ELECTRICITY AUTHORITY
TE MANA HIKO

TPM supplementary consultation: Overview of refinements

13 December 2016

COMPETITION • RELIABILITY • EFFICIENCY

Executive summary

- The current Transmission Pricing Methodology (TPM) is not durable, sends the wrong price signals and is being heavily 'gamed'
- The TPM charging framework proposed in May 2016 is fundamentally robust
  - Most submitters agreed with having an area-of-benefit (AoB) charge but there were different views about how widely to apply it (Transpower submitted that it should be applied to all interconnection transmission assets)
  - Many submitters supported the aim of the residual charge to avoid inefficient activity, esp. with respect to DGs
- We have listened to the feedback and are now proposing refinements to the TPM guidelines to
  - Allow Transpower to extend AoB charges to many more transmission assets
  - Provide more flexibility for Transpower to design the residual charge to address double counting and anomalies
  - Withdraw our earlier proposal to allow Transpower to give prudent discounts to large industrial consumers if they would otherwise exit NZ due to paying transmission charges exceeding the cost of serving them

Executive summary, continued

- We are also proposing a 3.5% cap on initial changes in transmission charges
  - The above refinements introduce greater uncertainty about the financial impact on consumers
  - Hence we are proposing to cap the initial impact of the changes to no more than 3.5% of total electricity bills, except in regard to the effects of any LRMC charges or AoB charges on new investments

- However, our modelling suggests the cap will not be needed for most transmission customers
  - The first phase of any changes to the TPM would take effect in April 2020 when it is possible that transmission and distribution charges will decline significantly due to the effect lower interests rates will have on the Commerce Commission's price control regime
  - Relative to the current TPM and current regulated WACC, the combined impact of the proposed TPM changes and the effect of expected interest rate reductions is to reduce electricity prices for 28 of the 29 regions

The refinements address key concerns of many submitters

1. Giving Transpower the ability to extend the AoB charge to a broader range of assets addresses incentive issues for generators and reduces the residual charge

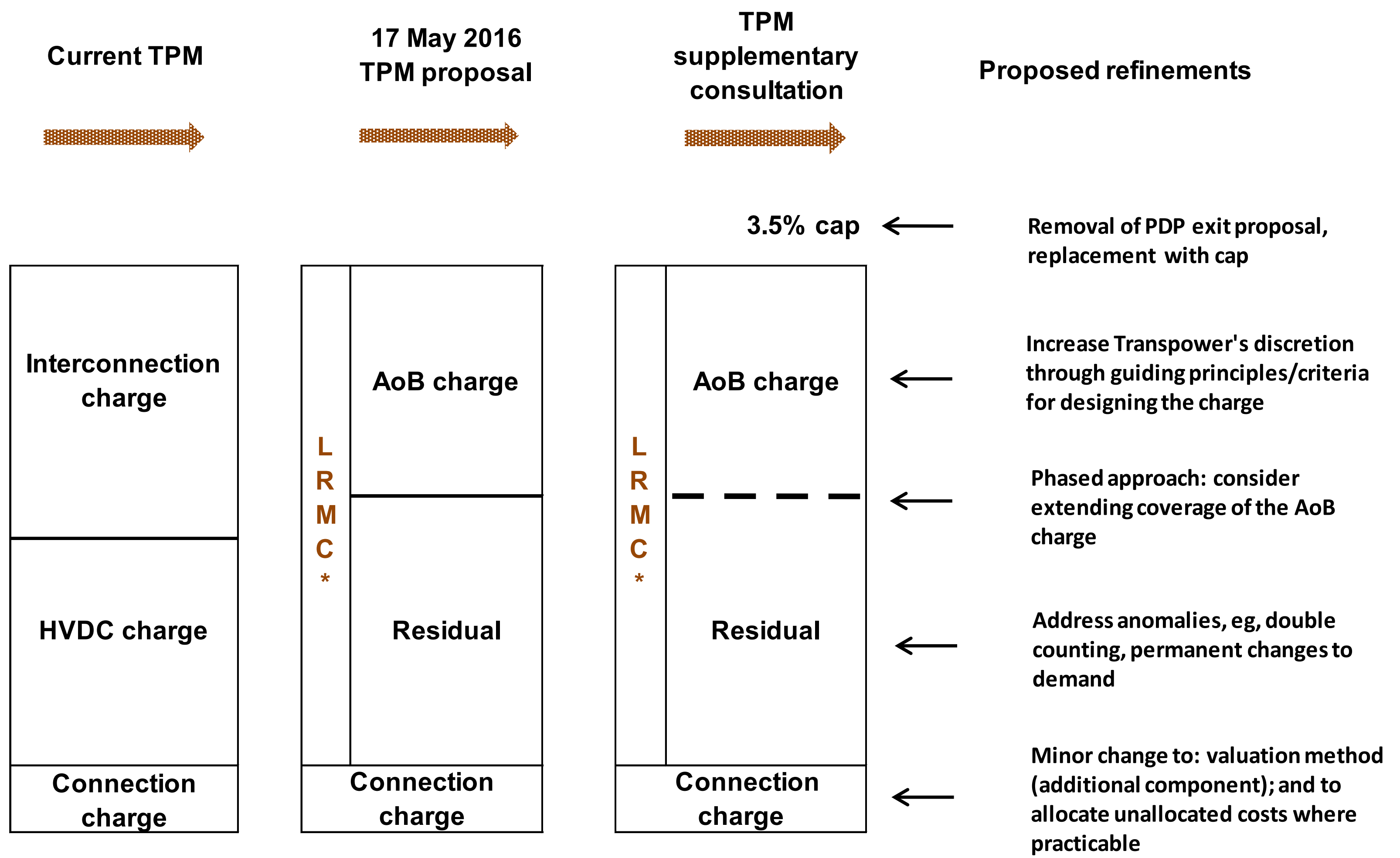
2. Greater flexibility for Transpower to design the AoB charge should result in an efficient trade-off between accuracy and practicality

3. Some submitters raised concerns that the AoB results in them paying for transmission upgrades that primarily benefit Auckland
   - The supplementary consultation paper identifies adjustments to the calculation of the benefits to ensure parties are only paying in accordance with the benefits they receive
   - These adjustments are expected to reduce AoB charges on consumers in Northland

4. Greater flexibility for Transpower to design the residual charge should allow removal of double counting and more effectively measure use of transmission assets, achieving more appropriate outcomes for consumers in Northland, the West Coast and Ashburton

5. The proposed 3.5% cap provides customers connected directly to the transmission grid with greater certainty than was going to be provided by the extended PDP regime

Path to proposed refinements



* LRMC is an additional component of the proposal

What are the TPM and the TPM guidelines?

- Transpower builds, operates and maintains the national transmission grid and its revenue for doing this is set and regulated by the Commerce Commission (Transpower's regulated services)
  - Total transmission charges were approximately $918 million for the period 1 April 2015 to 31 March 2016
  - These charges are paid by Transpower's customers---electricity generators, electricity distributors, and some large industrial consumers connected directly to the national grid (often called direct connect consumers)

- The TPM and the TPM guidelines
  - The TPM sets out how Transpower allocates its charges across its transmission customers
  - The Authority is responsible for developing the TPM guidelines which Transpower must follow in developing and managing the actual TPM

The current TPM is producing unsustainable outcomes

- It is being avoided so much that it is resulting in perverse outcomes, for example
  - Some upper North Island industrial consumers benefit greatly from recent grid upgrades but are actually paying lower transmission charges than before the upgrades; many generators have benefited too but pay nothing towards these upgrades
  - Conversely, industrial consumers in the lower South Island received minimal benefits but are paying big increases in charges, creating serious risk of plant closure and job losses
  - One distributor told us recently that it is a ‘race to the bottom’ because transmission customers are encouraged to install or contract for distributed generation to avoid transmission charges
- The current TPM results in perverse regional outcomes
  - Fast-growing regions are subsidised by slow-growing regions
  - Cities are close to ‘transmission loops’ and so they receive high levels of transmission reliability but the costs of these assets are paid for by all NZ consumers
  - Conversely, remote regions typically have much poorer levels of transmission reliability than major cities but they often have to pay for large transmission assets on their own
- These are just some of the symptoms (see next slide for the source of the problems)

The problems with the current TPM are fundamental

- The current TPM provides the wrong price signals
  - The charges are not service-based: the charges that transmission customers pay don't relate to the services they receive from particular grid circuits
  - The charges are not cost-reflective: they are often high when the costs of using the grid are very low, and vice versa
- This drives poor investment and operating decisions
  - Grid users take into account transmission charges when making investment and location decisions, and also when they're deciding whether to inject or withdraw electricity from the grid
  - These activities influence Transpower's grid investment proposals, and the Commerce Commission's decisions to approve those proposals
  - The resulting grid investments are unlikely to be in the long-term interests of consumers
- The electricity industry is the most capital intensive sector of the economy
  - Therefore addressing the problems with the TPM, especially the problems associated with investment efficiency, will deliver substantial net benefits to consumers – in the order of $200 million

We consider our May 2016 proposal is robust but refinements would better promote the statutory objective

- Having considered submissions on the May 2016 TPM second issues paper we consider the proposed TPM charging framework is fundamentally robust
  - There was widespread support for the AoB charge but varying views on how widely to apply it
  - Many submitters supported the aim of the residual charge to avoid inefficient activity, esp. with respect to DGs
  - However, submitters have identified refinements that may better promote the Authority's statutory objective

- Key reasons for the proposed refinements
  - Remove anomalies to make the treatment of similar customers more even handed so the proposal is more durable
  - Reduce uncertainty about the impact of the TPM proposal on households and major industrials
  - Increase flexibility for Transpower to design and implement the TPM

Key proposed refinements

- More flexibility for Transpower to design the AoB charge
  - Allow Transpower to propose applying the AoB charge more broadly than we proposed in May 2016, but only after AoB charge had been applied to the 11 grid assets we identified in our May 2016 proposal (see next slide)
  - Make clearer the range of factors to be included in calculation of benefits for the AoB charge
  - Expectation on Transpower to allocate more of its unallocated expenses to AoB assets
- More flexibility for Transpower to design the residual charge
  - Transpower can adopt our May 2016 approach---using gross AMD (anytime maximum demand)---or some other method provided it is hard for their customers to avoid by altering their behaviour (eg, by investing in DG)
  - Transpower's choice of AMD or another method must avoid double counting and other anomalies
- Reduced scope for the prudent discount policy (PDP)
  - We are withdrawing our May 2016 proposal to extend the PDP to cover situations where it is proven that the new TPM would cause inefficient exit of large industrial consumers
- Capping the initial impact to no more than 3.5% of total electricity bills
  - The greater flexibility for Transpower and the more limited scope for the PDP both introduce greater uncertainty
  - So we are now proposing to cap any initial increases in transmission charges (in real terms) to no more than 3.5% of the total electricity bill for consumers. However, full charges would apply for new investments

The phasing-in of the AoB charge

- Phase 1 – application of charges to investments identified in May 2016
  - Transpower would design and implement the AoB charge on the 11 transmission assets identified in May 2016
  - Transpower would also design and implement the residual charge, and also an LRMC charge if Transpower still favours it (and the Authority approves it)
  - We expect these new charges to take effect from 1 April 2020 at the latest, replacing the two main charges in the current TPM

- Phase 2 – application of AoB charge to other pre-guidelines investments – additional component
  - Transpower could extend the AoB charge to other pre-guidelines investments if it would promote the Authority's statutory objective and is consistent with the Code
  - Transpower could propose a transition if it chose to extend the AoB charge to other pre-guidelines methods
  - Three years after the TPM comes into force the cap on charges to direct consumers would be lifted by 2 percentage points a year until full transmission charges applied (or earlier, if Transpower had implemented an extension to the coverage of the AoB charge)
  - ie, in the absence of an LRMC charge and new grid upgrades, direct consumers whose charges would increase are expected to face modest increases in transmission charges from April 2023 onwards (at the latest)

The CBA is robust while the refinements will improve the proposal's durability

- The Authority requested Oakley Greenwood (OGW) reconsider their cost benefit analysis (CBA) following their consideration of submissions on the CBA in the second issues paper
  - OGW do not consider any changes are required to their CBA. The Authority agrees with that assessment
- Subject to one key adjustment, OGW consider their CBA remains an acceptable assessment of the Authority's proposal taking into account the refinements
  - Overall the expected net benefits in the OGW CBA reduce from $213.3m to $203m due to the reduced scope for the prudent discount policy
  - The Authority considers the proposed refinements will materially improve the proposal's durability and further promote the statutory objective

The Authority has followed an exhaustive process to review the TPM guidelines

- The Authority has adopted a comprehensive process in reviewing the current TPM guidelines
  - We inherited the review from our predecessor the Electricity Commission in 2010 and continued it given the benefits that could be realised

- In undertaking the review, we have released many consultation papers
  - A TPM Issues Paper in October 2012
  - Nine working papers during 2013 - 2015, including an issues and options working paper in June 2015
  - A TPM Second Issues Paper in May 2016
  - And now a supplementary consultation paper containing refinements to the Second Issues Paper

Background: the key elements of the 17 May 2016 proposal

- **Area-of-benefit (AoB) charge**
  - Parties pay for transmission investments in proportion to their estimated share of the private benefits from those investments
  - The AoB charge is a service-based and cost-reflective charge because only parties that benefit from transmission investments pay for those investments
  - This contrasts with the current TPM in which parties pay for investments in the interconnected grid even when they receive no benefit from those investments
- **A residual charge** – this charge is used to recover Transpower's overhead costs and the cost of any grid assets not recovered by the AoB or other transmission charges. It is conceptually simple, easy to calculate and difficult to avoid
- **Connection charge** – retain the existing connection charge, although with a potentially revised valuation methodology
- **Prudent discount policy** – extend the existing prudent discount policy (PDP), in particular to allow Transpower to give prudent discounts to avoid inefficient exit of large industrial consumers
- **Long run marginal cost (LRMC) charge** – an additional charge that Transpower must propose if doing so would promote the Authority's statutory objective

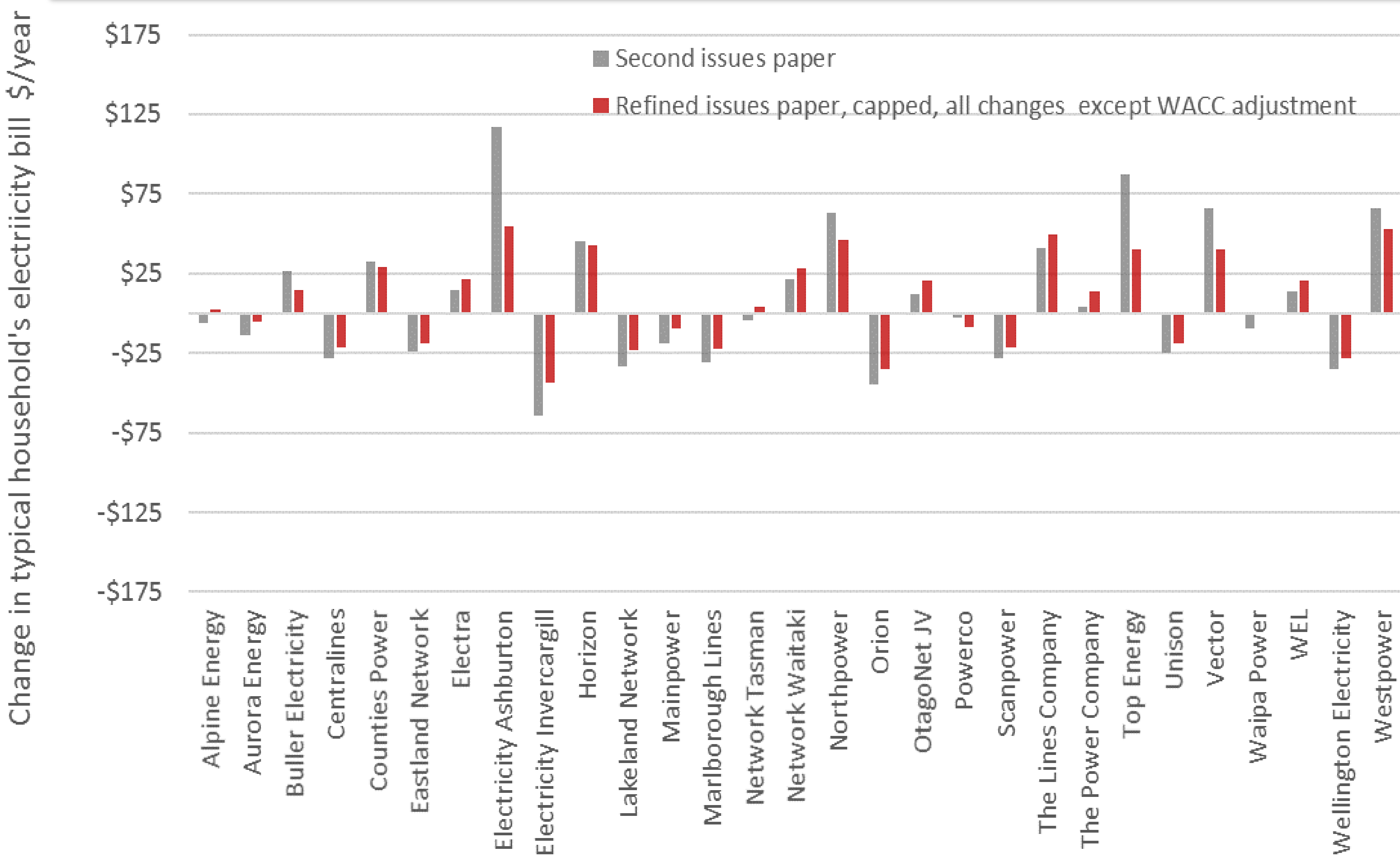
The Authority has modelled the proposed refinements

- The Authority has undertaken indicative modelling of most of the proposed refinements to provide an indication of the impact of the refinements on transmission charges
- Interaction with potential changes in the Weighted Average Cost of Capital (WACC) applied by the Commerce Commission (ComCom)
  - Interest rates have declined significantly since the ComCom reset the parameters for the current regulatory period (2015-2020). Therefore, when the parameters for the next regulatory period (2020-2025) are recalculated for Transpower and EDBs in 2020, it is possible that the revenue requirements for these sectors will decline coinciding with the implementation of a new TPM
  - We have modelled the potential effects of the ComCom's reset of Transpower and EDB revenue requirements due to reductions in market interest rates which may affect the WACC and thus revenue requirements - any such changes would take effect from 1 April 2020
  - The charts show that changes in the WACC could more than offset changes to the TPM
  - The 'status quo' is the current TPM and the current WACC for the regulatory period 2015-2020. The charts therefore do not provide a comparison with what would happen under the current TPM with a WACC adjustment
- Our modelling is indicative only
  - The modelling necessarily makes assumptions and simplifications when estimating the TPM charge

Indicative impact in 2020 on a typical household's electricity bill

Not including **ComCom potential WACC adjustments**

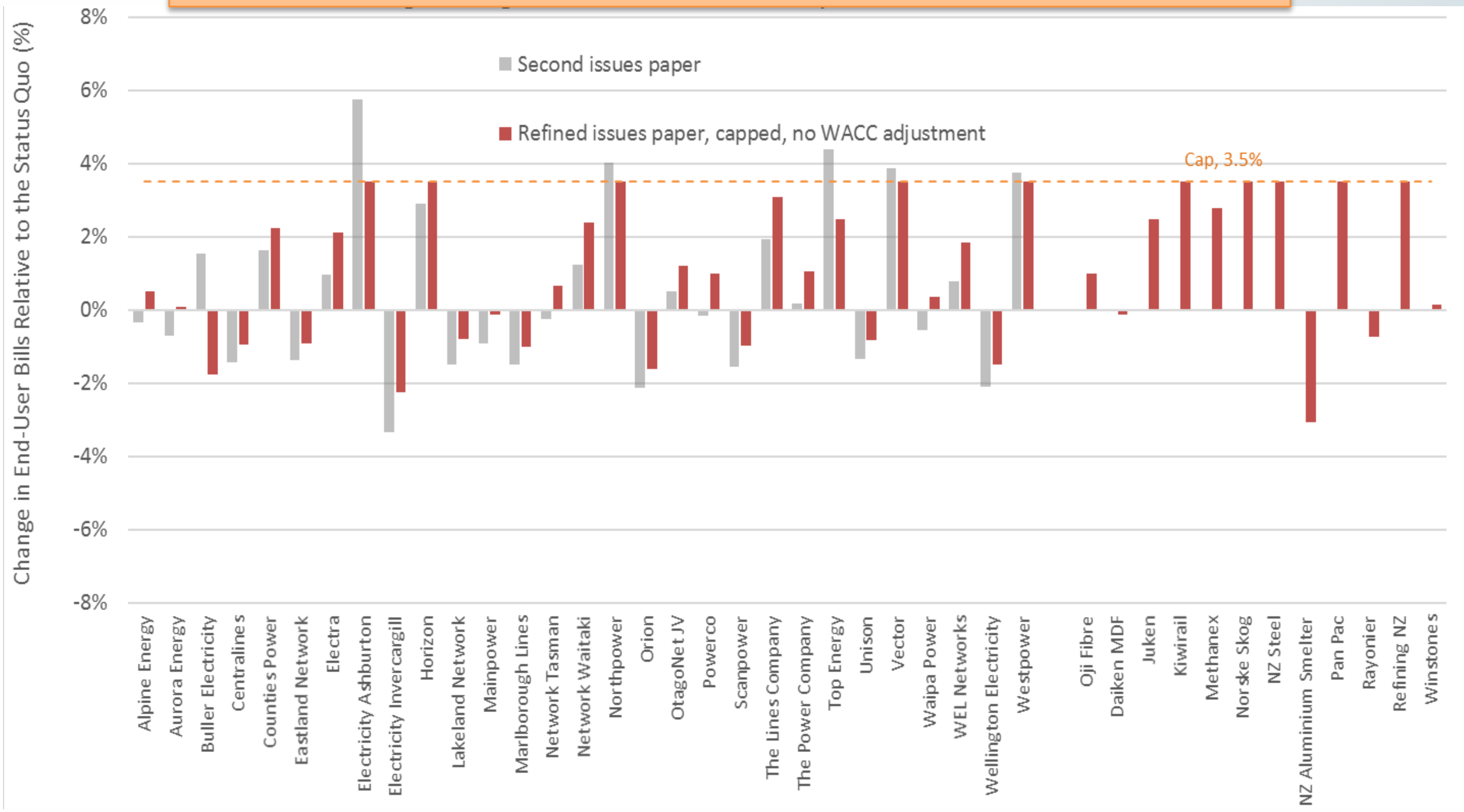
Price reduces in 12 network areas, and no increase exceeds $55 per year for a typical household



% change in consumers' electricity bills in 2020 versus status quo

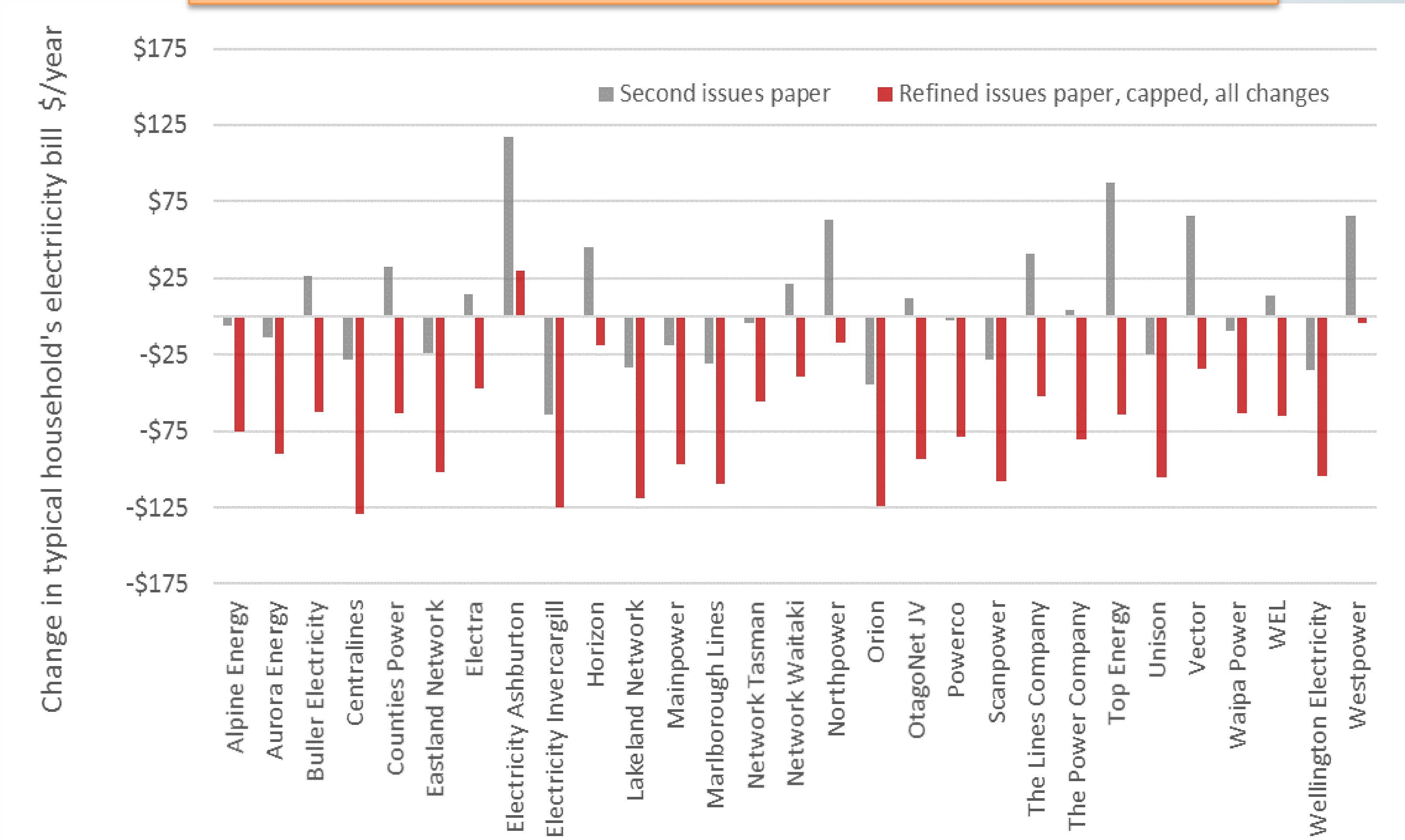
Not including **ComCom potential WACC adjustments**

The 3.5% cap limits transmission charges on five major industrials
(but note the cap is progressively relaxed in about 6 years) **and five distributors**



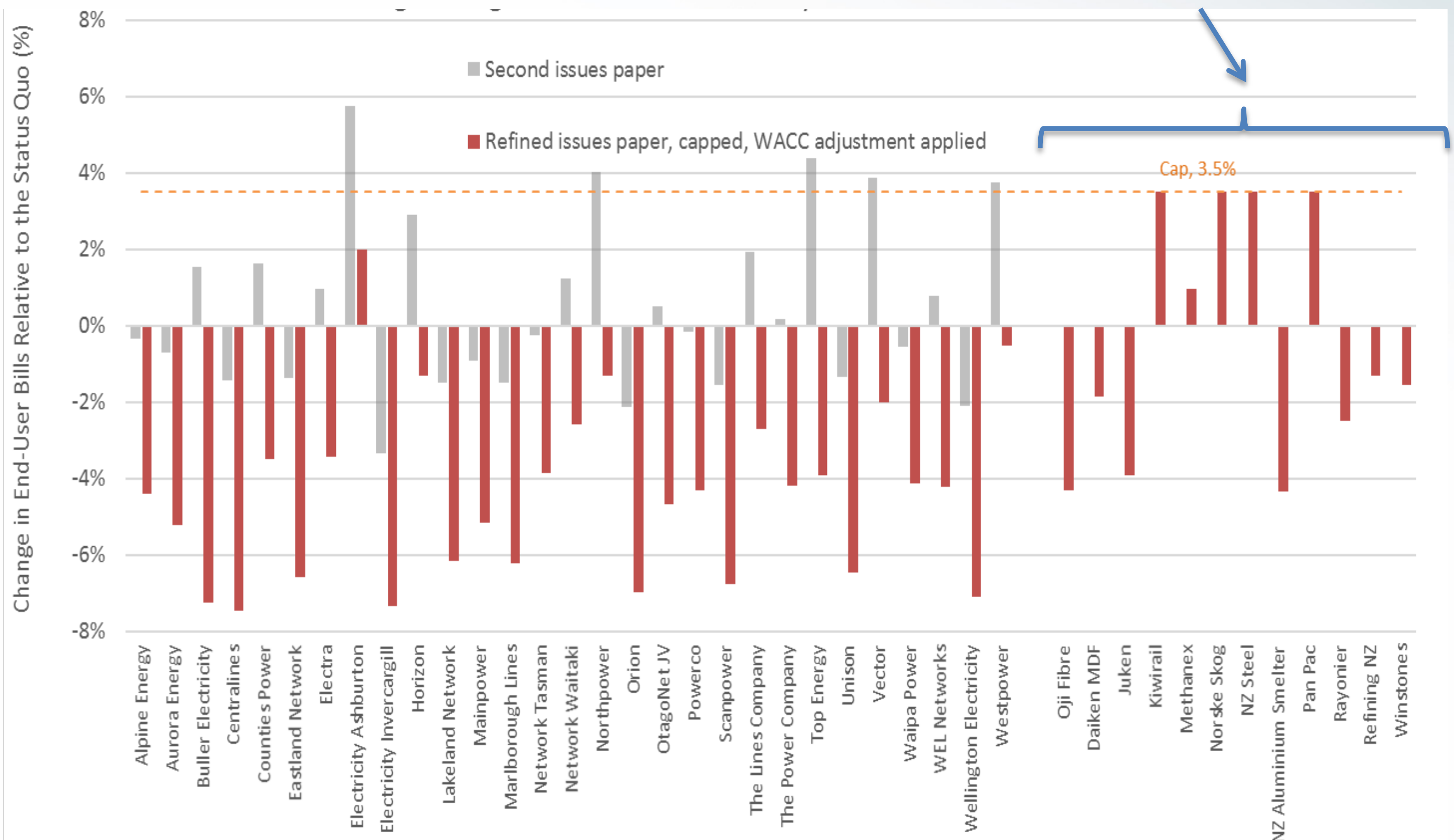
Same as slide 16 but with potential WACC adjustment

28 out of 29 network areas expected to be better-off in 2020



Same as slide 17 but with potential WACC adjustment

The 3.5% cap limits transmission charges on four major industrials
(but note the cap is progressively relaxed for major industrials in about 6 years)



Next steps

Milestone	Planned date
Publication of supplementary consultation paper	13 December 2016
Consultation ends	24 February 2017