

# The electricity distribution network reset process

BSL and the Victorian EDPR 2020

Meeting 17 June 2019

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# Why get involved in a network reset

- ❖ The cost of electricity delivered to an end user comprises three main elements
  - ❖ The cost of the substations, steel lattice towers, poles and wires (~40% of the total for a home)
  - ❖ The wholesale price of electricity (~40%)
  - ❖ Environmental, retail margins and price risk management (~20%)
- ❖ Wholesale and retail costs are set by competition and intervention in these is by rule changes and government action
- ❖ The network charges are set by regulation and this allows end users to get involved in the detail of the costs.



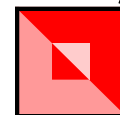
# What this forum explains

- ❖ The process of a revenue reset for an electricity distribution network
- ❖ How is the revenue each DB seeks built up
- ❖ What are the drivers for network prices changing
- ❖ What are the main cost elements in the revenue
- ❖ What are the aspects that drive each cost element
- ❖ How is the revenue converted to prices
- ❖ Consumer engagement undertaken so far and its impact
- ❖ Throughout this presentation I have used the draft proposal by Ausnet to provide an actual example of the costs involved
- ❖ There is a 2 page summary of the core elements of the draft proposals from the five networks which Emma has



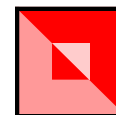
# The process

- ❖ Every 5 years each electricity distribution network proposes its costs for the next 5 years
- ❖ Prior to a network proposing a new revenue, the AER identifies how it will manage the process and what the parameters will be for the reset, including the form of control (price or revenue cap) and other aspects including the classification of services (standard control, alternative control services), incentive schemes, approach to depreciation, etc). This work was done last year
- ❖ The AER reviews the proposals made by each network and publishes an Issues Paper identifying its view of the salient issues and then has a public forum to discuss the proposals
- ❖ The AER seeks stakeholder views of the proposals including the issues in the Issues Paper
- ❖ The AER receives responses, releases a draft decision and has a public forum to discuss aspects of the draft decision
- ❖ The networks revise their proposals and the AER receives responses to its draft decision and the revised proposals
- ❖ The AER releases a final decision
- ❖ This reset process takes some 15-18 months
- ❖ This reset will be deferred by ~6 months to start July 2021



# Building the revenue

NOMINAL \$ MILLION	2021	2022	2023	2024	2025	TOTAL
Return on capital	\$256.2	\$269.3	\$280.1	\$289.9	\$298.9	\$1,394.4
Depreciation	\$94.7	\$112.2	\$122.4	\$128.9	\$140.0	\$598.2
Operating expenditure	\$241.7	\$252.7	\$264.0	\$276.6	\$288.8	\$1,323.8
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Tax	\$16.9	\$16.7	\$17.0	\$20.4	\$20.9	\$91.9
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# Return on assets

- ❖ In Victoria, the return on assets (RoA) is about 40% of the revenue
- ❖ It is made up by multiplying the nominal value of the assets (regulatory asset base - RAB) by the “real” weighted average cost of capital – WACC
- ❖ The WACC is fixed
- ❖ Because the networks get other revenue (eg from incentive payments, use of assets by others, using less opex/capex, lower cost of debt), as a guide over the FY14 – FY17 period all 13 distribution networks in the NEM received a higher RoA than the WACC by some 100 bp of which 40 bp came from incentives
- ❖ The starting RAB in each year is the ending RAB from the previous year + inflation - depreciation + new capex



# Weighted average cost of capital (WACC) set by the AER

- ❖  $WACC = 0.4 * \text{cost of equity} + 0.6 * \text{cost of debt}$
- ❖ The cost of debt is recalculated each year so this means the WACC changes each year
- ❖ Cost of debt is the trailing average of the 10 year corporate bond rate.
- ❖ The cost of equity is fixed for the regulatory period
- ❖  $\text{The cost of equity} = RFR + MRP * \beta_e$
- ❖  $RFR = 10 \text{ year bond rate}$
- ❖  $MRP = \text{market risk premium}$
- ❖  $\beta_e = \text{equity beta which is the risk factor}$



# The RAB is brought up to date and then forecast for the next period

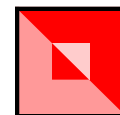
NOMINAL \$ MILLION	2016	2017	2018	2019	2020
Opening RAB	\$3,442.1	\$3,610.0	\$3,807.6	\$4,071.3	\$4,372.5
Net capital expenditure	\$298.2	\$331.2	\$372.9	\$409.7	\$312.7
Inflation on opening RAB	\$52.0	\$36.9	\$73.6	\$84.6	\$98.4
Forecast straight-line depreciation	(\$182.3)	(\$170.6)	(\$182.8)	(\$193.1)	(\$209.2)
Closing RAB	\$3,610.0	\$3,807.6	\$4,071.3	\$4,372.5	\$4,574.4
Add difference between actual and forecast 2015 net capital expenditure					(\$46.8)
Add return on difference in 2015 net capital expenditure					(\$14.7)
Closing RAB (at 31 December 2020)					\$4,512.9
NOMINAL \$ MILLION UNLESS STATED OTHERWISE	2021	2022	2023	2024	2025
RAB (start period)	\$4,512.9	\$4,755.9	\$4,957.6	\$5,142.4	\$5,315.4
Capital expenditure	\$337.7	\$313.9	\$307.1	\$302.0	\$319.2
Inflation on opening nominal RAB	\$110.6	\$116.5	\$121.5	\$126.0	\$130.2
Straight-line depreciation	(\$205.3)	(\$228.7)	(\$243.8)	(\$254.9)	(\$270.2)
RAB (end period)	\$4,755.9	\$4,957.6	\$5,142.4	\$5,315.4	\$5,494.6
RAB (end period) – real \$M 2020	\$4,642.2	\$4,723.3	\$4,782.2	\$4,824.9	\$4,868.3



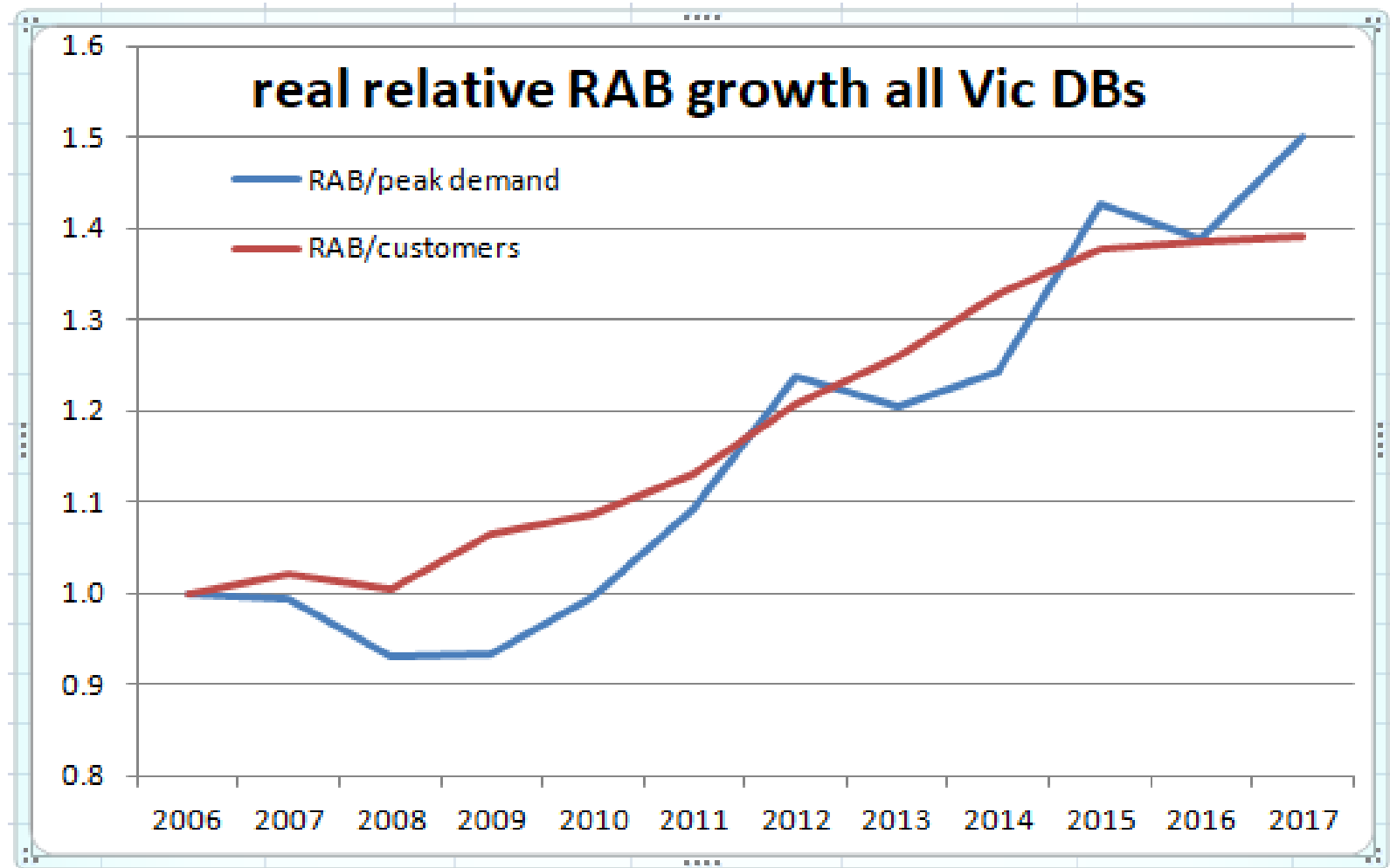


# What drives the RAB

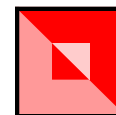
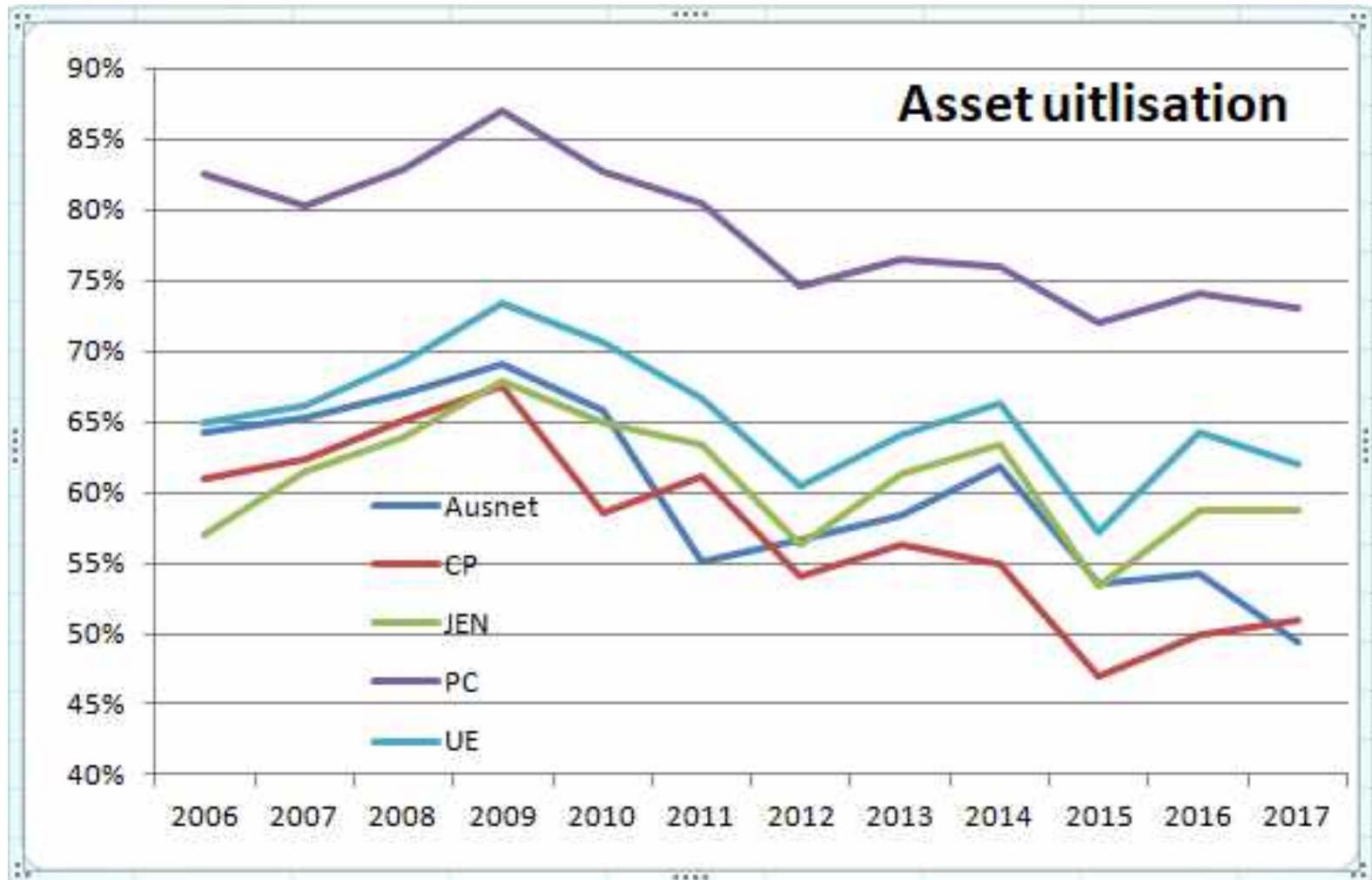
- ❖ Inflation is exogenous
- ❖ Depreciation is based on retirement schedules noting there is some difference between the DBs
- ❖ So capex is the main driver of the RAB
  - ❖ Augmentation to meet growth (peak demand and population)
  - ❖ Replacement
  - ❖ New connections
  - ❖ IT
  - ❖ Safety



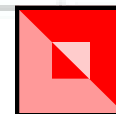
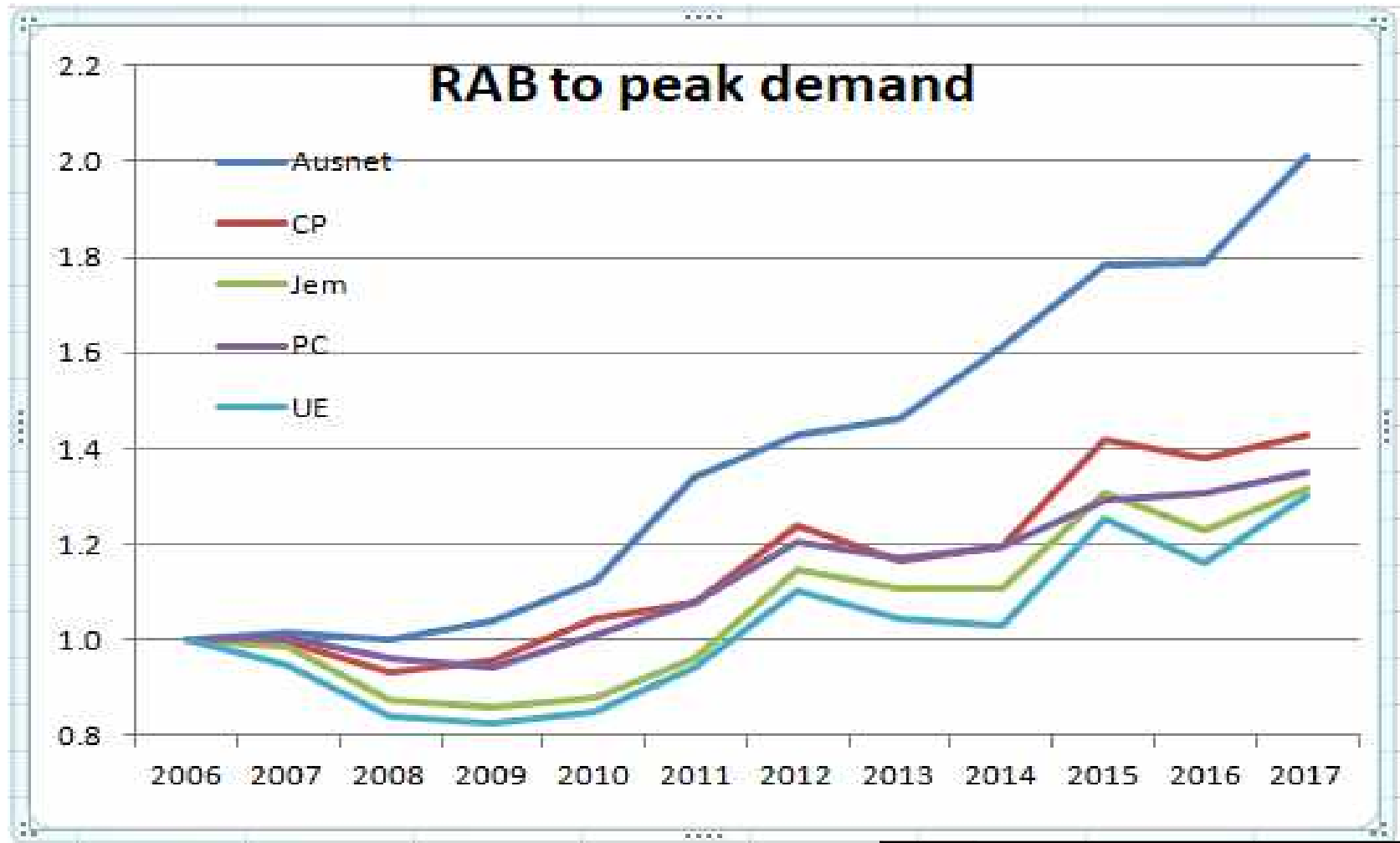
# The RAB has grown over the past decade ...



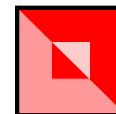
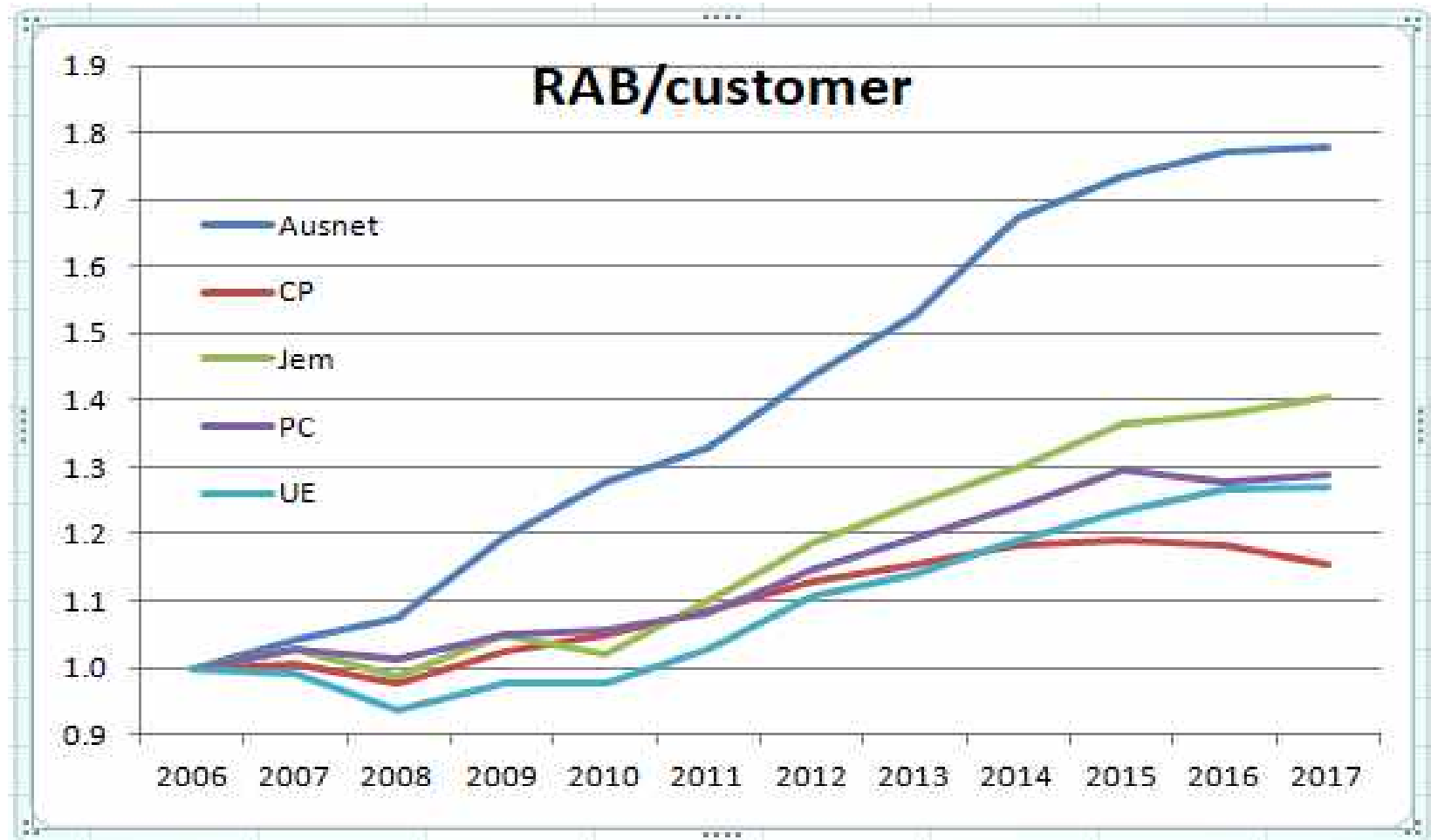
# ... but utilisation has fallen



# The RAB has grown over the past decade (2)

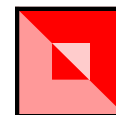


# The RAB has grown over the past decade (3)



# Capex

2020\$ MILLION	2021	2022	2023	2024	2025	TOTAL
Replacement expenditure	\$132.6	\$150.9	\$151.9	\$139.1	\$123.1	\$697.6
Connections	\$93.5	\$94.1	\$92.8	\$90.2	\$90.1	\$460.7
Augmentation expenditure	\$60.1	\$33.7	\$23.8	\$20.1	\$30.7	\$168.4
Non-network	\$61.3	\$44.8	\$40.6	\$45.1	\$52.2	\$244.0
Capitalised overheads	\$34.9	\$35.3	\$35.2	\$35.2	\$35.2	\$175.8
<b>Total gross capital expenditure</b>	<b>\$382.4</b>	<b>\$358.8</b>	<b>\$344.3</b>	<b>\$329.7</b>	<b>\$331.3</b>	<b>\$1,746.5</b>
Customer contributions	\$62.3	\$62.8	\$61.4	\$58.6	\$58.2	
<b>Total net capital expenditure</b>	<b>\$320.1</b>	<b>\$296.0</b>	<b>\$282.9</b>	<b>\$271.1</b>	<b>\$273.1</b>	<b>\$1,443.2</b>



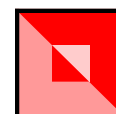
# What the main elements of capex

- ❖ Historically, capex was mainly augmentation expenditure to meet growth (augex)
- ❖ As consumption has fallen and peak demand flat lined, augex has fallen considerably but we see the main cost increases are now in replacement capex (repex) and IT
- ❖ In bushfire areas we have also seen capex to limit fire starts (REFCL program)



# This is data from the last reset on repex growth

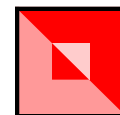
Repex \$m (\$'15)	2006-2010 RQM +50% ESL actual	2011-2015 allowed RQM + 50% ESL	2011-2015 Actual	Initial proposal 2016-20	AER Preliminary Decision	Revised proposal 2016-20	AER Final decision
AusNet	\$270	\$552	\$687	\$901	\$758	\$804	\$698
CitiPower	\$205	\$300	\$153	\$260	\$199	\$260	\$236
Jemena	\$96	\$196	\$163	\$224	\$224	\$256	\$228
Powercor	\$314	\$558	\$443	\$722	\$609	\$672	\$609
United	\$146	\$350	\$406	\$585	\$424	\$564	\$446
<b>Total</b>	<b>\$1,031</b>	<b>\$1,956</b>	<b>\$1,852</b>	<b>\$2,692</b>	<b>\$2,214</b>	<b>\$2,556</b>	<b>\$2,217</b>





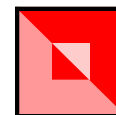
# IT capex

- ❖ The other increase in capex we have seen is in IT
- ❖ Not only is the cost of IT increasing but it is depreciated over a short 5 year period
- ❖ The aspect of concern is that effectively consumers pay the cost of the IT capex but they are seeing little value from the cost



# Regulatory Depreciation

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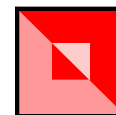
# Regulatory Depreciation

- ❖ Regulatory depreciation allowance has two elements
  - ❖ Inflation of the asset base
  - ❖ Straight line depreciation of the assets based on a schedule developed by the network
- ❖ The main issue with the asset depreciation schedules is that there is no consistency between the different networks with some networks depreciating the same assets faster than other networks. For example UE depreciates its system assets over 36 years but Powercor does this over 51 years
- ❖ The impact of this is that UE revenue in each year is higher than it would be if it used Powercor depreciation



# Opex

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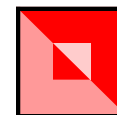
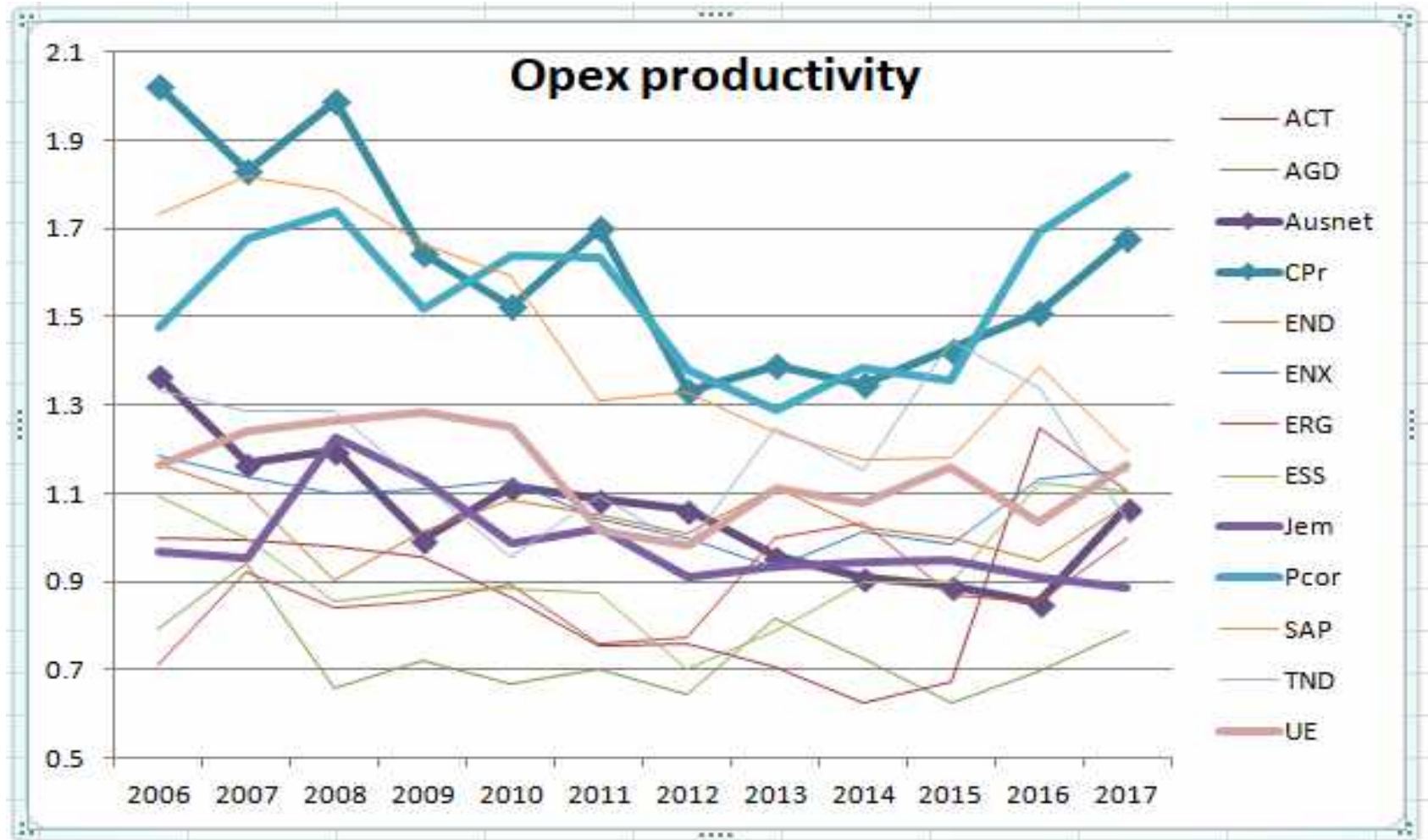


# Opex

- ❖ Opex is about 37% of the total revenue
- ❖ The process for setting the opex is to use the actual opex seen in year 4 of the regulatory period and use this as a base.
- ❖ To the base we add:
  - ❖ Price growth (inflation, labour costs)
  - ❖ Output growth
  - ❖ Step changes
  - ❖ Adjustments for service classification, self insurance, GSL payments
- ❖ Opex is benchmarked for productivity (moderated against peak demand, line length and customer numbers) to assess how far each network is from the efficient frontier



# Opex productivity



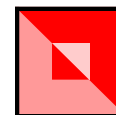
# Opex productivity

- ❖ PC and CP would appear to be the most productive of the networks
- ❖ UE, Jem and Ausnet are very much in the “ruck” and not near the efficient frontier
- ❖ So the issue for consumers is to get UE, Jem, and Ausnet opex productivity similar to that achieved by CP and PC



# Incentives

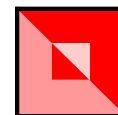
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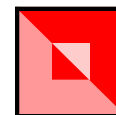
# Incentives

- ❖ Incentive on opex – EBSS
- ❖ Incentive on capex – CESS
- ❖ Incentive on reliability – STPIS
- ❖ Incentive on demand management – DMIS
- ❖ Most networks get an incentive payment which on average over FY14 – FY17 added another 40 bp to the actual RoA
- ❖ This raises the question as to whether the incentive targets are too easy and whether the incentive programs are fit for purpose



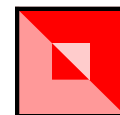
# Tax

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# Tax

- ❖ The revenue build up is delivered as a post tax allowance
- ❖ This requires the AER to provide an allowance for tax that the network will be liable for, as the allowance for profitability is an after tax allowance
- ❖ A review of past outcomes indicates that government owned networks pay more tax than the AER allowed but privately owned networks paid less tax than that allowed.
- ❖ The AER has carried out a detailed review of the way the tax allowance is crafted and has made some minor adjustments
- ❖ As part of its recent settings for the WACC, the AER also determined a key input parameter ( $\gamma$ ) to the tax allowance calculation



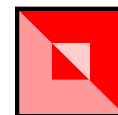
# Conversion of revenue to price

- ❖ Networks are working together to have a common view on tariff structure
- ❖ Tariffs are based on three elements
  - ❖ A fixed element
  - ❖ Demand
  - ❖ Consumption
- ❖ Customers are basically divided into two groups – larger users pay based on a demand tariff but smaller user (mostly small business and residential) pay based on consumption
- ❖ Higher voltage customers use less of the network and their tariffs have lower unit rates
- ❖ As most of the cost for providing service is from the peak demand each user has on the network there is a push to move all customers onto a demand based tariff. This would probably be more equitable
- ❖ Roof top PV not paying to export biases pricing against those without rooftop PV
- ❖ Cost reflectivity implies that the fixed element should be low
- ❖ The tariff should be structured to provide a signal to use less at critical times as this would be economically efficient

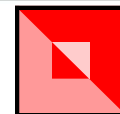
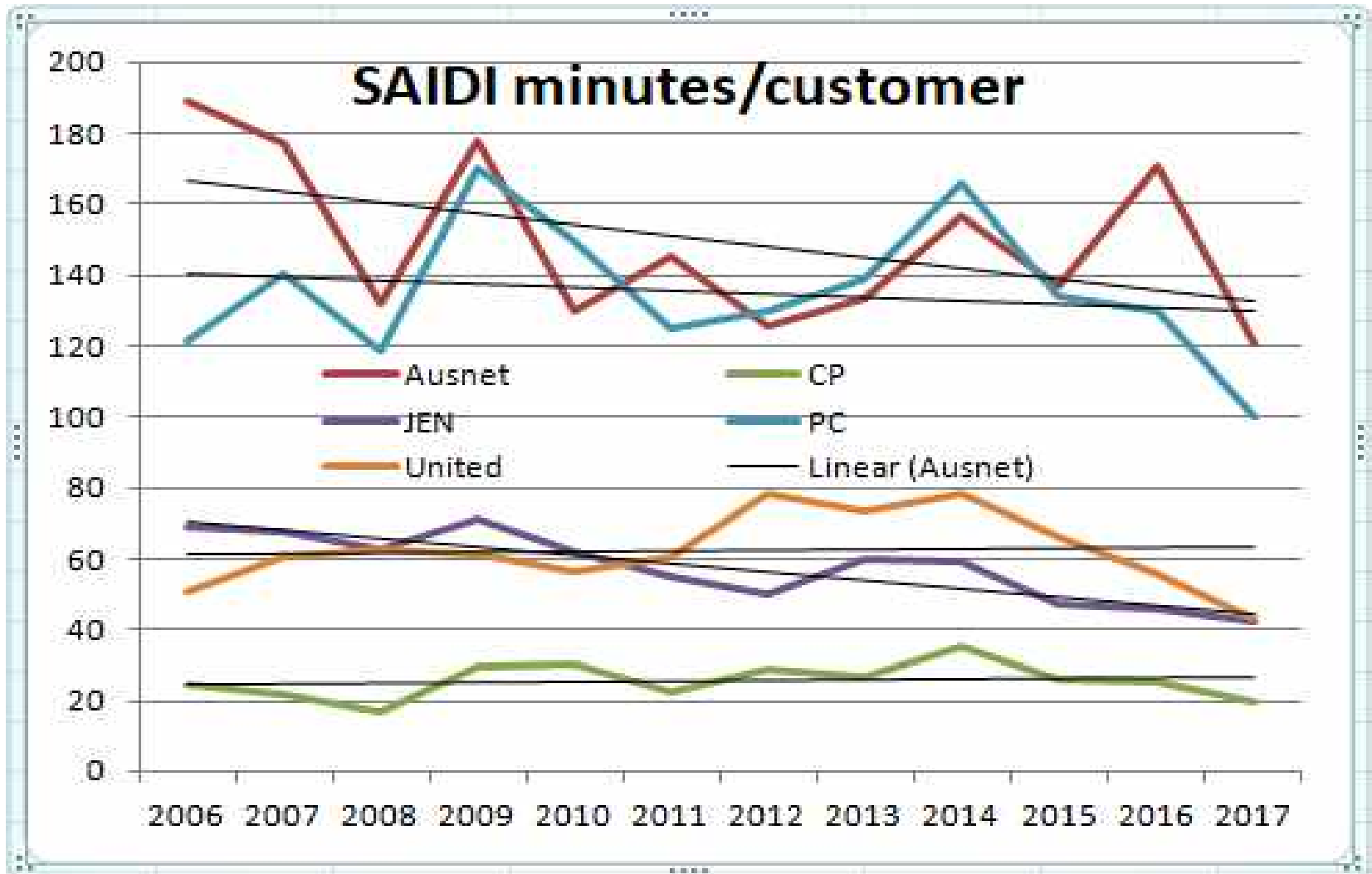


# Reliability

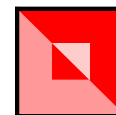
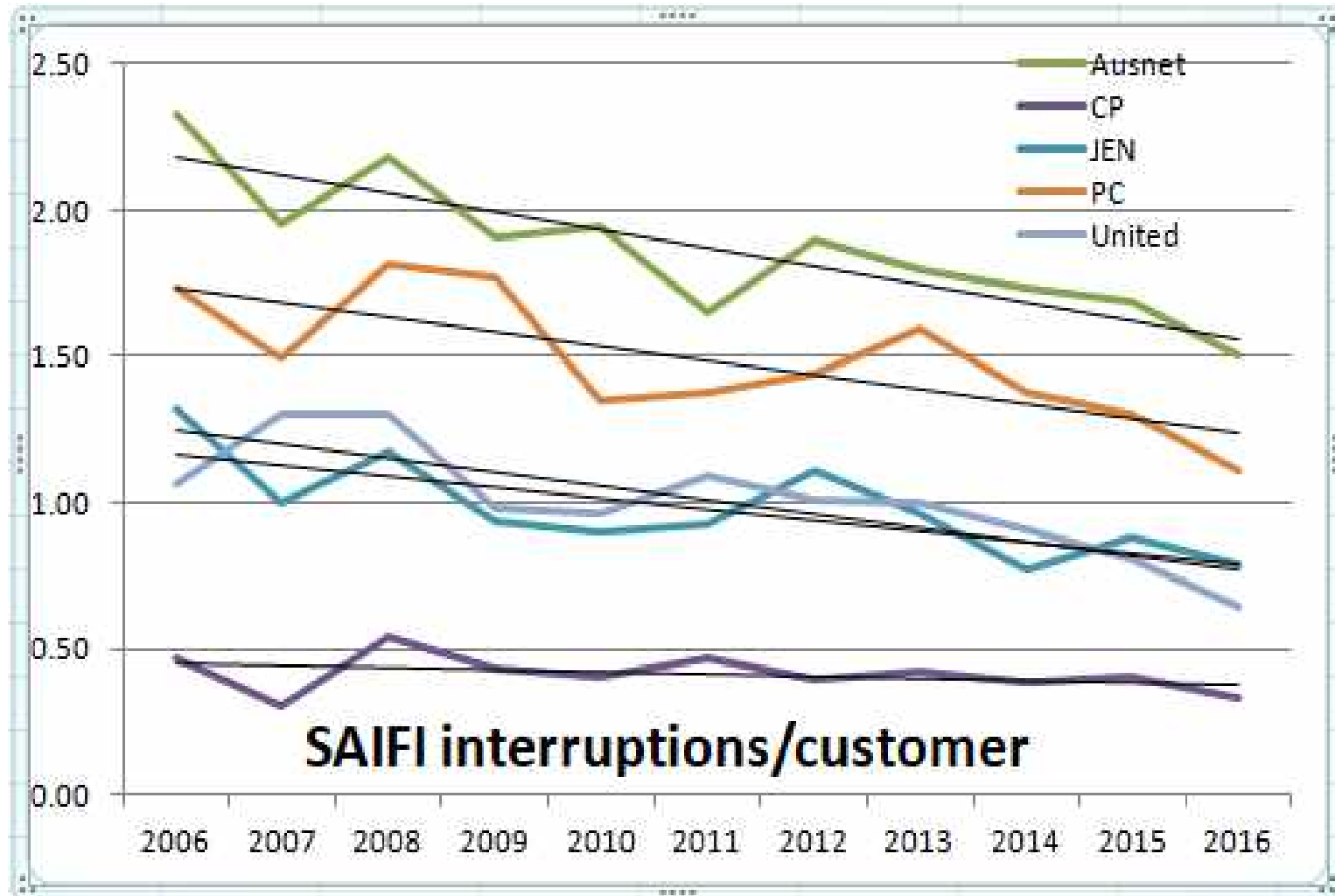
- ❖ There are three basic measures for reliability
  - ❖ Time off supply (SAIDI)
  - ❖ Frequency of supply loss (SAIFI)
  - ❖ Unplanned unserved energy
- ❖ Most are trending downward
- ❖ A few are essentially flat
- ❖ Incentives are paid based on SAIDI and SAIFI through the service target performance incentive scheme (STPIS)
- ❖ A consistent question from networks is to ask what lower reliability is acceptable and to offer a small saving for this lower reliability, but consumers are of the view that we could reduce costs and have little impact on reliability



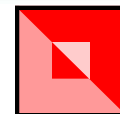
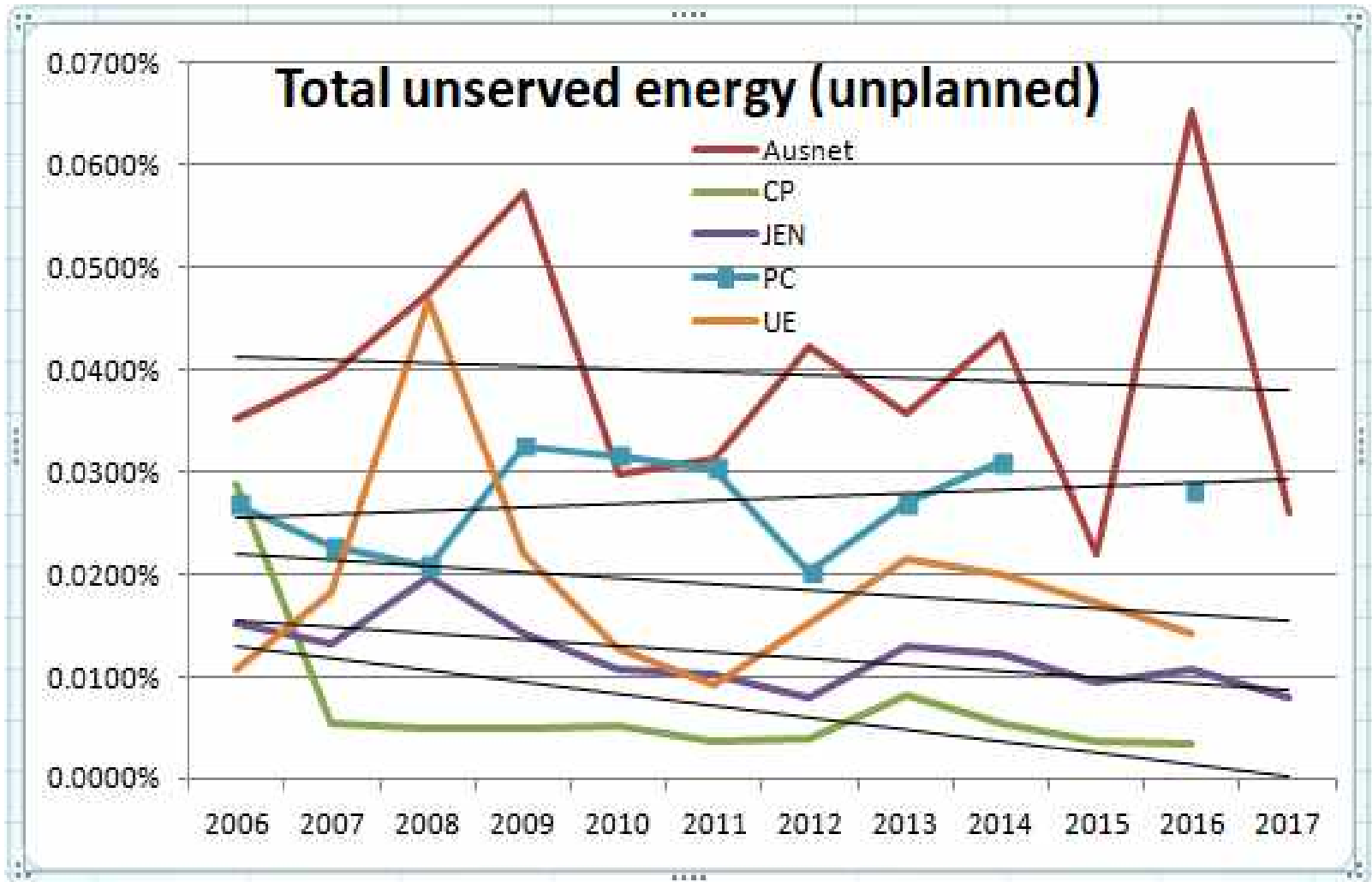
# Reliability - SAIDI



# Reliability - SAIFI



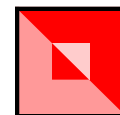
# Reliability – USE (unplanned)





# Consumer engagement (1)

- ❖ Consumer engagement is where the networks seek end user input about the networks and its cost, and what the network delivers to consumers.
- ❖ We know that delivered prices are too high from international comparisons and power is available mostly when we want it. But networks costs are only ~40% of the delivered price
- ❖ Consumer concerns are primarily price and reliability but also include pricing structures, impact of rooftop solar PV, bushfire starts, demand management opportunities, etc
- ❖ Consumers know about price and reliability but have limited skills to convert this as a trade off or to convert this to a reset and challenge the assertions of the networks.



# Consumer engagement (2)

- ❖ For EDPR 05 and EDPR 10 there was little formalised consumer engagement and what there was ,was limited to the regulator seeking input from a relatively few consumer advocates
- ❖ For EDPR 15 there was more active CE by the networks and the AER had the Consumer Challenge Panel
- ❖ Network CE for EDPR 15 was more consumer focused but was in its infancy, but CE for EDPR 2020 was more extensive
- ❖ All the DBs have a consumer advisory group, have dialogue with consumer advocates, do focus group sessions, regional meetings, surveys, forums, workshops, website, etc
- ❖ As well, Ausnet with AER and ECA has introduced a new approach where a five member panel (the Customer Forum – CF) is to negotiate with the network about certain costs to go in the proposal. The CF receives funding to carry out detailed consumer surveys and receives detailed input from Ausnet and the AER



# The key issues and areas to focus on in the reset

- ❖ Prices are too high and impose considerable harm to those on low incomes
- ❖ Price v Reliability is a trade off
- ❖ The RAB is too high
- ❖ Why should users pay for oversized assets (ie low utilisation)
- ❖ Capex is a major driver of costs and the incentive program drives less capex than allowed but consumers see little benefit
- ❖ Low productivity networks are not being driven to the efficient frontier of opex
- ❖ Reliability is improving but there are places where reliability is less than in other areas
- ❖ How do we treat the incentive schemes as they seem to deliver a consistent bonus
- ❖ Do we seek to reform pricing structures (eg to a demand based tariff)
- ❖ A major concern is that the networks have the knowledge to provide advice as to the “best” way to address consumer concerns raised through consumer engagement

