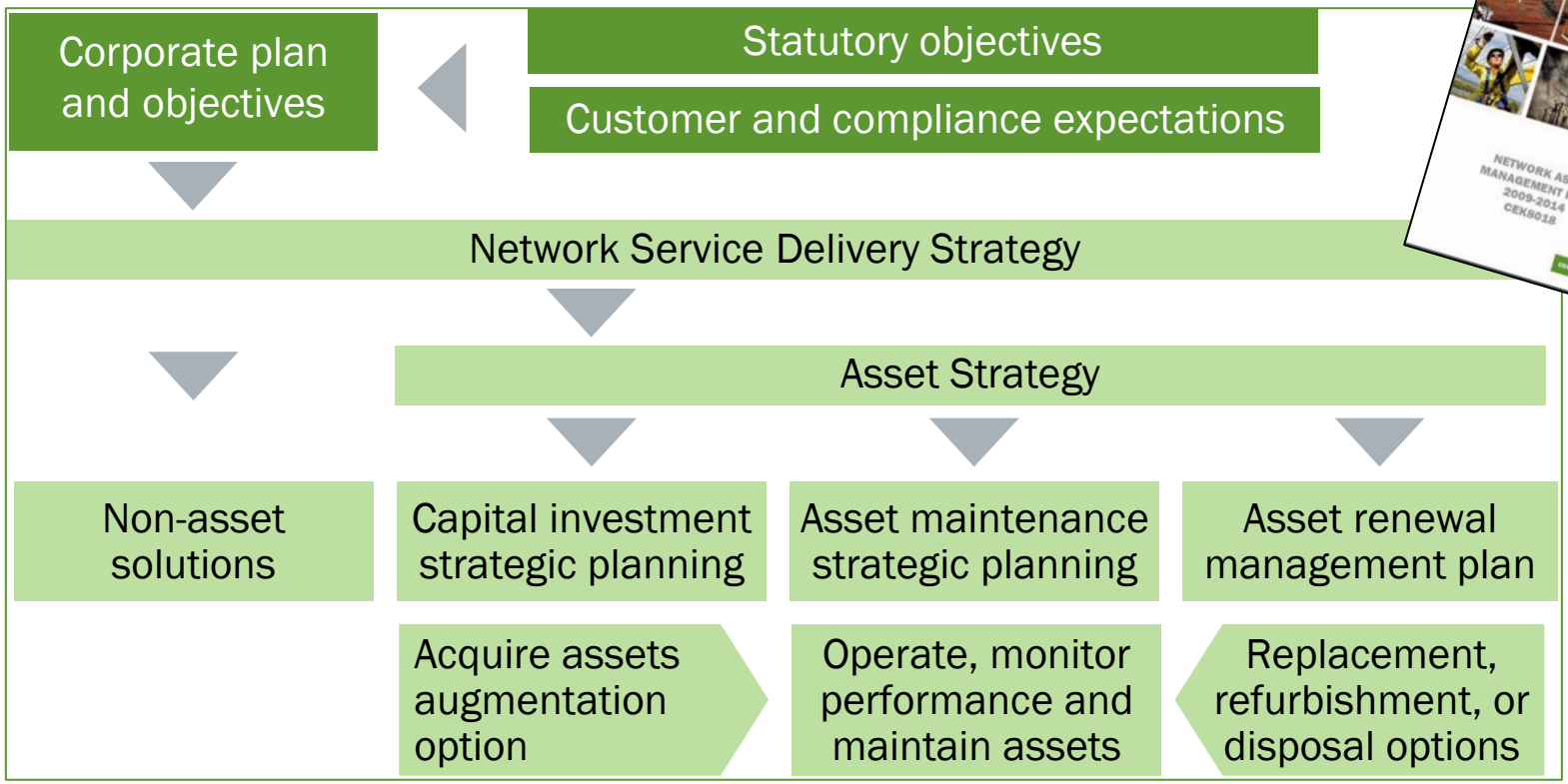
Asset management plans

Our *Network Asset Management Plan* Provides a holistic overview of Country Energy's asset management strategies, policies, plans and programs



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Overall expenditure forecast

Capital expenditure

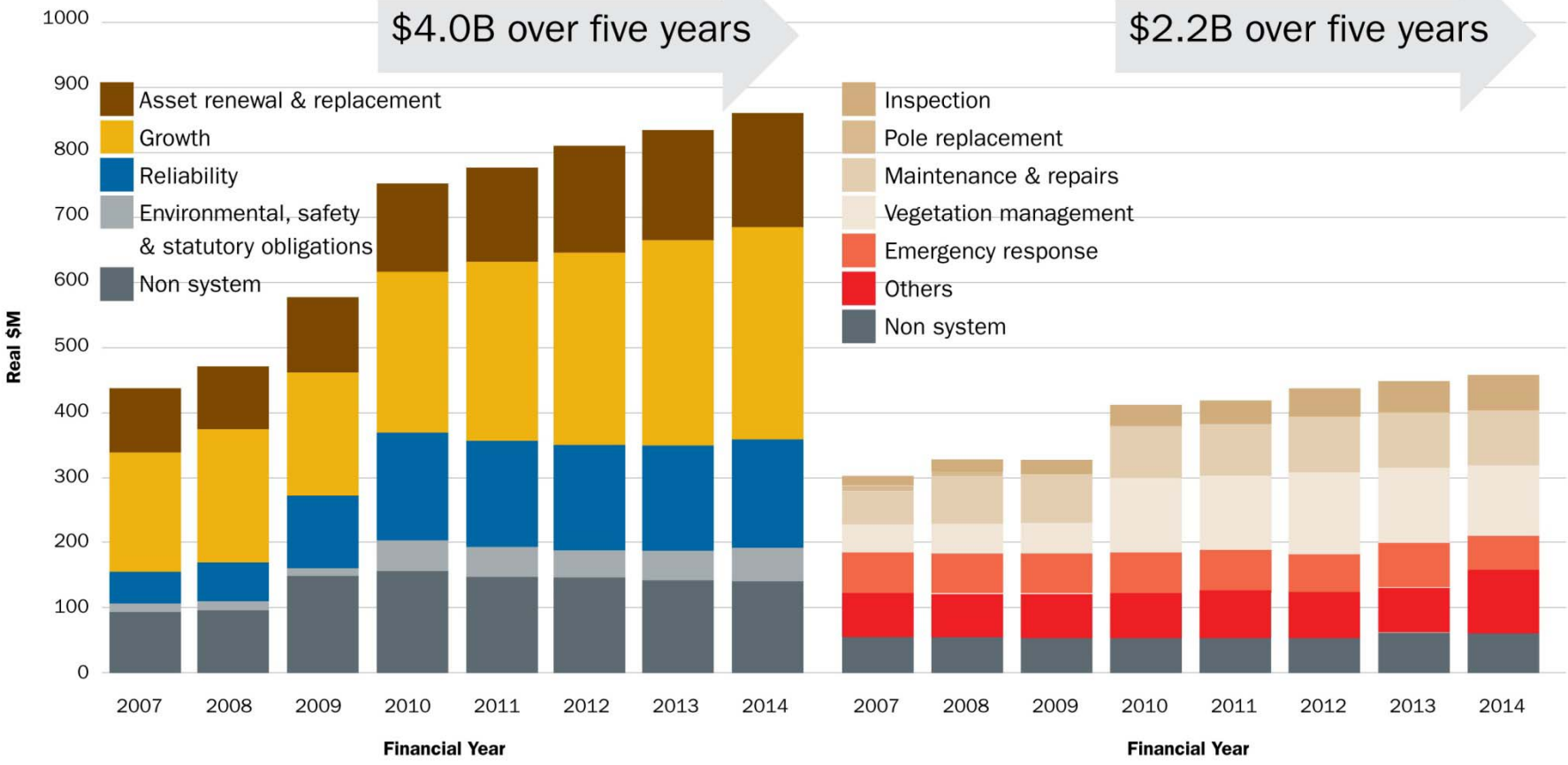
$4.0B over five years

- Asset renewal & replacement
- Growth
- Reliability
- Environmental, safety & statutory obligations
- Non system

Operating expenditure

$2.2B over five years

- Inspection
- Pole replacement
- Maintenance & repairs
- Vegetation management
- Emergency response
- Others
- Non system



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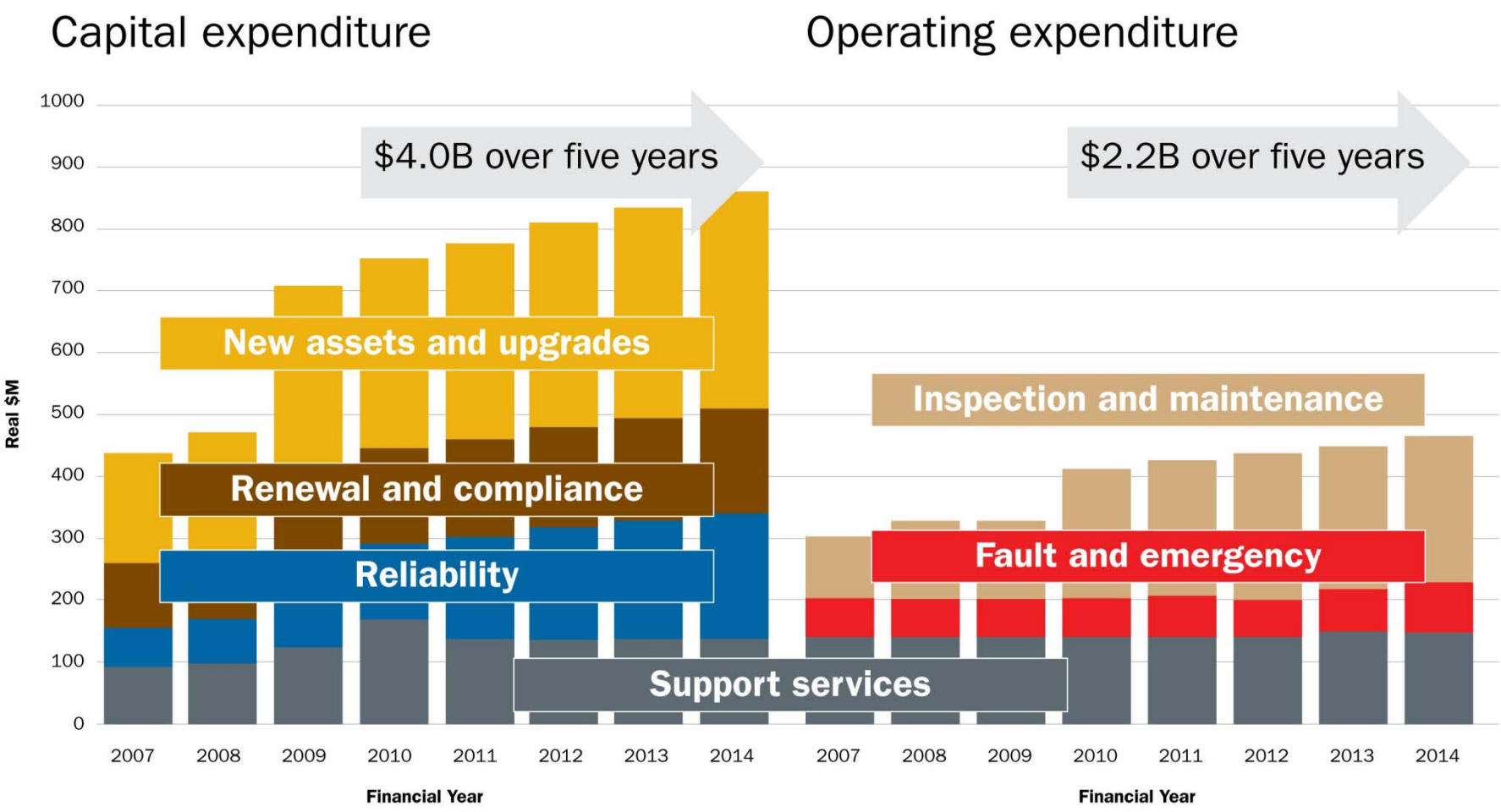
Expenditure forecast by category



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New assets and upgrades

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New assets and upgrades

- Expenditure to ensure
  - Adequate network capacity
  - Ratings of equipment not exceeded
  - Supply security is maintained
  - Network performance (reliability and quality) is maintained
  - Acceptable ratings and levels of utilisation

- Sub-transmission lines and zone substations
  - Expenditure is driven by peak demand
  - Comprehensive medium term plan

- Distribution assets
  - Expenditure driven by increasing customer base
  - Impacted by increasing energy requirements
  - Expenditure tends to be more consistent and predictable

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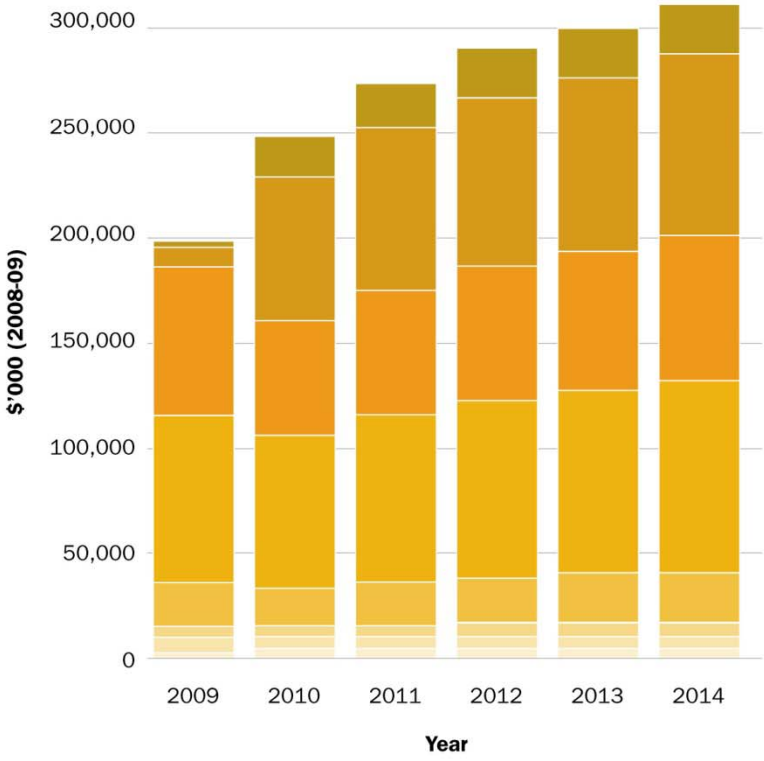
New assets and upgrades

Categories



- Easements
- Sub transmission lines and cables
- Substations
- Distribution lines and cables
- Communications
- Transformers
- Customer metering and load control
- Low voltage lines and cables
- Land

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Electricity growth forecasts
2009 - 2014

- Population growth, economic growth and steady residential building activity
  - Electricity consumption to grow by 1.56 per cent per annum
  - New electricity customer connections to grow by 1.46 per cent per annum

- Average annual rate of growth in system-wide summer and winter peak demand is expected to be 3.0 per cent and 1.8 per cent, under medium growth scenario, to 2013-14
  - Adds some 75 MW to summer peak load each year

- Country Energy expects strong rates of demand growth to continue into the immediate future
  - Significant ‘economic’ load growth gradually eroding available capacity

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Annual growth in peak demand

Most inland areas are growing at a rate of 0.5 per cent to 2.5 per cent

4.2 per cent on Far North Coast

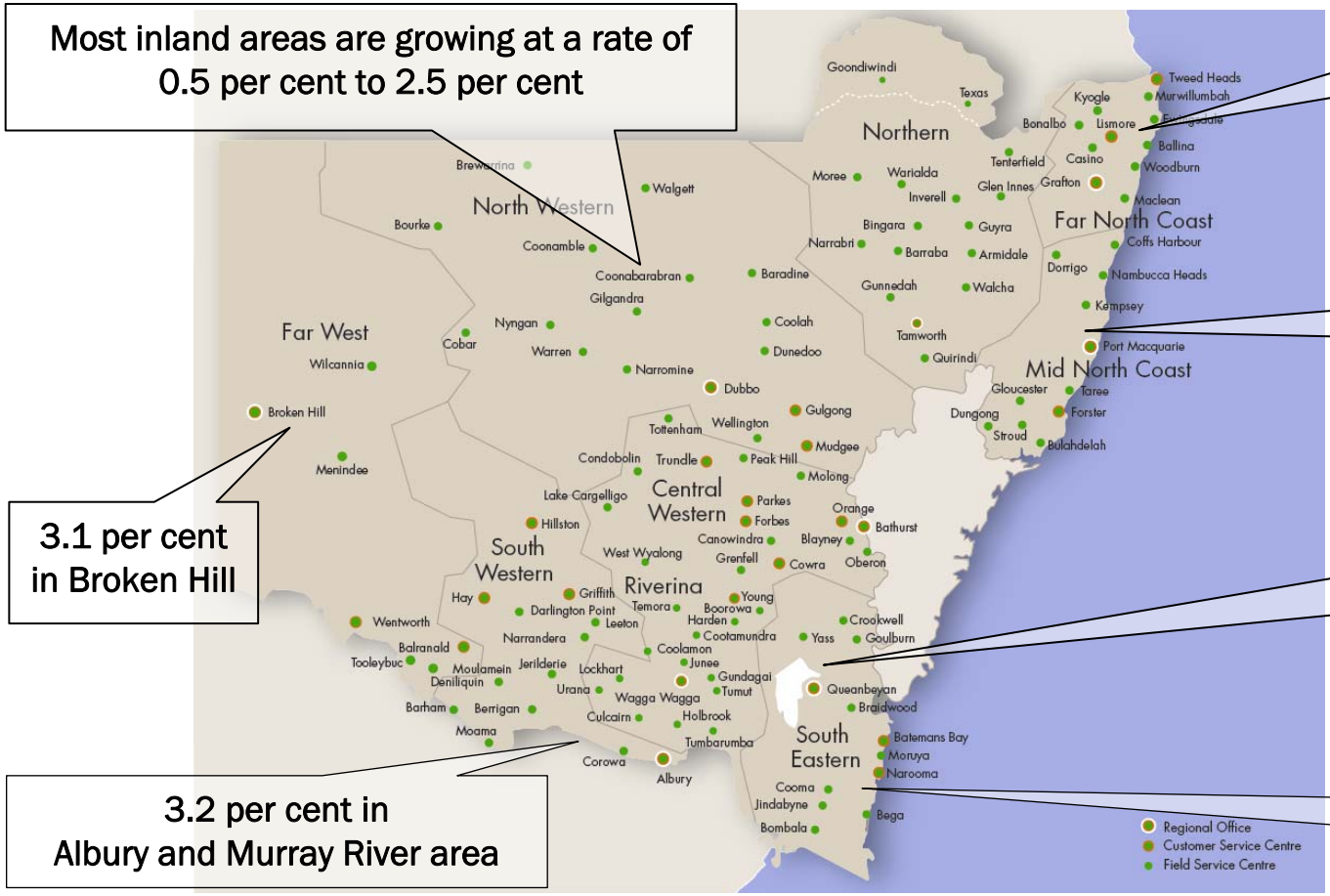
4.1 per cent on Mid-North Coast

3.2 per cent in Queanbeyan and Southern Tablelands

3.1 per cent on South-East Coast

3.2 per cent in Albury and Murray River area

3.1 per cent in Broken Hill



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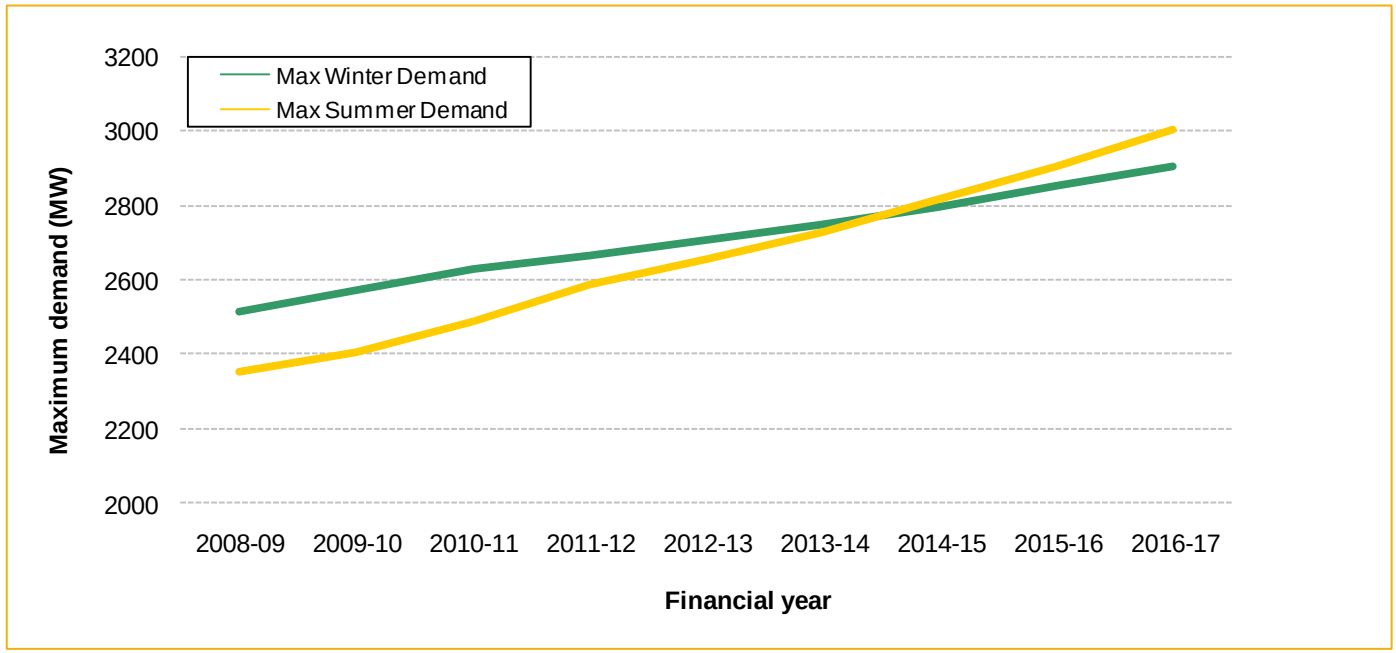
Shift to summer peak

- Air conditioning is driving summer peak demand to increase by 3 per cent
- Average annual rate of growth in winter peak demand – 1.8 per cent per annum under base growth scenario



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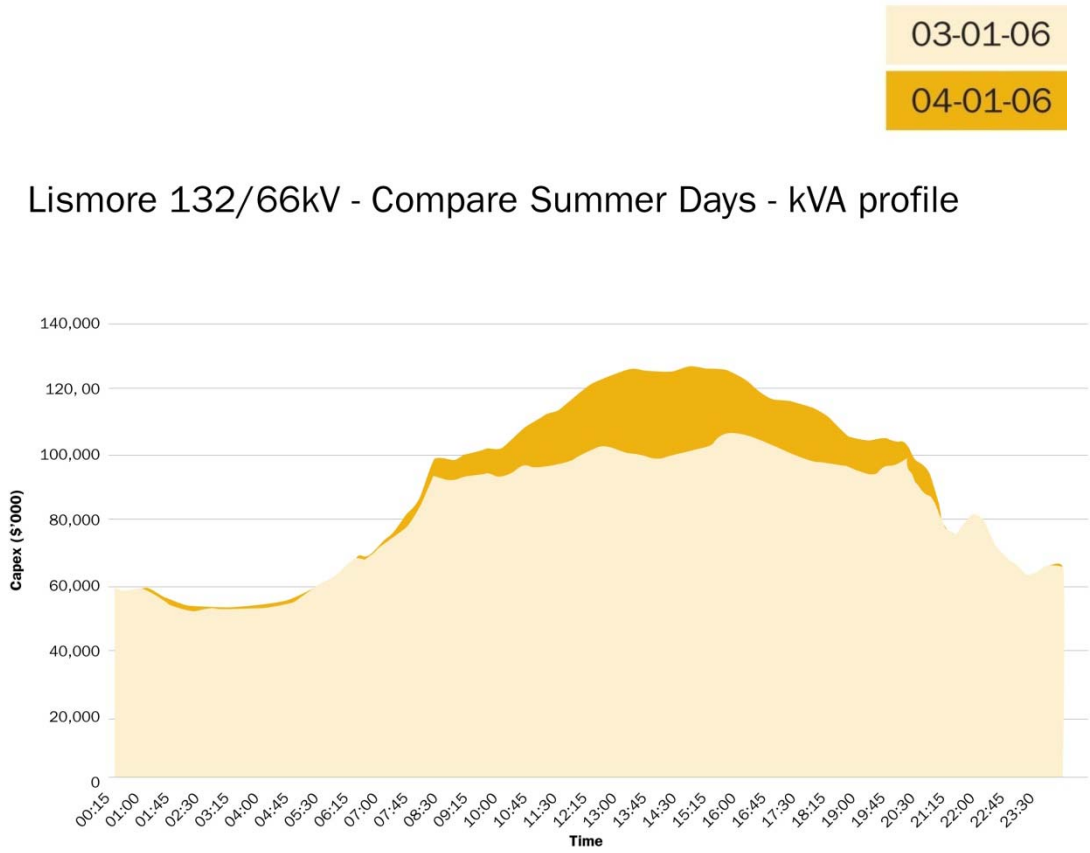
Temperature and loads

- Average change in maximum daily load per ºC for summer has increased from 23 MW to 56 MW from 2000-01 to 2006-07
- By 2013-14 total temperature-sensitive load expected to be 51 per cent of total peak summer demand (55 per cent by 2017-18)

Figure shows typical difference between demand curves on a mild 25ºC degree summer day and for an extreme 40ºC summer day (at Lismore bulk supply point located in NSW far north coast)



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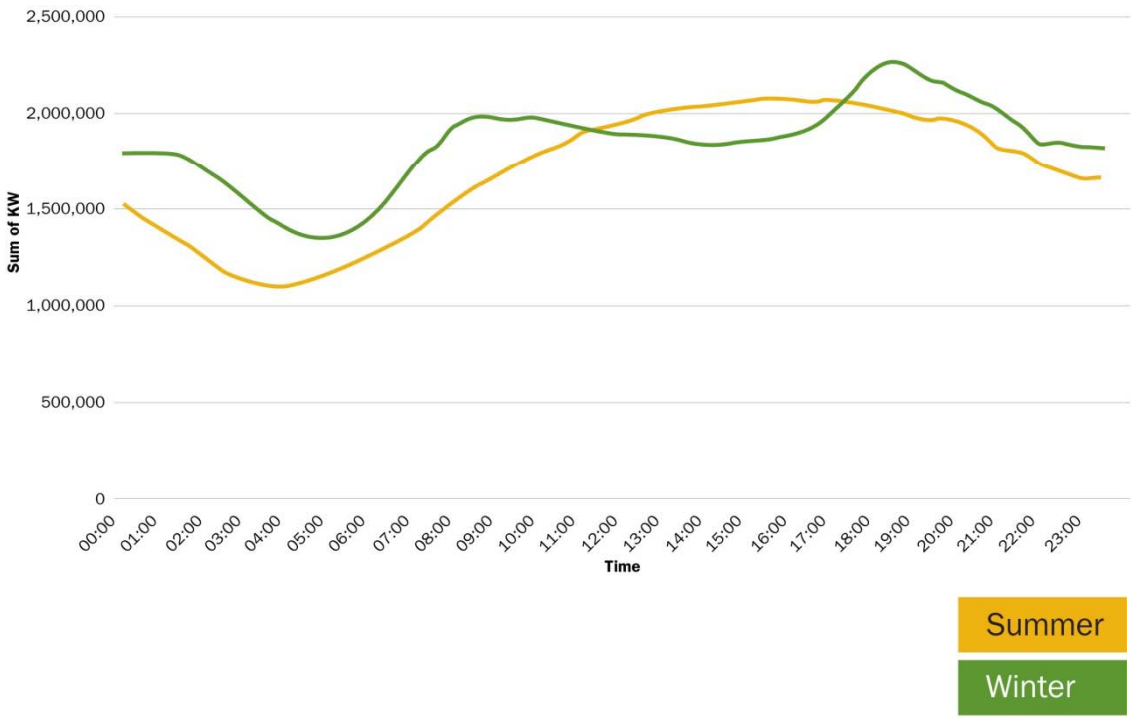
Summer peak vs winter peak

- Almost 50 per cent of Country Energy's zone substations are now summer peaking compared to 34.3 per cent in 2000-01
- Onerous effect of summer demand peaks
  - Lower equipment ratings at higher ambient temperatures
  - Longer duration peaks

Comparison between the system-wide load curve for peak summer day with peak winter day



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New assets and upgrades

Programs

- Construction of ~ 600 km of new sub-transmission lines supplying substation loads > 15 MVA that do not currently provide N-1 security
- Augmentation of ~ 1,000 km of sub-transmission lines with constraints
- Construction of approx 400 km of sub-transmission lines to connect new assets
- 28 new or augmentation zone and sub-transmission substation projects in order to
  - Provide an N-1 level of security for loads > 15 MVA or
  - Where peak demand > firm capacity of the installed transformers

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Renewal and compliance

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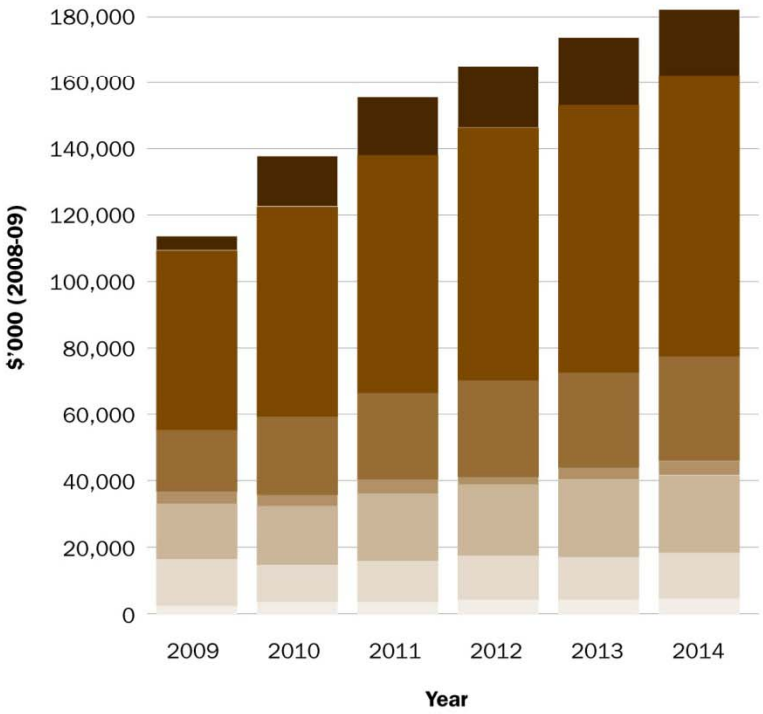
Renewal
Categories



- Sub transmission lines and cables
- Distribution lines and cables
- Substations
- Communications
- Transformers
- Easements
- Customer metering and load control
- Low voltage lines and cables
- Land

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Renewal – drivers and methodology

Main drivers that influence the renewal programs include:

- Physical condition
  - principle driver for Country Energy's expenditure forecasts
  - often a good correlation with asset age
- Systemic 'type' faults
- Operational safety issues
- Exceeding acceptable safety factors
- Environmental, infrastructure security
- Availability of spares

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Condition based strategy

- Country Energy does not implement programs for targeted bulk replacement of system assets reaching the end of their expected lives
- Instead, our approach is based on combination of
  - condition based assessments, particularly for power transformers, major substation equipment and distribution assets
  - implementation of specific long-term asset renewal initiatives
  - safe operation
  - examination of statistical failure based replacement

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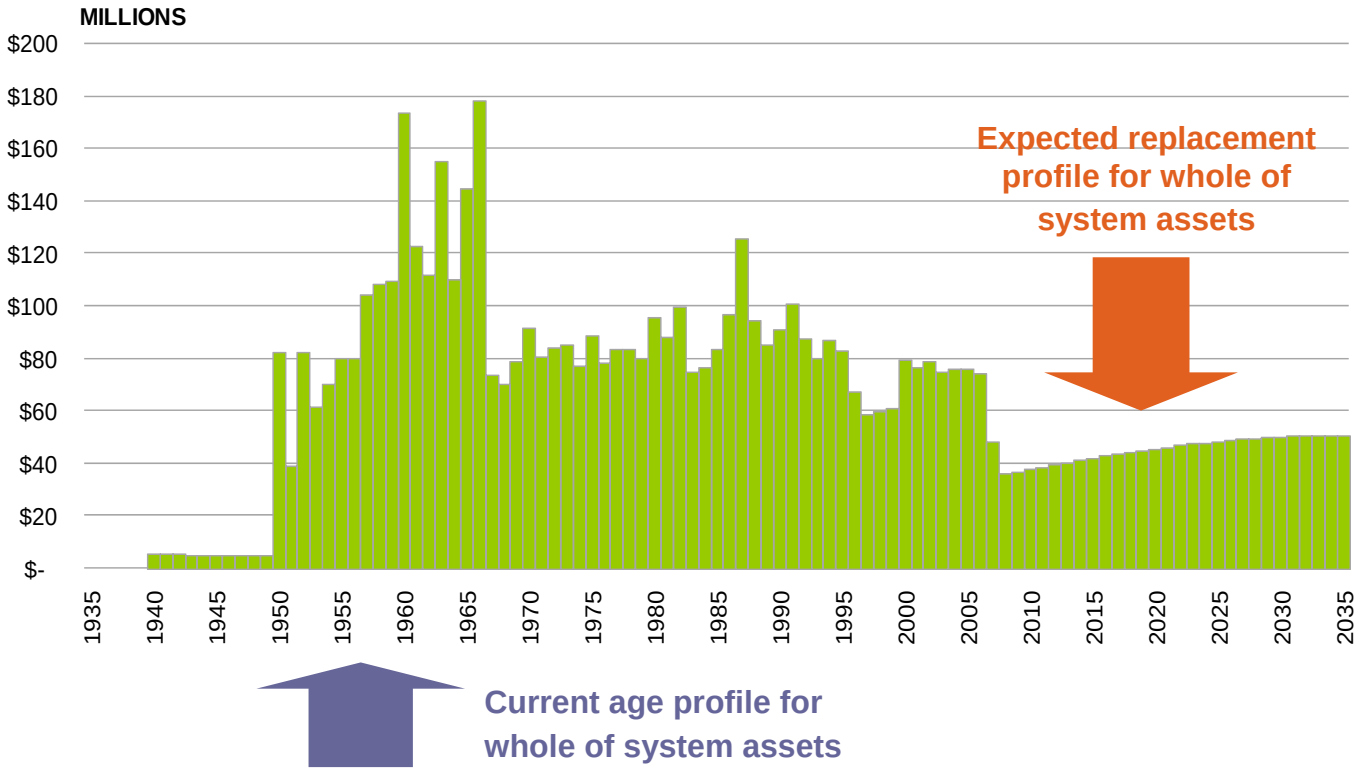
Weibull model

Asset renewal programs are resulting in an annual expenditure of around 1 per cent of total asset replacement cost



- Weibull predicted rate for whole of network assets averages approx $154M per year to 2013-14
- For comparison, a purely age based renewal program would require ~$280M per year

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Renewal
Programs

- Replacement and refurbishment of
  - more than 130 power transformers
  - switchboards and circuit breakers
  - instrument transformers, substation batteries, surge diverters, earthing systems, and protection relays that represent the greatest risk
- Gradual replacement of deteriorating subtransmission lines
  - Many greater than 50 years old
- Long term replacement program for
  - HV distribution overhead lines (steel and copper)
  - HV air-break switches with fully enclosed SF6 switchgear
  - HV porcelain fuses and links with polymer fuses and links
  - overhead service cables
  - Customer metering and load control

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Reliability

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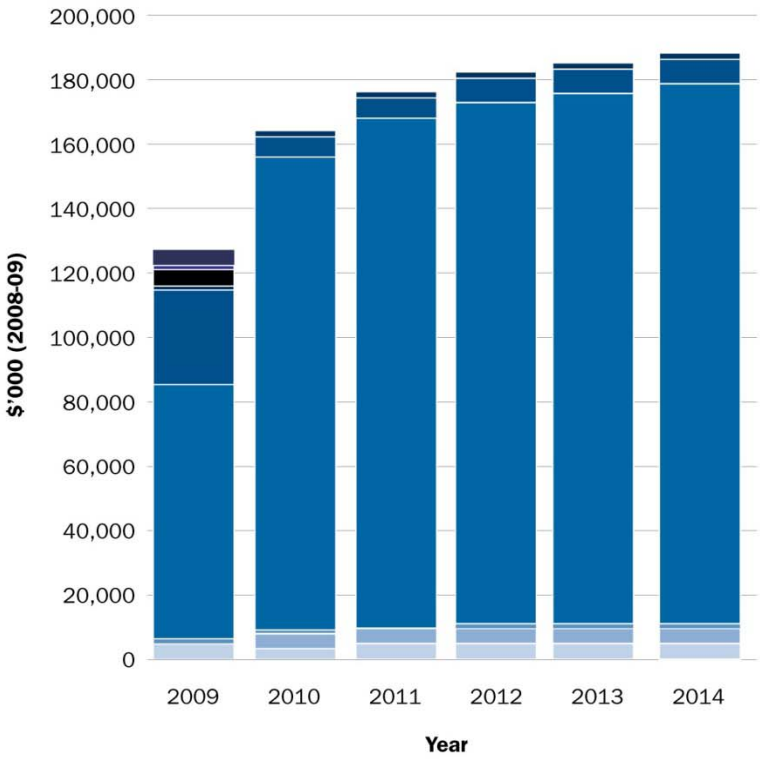
Reliability

Categories



- Easements
- Land
- Communications
- Low voltage lines and cables
- Substations
- Distribution lines and cables
- Customer metering and load control
- Transformers
- Sub transmission lines and cables

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Licence Conditions

NSW Design, Reliability and Performance Licence Conditions

Average reliability

SAIDI Feeder type	2005-06	2006-07	2007-08	2008-09	2009-10	From 2010-11
Urban	140	137	134	131	128	125
Short-rural	340	332	324	316	308	300
Long-rural	750	740	730	720	710	700

SAIFI Feeder type	2005-06	2006-07	2007-08	2008-09	2009-10	From 2010-11
Urban	2.00	1.96	1.92	1.88	1.84	1.80
Short-rural	3.30	3.24	3.18	3.12	3.06	3.00
Long-rural	5.00	4.90	4.80	4.70	4.60	4.50

Individual feeders

Feeder type	Mins per customer
Urban	400
Short-rural	1000
Long-rural	1400

Feeder type	Number per customer
Urban	6
Short-rural	8
Long-rural	10

Design criteria

Network Element	Load Type	Forecast Demand or Expected Demand	Security Standard	Customer Interruption Time
Distribution Feeder	Urban (regional centres)	Any	N-1	< 4 hours
	Urban (other than regional centres)	Any	N	Best practice repair time
	Non-Urban	Any	N	Best practice repair time
Distribution Substation	Urban & Non-urban	Any	N	Best practice repair time

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Average reliability performance

Average minimum reliability standards for each feeder type		2002-03 Actuals	2003-04 Actuals	2004-05 Actuals	2005-06 Actuals	2006-07 Actuals	Licence conditions from 2010-11
SAIDI	Urban	**163**	124	**158**	109	114	125
	Short-rural	**338**	293	276	**317**	239	300
	Long-rural	418	373	625	578	497	700
	Overall	306	262	299	304	242	
SAIFI	Urban	**1.90**	**1.90**	**2.30**	1.28	1.36	1.80
	Short-rural	**3.02**	2.86	2.51	2.71	2.47	3.00
	Long-rural	3.21	3.18	**4.88**	4.06	3.82	4.50
	Overall	2.77	2.67	2.82	2.55	2.39	

Fully compliant with SAIDI and SAIFI standards only once in the last five years

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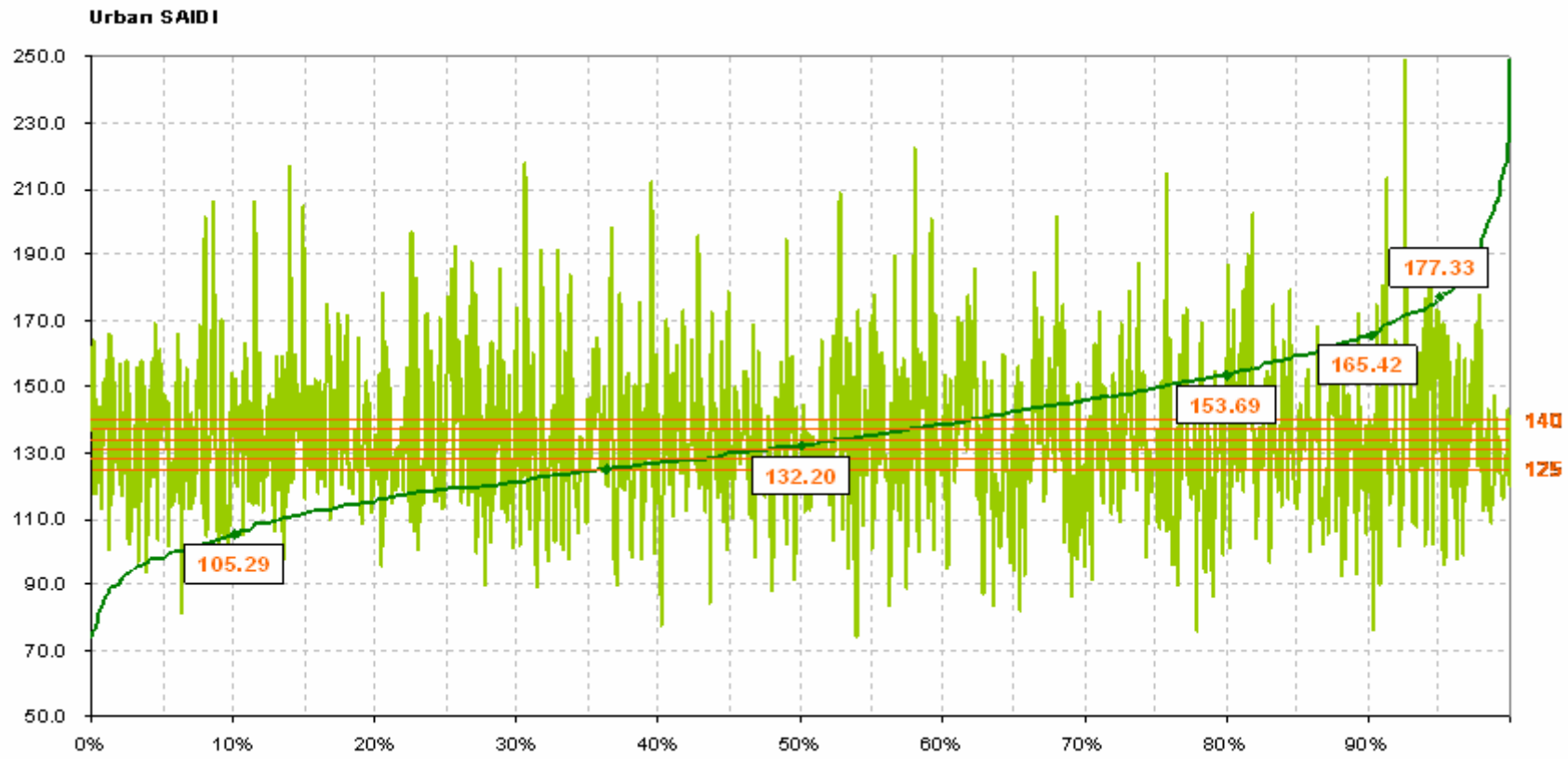
Probability distribution
for urban SAIDI



33 per cent chance of meeting the urban SAIDI target (or 67 per cent PoE) in the absence of targeted expenditure on feeder reliability

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Reliability gap

Feeder category		Current performance	Reliability target	Adjusted target	Reliability gap for 20%
SAIDI (minutes)	Urban	133	125	108	20 mins
	Short-rural	305	300	276	25 mins
	Long-rural	533	700	635	0
SAIFI (interruptions)	Urban	1.80	1.80	1.62	0.18
	Short-rural	2.83	3.00	2.83	0
	Long-rural	4.12	4.50	4.22	0

Reliability performance gaps for 20 per cent PoE for each feeder category (including performance adjustment for other reliability programs)

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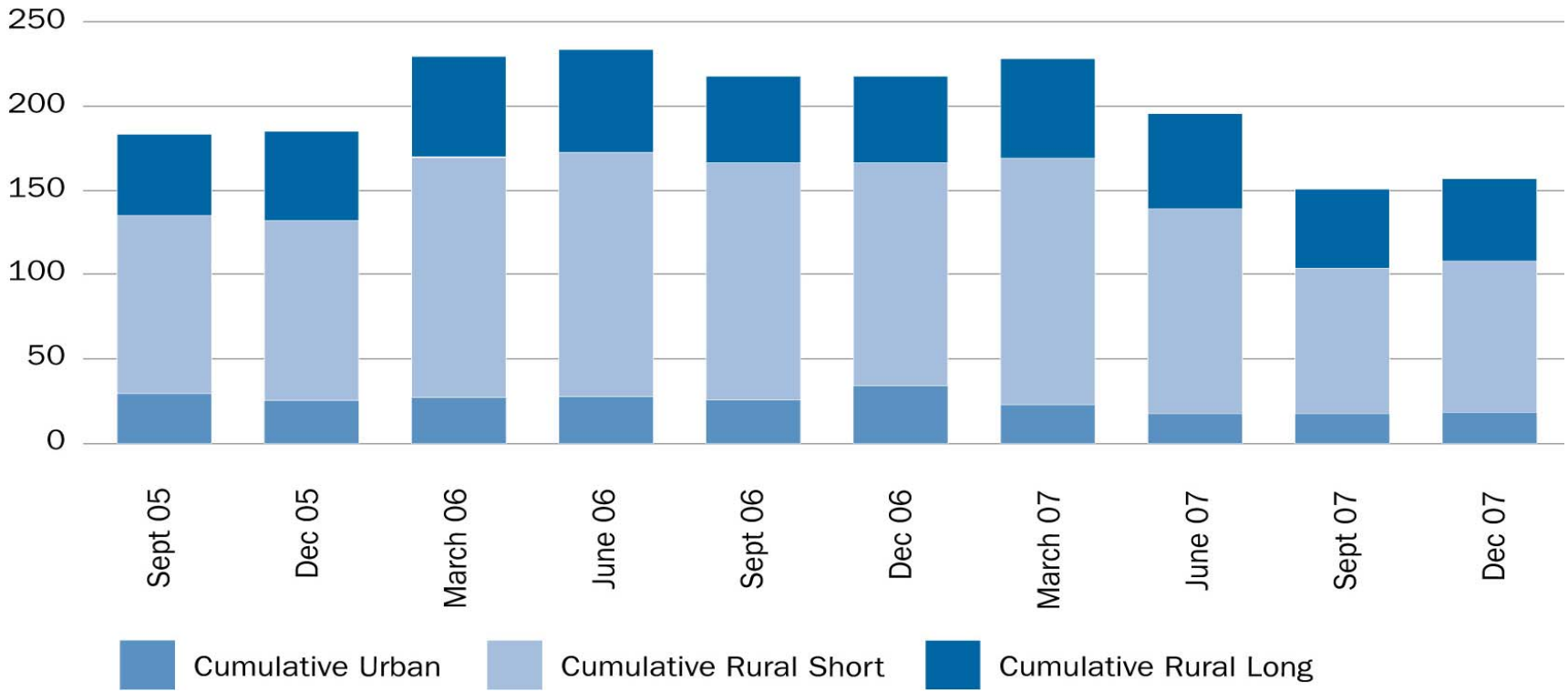
Recent reliability performance
for individual feeders

Number of distribution feeders exceeding Licence Condition standards – September 2005 to December 2007



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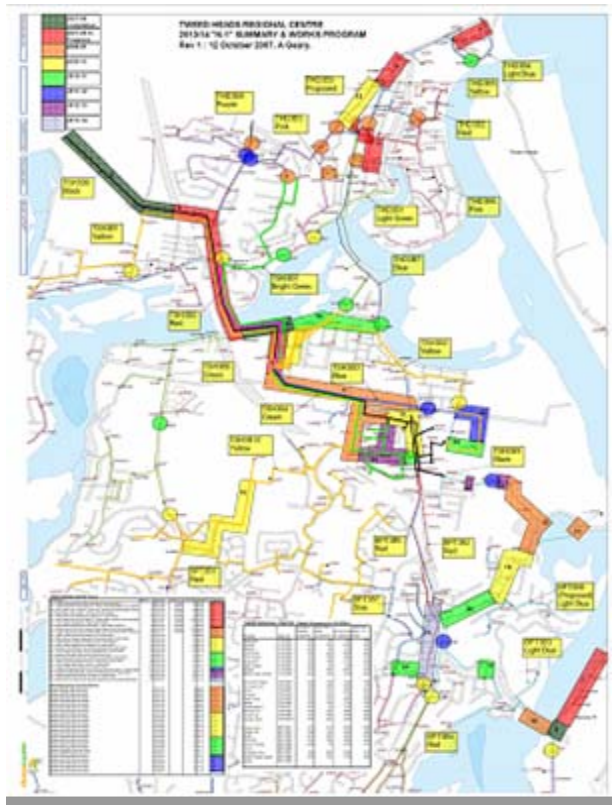
Design planning criteria

- Regional centre plans developed by
  - Reviewing the existing network
  - Identifying gaps in meeting N-1
  - Scoping projects



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Reliability
Programs

- Average reliability improvement program
  - Number of sectionalising circuit reclosers required to increase the degree of network segmentation to improve reliability
  - Will nearly double the number of reclosers installed on our network to 6,000 by 2014

- Individual feeder reliability improvement program
  - Analysis of current performance, state of rural network, and underlying causes of supply interruptions
  - 110 feeder segments
  - A suite of initiatives based on causes

- Urban distribution network N-1 reinforcement program
  - Forecast using ‘bottom up’ approach
  - Individual projects identified, scoped and costed

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Inspection and Maintenance

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Inspection and maintenance

- Our Asset Maintenance Management Plan includes two major work streams

- Asset inspection and maintenance strategies, based on condition assessment
  - Zone substation inspection, condition monitoring, diagnostic testing, maintenance
  - Pole and line inspection and maintenance
  - Distribution substation, switchgear and other equipment inspection and maintenance
  - System earthing testing and maintenance
- Vegetation management strategies

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Inspection and maintenance

- Management of:
  - staff and public safety
  - bushfire
  - preservation of asset lives
  - reliability
  - under performing assets
  - service objectives and compliance obligations
  - avoiding increased unplanned corrective maintenance at much higher cost

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Condition assessment

- The majority of Country Energy's inspection and maintenance programs are based on condition assessment
- Condition based programs involve undertaking
  - cyclic inspection and measurements, eg pole inspection
  - analysis of parameters, eg transformer oil analysis
- Preventative maintenance on a fixed time basis
- Even time based programs involve assessment of condition, eg vegetation clearing

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Vegetation management

- Country Energy's undertakes extensive vegetation management to
  - manage the risk of causing a bush fire
  - manage the risk to public safety
  - deliver both system wide and targeted reliability outcomes

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Fault and emergency

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Fault and emergency

- This activity includes fault and emergency repair and restoration of supply
- Generally in line with current levels of expenditure and activity levels, as Country Energy has included a ‘trade-off’ reduction in emergency response expenditure
- Reflects the expected effectiveness of planned capital and operating expenditure for reliability improvement

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Support Services

Bill Frewen, Group General Manager External Relations

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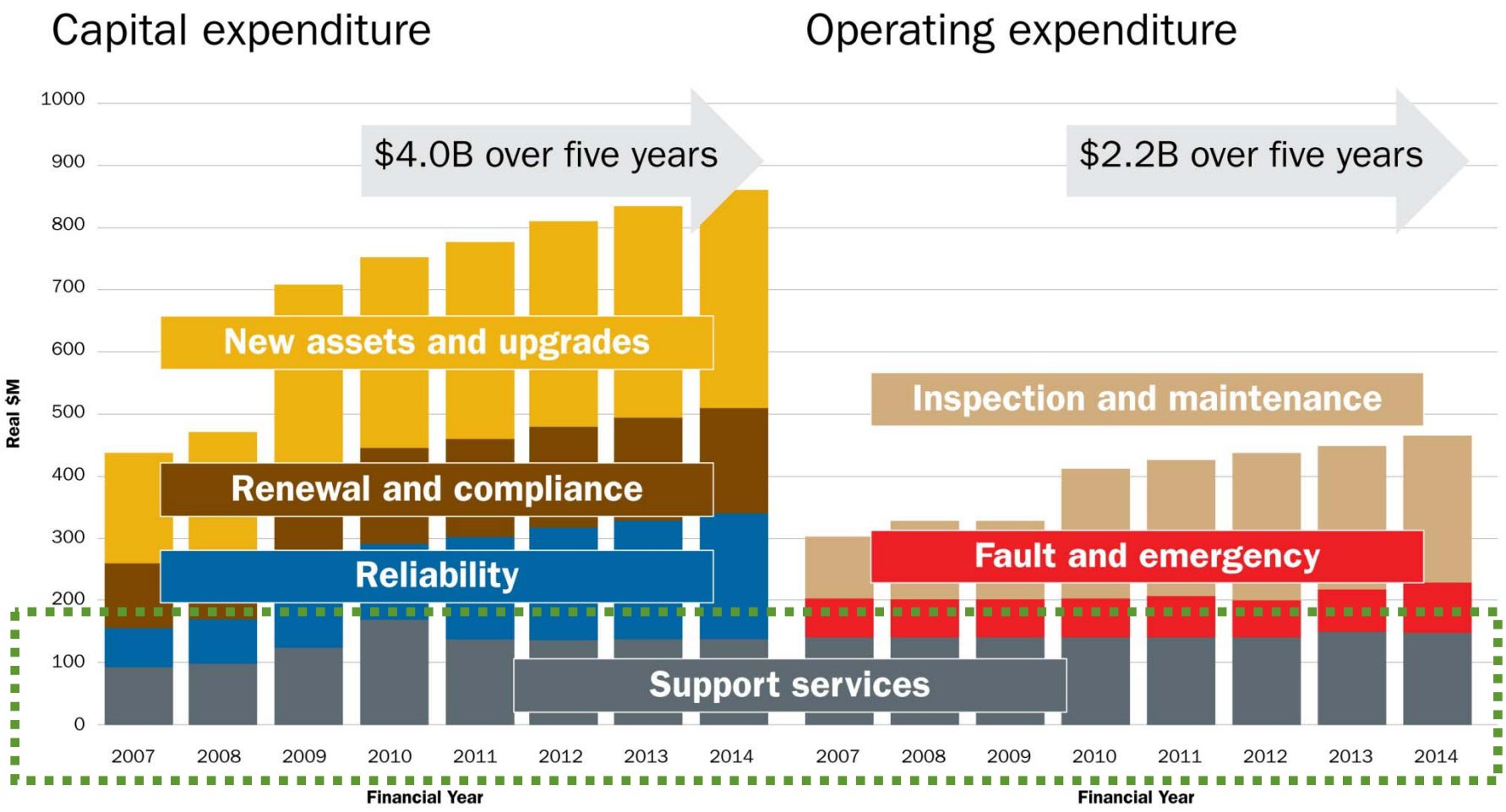
Overall expenditure forecast



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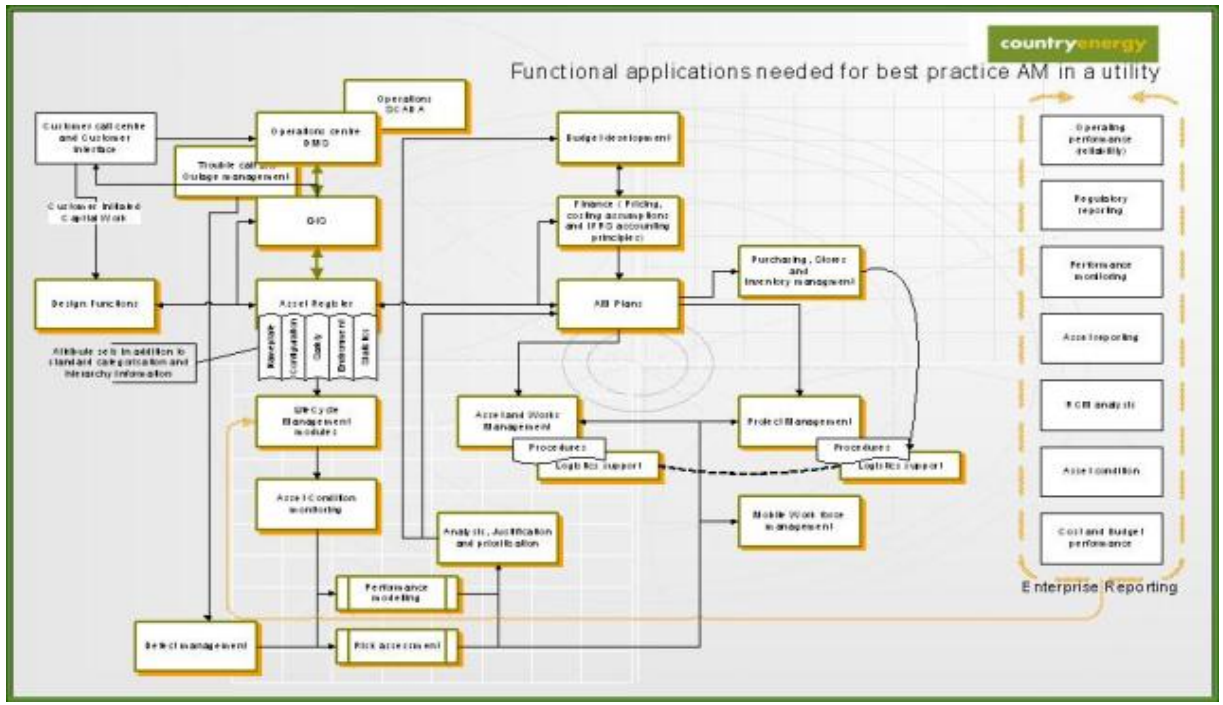
Information systems

We will continue to consolidate our information systems

- Better integration to ensure consistency across core systems
- Purchase or replace infrastructure – hardware and communications
- Upgrade, enhance or modify functionality of existing systems as needed
- Improve security



New investments planned around our asset management and customer information systems

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Fleet

Country Energy's fleet

~ 2,000	Heavy vehicles
~ 2,100	Light vehicles (includes trailers)
~ $120M	Estimated capital value
~ 64Mkm	Work travel per year
~ 10Mlt	Fuel consumption 2008-09
~ $17M	Fuel cost for 2008-09

Our network terrain and climate requires reliable off-road vehicles

Our fleet renewal program is based on an increasing work load, additional employees, safety and efficiency

- EWP and Crane Borer Replacement Program
  - Improved safety compliance
  - Improved operational efficiency
- Replacement of existing light fleet based on life cycle of 100,000 km
  - 6 to 4 cylinder vehicle replacement program
  - Fleet utilisation model
  - '5 Star' vehicle rating system

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Property

Country Energy's sites

142	Service Centres
330	Zone substations
334	Radio sites

We will maintain our current, decentralised, regional presence

Our property maintenance program is based on an increasing work load, additional employees, safety and efficiency

- Certain service centres are currently at, or nearing capacity
- Capital investments will be required in the form of building modifications, rebuilds and extensions
- Necessary to refurbish ageing buildings to provide a safe, efficient and secure working environment for employees

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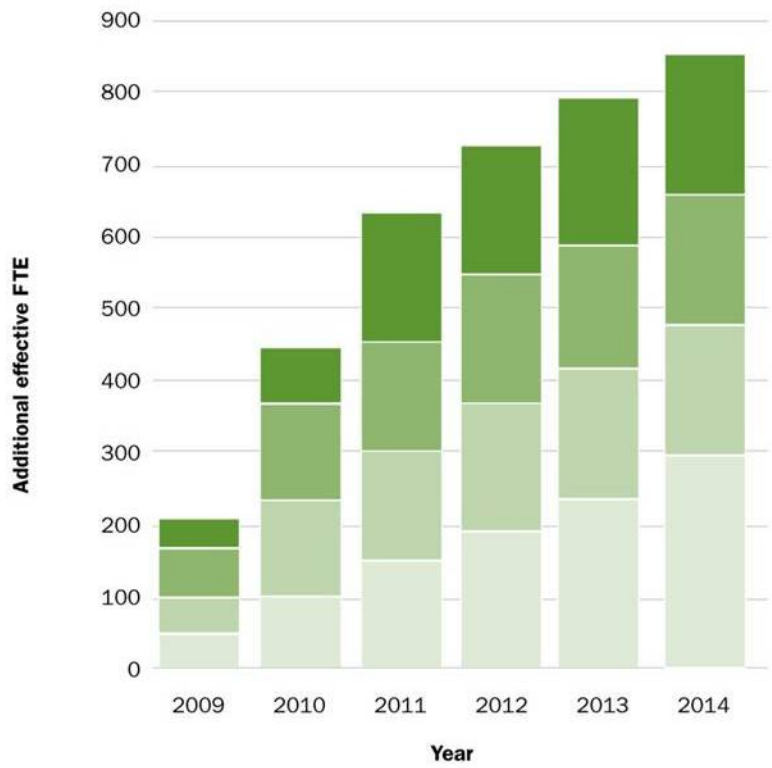
People

Country Energy has developed a strong *Resource and Productivity Plan* to ensure we can deliver our proposed expansion in works programs



- Plan developed in consultation with expert advisers, PB Associates
- Mix of internal and external labour
- Will make available the equivalent of an additional 830 full time employees by 2014

Productivity gain (increased output per employee)

Outsourced task or redeployed internal labour

Recruitment (qualified)

Recruitment (apprentice)

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Summary

Country Energy's regulatory proposal is designed to deliver a safe and efficient electricity network service through

- a responsive investment program matched to growing populations and changing consumption patterns
- a cost reflective maintenance and refurbishment program aiming to maintain 'end to end' asset condition – from major substations to home service mains and meters
- updated skills, tools and technological capability to resource these tasks, and realise productivity gains

Country Energy believes that its proposals can deliver a reliable, affordable and sustainable electricity network service for customers

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AER Public Forum

Country Energy's *Regulatory Proposal* 2009 to 2014

Sydney, 30 July 2008

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We live here too.