

# Future of Asset Management in regulating the electricity sector

Asset Management workshop

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# What we will discuss

- The role of the Commerce Commission and our regulation (Part 4)
  - Purpose of Part 4 regulation
  - Types of regulation
  - Asset management and Part 4
- Dealing with challenges and consumer expectations
  - Our likely focus areas
  - Is the future becoming less uncertain?
  - Asset health and criticality
  - Resilience



## Part 4 of the Commerce Act

- Part 4 of the Commerce Act provides for the regulation of electricity lines businesses
- The purpose of Part 4 is to promote the **long-term** benefit of consumers in regulated markets
- Most relevant to asset management are regulated supplier's incentives to:
  - **innovate** and **invest**
  - improve **efficiency** and provide services at a **quality** that reflects consumer demands

## Types of regulation

- Information disclosure (ID)
  - Applies to all 29 lines businesses
  - Helps us assess the **performance** of lines businesses and the sector as a whole
  - Provides information of interest to stakeholders
  - Sharing of **best-practice** between businesses
  - Includes disclosure of asset management plans (AMPs)
- Price-quality regulation
  - Applies to 17 of the 29 lines businesses
  - Sets **price** limits and **quality** standards

# Asset management and Part 4

## We do not regulate asset management directly

- We focus on the **incentives** lines businesses have, and how they are performing
- ID (including AMPs) provides insights on annual decisions on asset management, the state of the network assets, and long-term plans
- Quality standards and incentives provide insights into how assets are managed over the medium term (time-lagged indicators)
- Investigations following quality breaches provide insights on asset management practices



# Our focus on asset management



- Asset management decisions remain with lines businesses
- We focus where we can add greatest benefits – **summary analysis**
- Are suppliers planning and operating networks in a way that is economic, efficient, and effective
- Are suppliers making:
  - The right investments
  - at the right time and in the right location
  - in the right way
- Room for changes to ID regulations to improve our and other interested parties understanding of sector performance
- We would appreciate your suggestions for improving disclosures

# Industry

drop-down to change company

Explanatory documentation: [Link](#)

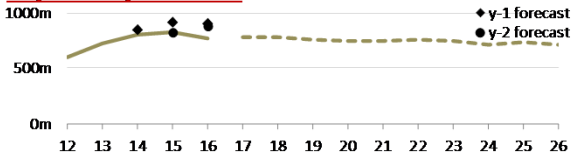
Summary database: [Link](#)

2016

## Summary statistics

	2016 value	5 year trend	3 year CAGR	Rank
Regulatory asset base	\$10,554m		+2.2%	
Regulatory profit	\$621.2m		-0.8%	
Return on investment	6.29%			
Line charge revenue	\$2,482.4m		+2.6%	
Other income	\$21.7m		-11.4%	
Customer connections	2,066,129		+0.7%	
Energy delivered	31,785 GWh		+0.8%	
Peak demand	6,571 MW		+1.8%	
Network capacity	21,055 MVA		+1.8%	
Capital expenditure	\$776.8m		+2.2%	
Operating expenditure	\$544.0m		+3.3%	
Capital contributions	\$114.6m		+9.2%	
Related party transactions	\$370.0m		+10.0%	
Line length	#####		+0.8%	
Outages - SAIDI	192 minutes		+9.8%	
Outages - SAIFI	2.03 faults		+4.4%	

## Capital expenditure

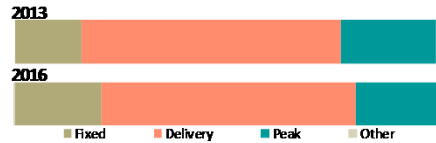


3 year ratios					
Total capex / asset base		Total capex / connections		Total capex / depreciation	
7.8%	Rank:	\$392	Rank:	2.01	Rank:

Capex by expenditure category	Average (2014-2016)	5 year trend	% of capex
Asset replacement & renewal	\$270.6m		33.7%
System growth	\$203.5m		25.3%
Consumer connection	\$160.5m		20.0%
Reliability, safety & environment	\$74.7m		9.3%
Non-network assets	\$58.2m		7.2%
Asset relocations	\$36.0m		4.5%
Total capital expenditure	\$803.5m		100.0%
Related party transactions	\$177.8m		22.1%

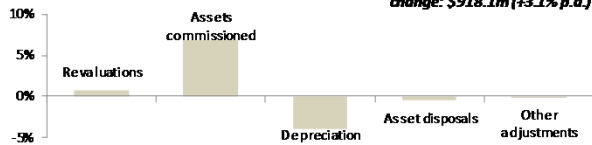
## Line charge revenues

	Proportion of revenue	Charges per unit	Rank
Average daily charge	20.6%	65.4c/ICP	
Delivery (kWh)	60.2%	4.5c/kWh	
Peak based	19.8%	\$72/kW	

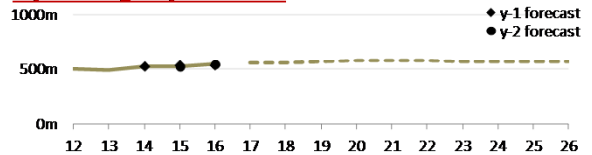


## Annualised RAB changes (2014-2016)

Opening RAB: \$9,635.6million Closing RAB: \$10,553.7million  
change: \$918.1m (+3.1% p.a.)



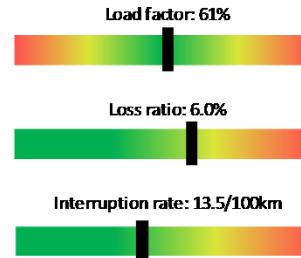
## Operating expenditure



3 year ratios					
Network opex / metre of line		Non-network opex / connections		Total opex / kW	
\$1.46	Rank:	\$151	Rank:	\$82	Rank:

Opex by expenditure category	Average (2014-2016)	5 year trend	% of opex
Business support	\$181.0m		34.2%
System operations & network support	\$128.1m		24.2%
Routine & corrective maintenance	\$75.7m		14.3%
Service interruptions & emergencies	\$63.2m		11.9%
Asset replacement & renewal	\$44.5m		8.4%
Vegetation management	\$37.2m		7.0%
Total operating expenditure	\$529.5m		100.0%
Related party transactions	\$151.5m		28.6%

## Network ratios



## Company details

PQ Regulated? -  
CEO: -  
Ownership: -  
Head Office: New Zealand  
Phone number: -  
Website: -

## Lines and cables

Estimated state of the assets	Distribution & LV O/H lines	Distribution & LV U/G cables	Subtransmission lines and cables	Poles
Quantity	99,301km	41,149km	11,619km	1,346,408
RAB Value	\$2,149.8m	\$2,583.7m	\$1,250.4m	*
Average grade	3.14	3.61	3.17	3.38
Grade 1 / 2	4.5% / 5.9%	0.3% / 1.3%	2.4% / 5.2%	1.5% / 5.1%
Unknown grade	7.9%	2.9%	8.5%	5.9%
Average age	35 years	25 years	34 years	32 years
Over expected life	7,036km (7.1%)	425km (1.0%)	1,055km (9.1%)	148,223 (11.0%)
Unknown age	3.7%	1.9%	3.1%	4.1%
5yr replacement req (est)	7.4%	1.0%	4.9%	4.0%
5yr planned replacement	4.1%	0.9%	2.9%	4.9%
Forecast repex (ave)	\$123.6m +14%	\$29.0m +34%	\$27.0m +21%	*
Repex series				*

\* RAB and expenditure on poles is included within Distribution and LV lines

## Switchgear and transformers

Estimated state of the assets	Distribution transformers	Distribution switchgear	Zone-substation transformers	Zone-substation switchgear
Quantity	186,813	213,391	1,261	11,958
RAB Value	\$1,409.8m	\$712.5m	\$1,254.8m	
Average grade	3.36	3.19	3.20	3.24
Grade 1 / 2	3.0% / 4.2%	2.7% / 4.6%	2.7% / 8.3%	3.9% / 6.2%
Unknown grade	4.7%	7.0%	0.2%	1.8%
Average age	24 years	22 years	30 years	24 years
Over expected life	27,210 (14.6%)	51,644 (24.2%)	489 (38.8%)	3,704 (31.0%)
Unknown age	0.4%	6.1%	0.2%	2.5%
5yr replacement req (est)	5.0%	5.0%	6.8%	7.1%
5yr planned replacement	6.0%	7.3%	6.4%	7.0%
Forecast repex (ave)	\$37.3m +14%	\$38.4m +42%	\$49.0m +15%	
Repex series				

## Reliability

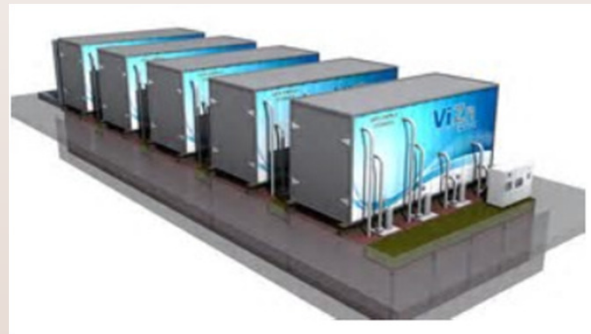
	SAIDI causes			SAIFI causes		
	Unplanned	Planned	Trend	Equipment & human error	Weather & external	Obstruction
Interruptions	11,568	9,016	↑	Equipment & human error	Weather & external	Obstruction
SAIDI	133.1	58.5	↑	Unknown	Planned	Planned
SAIFI	1.76	0.26	↑			
CAIDI	75.4	223.5	↑			



# Dealing with the future

## *Is the future becoming less uncertain?*

1. What **consumers** are saying/being told
2. What **lines businesses** are saying
3. What **third-party investors** are saying





# Dealing with the future

## Consumers

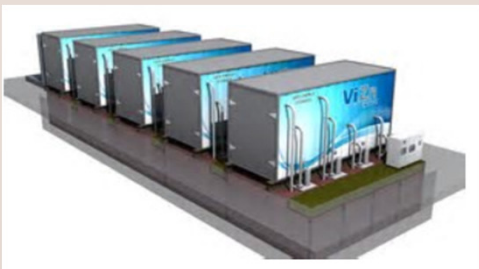
- Changes in demand profiles
- Potential for reduced level of assets for security
- Potential for stranded assets



# Dealing with the future

## Lines companies

- Rate of change may be a bit slow – do nothing and see?
- Undertaking the right level of investments:
  - Change in demand profile that can be leveraged
  - Integrating new technology cost effectively – investing for two way flows.
  - High repex and resilience



# Dealing with the future

## Third-parties

- What and where are the opportunities
- MEUG/Transpower – information on where to trial batteries.



# Dealing with the future

## Maintaining investment sufficiency

- Challenge is to protect consumers and lines businesses from **avoidable costs**, now and in future, but maintain investment sufficiency

## Development projects

- We are interested in information disclosed on scenarios and options for integrating new tech and network enhancements
- Some say – won't need a n-1 network in many places



# Dealing with the future

## Maintaining investment sufficiency cont...

- What other tools are there in the intermediate stages
  - Security of supply standards – probabilistic approach
  - Short term PQ trade-off – IMs allow businesses to apply for CPPs
  - Encourage consumer side investments
  - Post contingency load management – is this feasible?
  - Your views and R&D are important to stakeholders



# Asset health and criticality

- Protect consumers and business from manageable risks
- Expect asset replacements driven by asset health, criticality and forecast long term needs
  - Understand asset criticality and risks
  - Look for reversible options
  - Interested in how EDB quality standards may be more forward looking



# Asset health and criticality

- It would be useful for industry to develop approaches to assessing asset health and systems and processes
  - Robust approach to assessing asset health – EDBs share costs?
  - Data integrity is important
  - Provide line-of-sight from data collection to expenditure forecasts
  - From expenditure forecasts to revenue limits



# Resilience

- Demonstrate a focus in this area in AMPs
- Demonstrate the problems being solved in the AMP
- Does not necessarily mean stronger builds
- What opportunities are there going forward (design and construction standards)
- Cost/benefits/policies are important – consumers want to know why prices are going up, if so, and are utilities doing the right things.





# Conclusions

- Effective asset management is important for New Zealanders
- Lines businesses' responsibility to manage the assets effectively
- We have a range of tools to influence better asset management practices and are open to your suggestions to improve these
- Our areas of focus include:
  - integrating the technology within the network
  - asset health, risks and criticality
  - resilience
- We will appreciate your input into how best we can provide better information on asset management to interested parties
- Thanks for this opportunity to share our views with you



# Competition Matters 2017

20 and 21 July

# Competition and Regulation Conference

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