

Fast Broadband: A New Zealand Perspective

February 2015





1. Overview of the NZ regime

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- 1. “Fast” broadband initiatives (UFB & RBI) – regulated by private agreement for now. Mostly fibre, but some copper & wireless in rural areas**
- 2. A legacy copper network – regulated by the Telco Act and the NZCC**
 - Competition between copper & fibre:** The “business case” for fibre, at least from Chorus’ perspective, appears to have relied on an (incorrect) assumption about copper pricing
 - Chorus is the regulated wholesale monopolist for copper, and the majority wholesaler for fibre**

“Fast” broadband initiatives: UFB & RBI

- The NZ government established 2 initiatives to improve broadband services - the Ultra Fast Broadband Initiative (UFB) and the Rural Broadband Initiative (RBI)
- Together, UFB & RBI will bring faster broadband to 97.8% of New Zealanders

Copper: the thorn in fibre's side

- Regulated under the Telco Act, enforced by the NZCC
- NZCC's IPP pricing for UBA & UCLL (effective 1 December 2014) was set *below* entry level UFB – \$34.44
 - Chorus appealed the NZCC's IPP pricing decision, and lost (twice)
- NZCC announced its draft FPP for UBA & UCLL on 2 December 2014 at \$38.39 – marginally higher than entry level UFB



Source: New Zealand Commerce Commission, 2 December 2014

Fast broadband objectives: NZ vs Australia

NZ government objectives

- **UFB objective:** *“To accelerate the roll-out of Ultra-Fast Broadband to **75 percent of New Zealanders over ten years**, concentrating in the first six years on **priority broadband users** such as businesses, schools and health services, plus green field developments and certain tranches of residential areas”*
 - Access to UFB = availability of broadband services at a speed of **100Mbps downstream**, and **50Mbps upstream** in the home (with priority users having access to even faster speeds)
 - **\$1.5b government investment**
- **RBI objective:** Connect 97% of schools to fibre, enabling speeds of at least 100Mbps, with the remaining 3% to achieve speeds of at least 10Mbps (the *rural schools objective*). Improve coverage of broadband services so that 97% of New Zealand households and enterprises are able to access broadband services of 5Mbps or better, with the remaining 3% to achieve speeds of at least 1Mbps (the *rural community objective*)
 - Funded by a **government grant of up to a maximum of \$48m**, plus an **industry levy (TDL)** of up to a maximum of **\$252m**
 - Mix of fibre, copper and wireless technologies

NBN objectives

- Delivering **very fast broadband as soon as possible**, at **affordable prices**, and at **least cost** to taxpayers
- **Utilising technology that is most appropriate in each area** of Australia (including FTTP, FTTB, HFC, wireless and satellite)
- Staying within the public equity capital limit of **\$29.5 billion**
- Providing **download rates of at least 25Mbps** to all premises and at least **50 Mbps to 90% of fixed line premises**

Crown Fibre Holdings (CFH)

- Established to manage \$1.35b of the Government's \$1.5b investment in UFB infrastructure
- Currently 100% Crown-owned. Will reduce shareholding to somewhere between over 50% and under 100% in future
- Has partnered with four Partners to deliver on the UFB Objective
- **Strategic priorities:** (1) ensure deployment targets reached; (2) stay within fiscal envelope (\$1.35b); (3) manage contracts effectively; (4) ensure return of invested funds (when directed by Ministers)
- Not expected to return any profit, distribution or dividend to the Government until the UFB Objective has been achieved

Chorus & Local Fibre Companies (LFC)

Chorus	Enable Networks	Ultrafast Fibre	Northpower Fibre
<ul style="list-style-type: none"> • Chorus Limited is a “co-investment” partner with CFH • 69.4% of UFB total coverage • Covers Auckland, Waiheke Island, Pukekohe, Waiuku, Rotorua, Taupo, Whakatane, Gisborne, Napier-Hastings, Palmerston North, Feilding, Masterton, Kapiti, Levin, Wellington, Nelson, Blenheim, Greymouth, Ashburton, Timaru, Oamaru, Dunedin, Queenstown and Invercargill • 27.18% owned by CFH (02/12/14), largest shareholder – but unquoted 	<ul style="list-style-type: none"> • Partnership between CFH and Enable Services Limited • 15.3% of UFB total coverage • Covers Christchurch (including Rolleston) and Rangiora • 45.28% owned by CFH 	<ul style="list-style-type: none"> • Partnership between CFH and Waikato Networks Limited • 13.7% of UFB total coverage • Covers Hamilton (including Cambridge and Te Awamutu), Tauranga, Tokoroa, New Plymouth, Hawera and Wanganui • 69.99% owned by CFH 	<ul style="list-style-type: none"> • Partnership between CFH and Northpower Limited • 1.6% of UFB total coverage • Covers Whangarei • Fibre deployment completed in May 2014 • 66.31% owned by CFH

A closer look at Chorus

- **Structural separation in November 2011**
 - Previously “operational separation”
 - Wholesale only
- **Listed on NZX on 23 November 2011**
- **“Kiwi Share”**: Chorus’ constitution contains provisions that replicate the old “Kiwi Share” obligations, which prevent any single shareholder from owning more than 10%, and non-New Zealand nationals from owning more than 49.9% of the shares, without approval from the Minister of Finance

Overview of the UFB investment structure

- Complex investment structure – generally speaking:
- CFH funds the cost of fibre “passing” (the connection running down the street) as it is completed and signed off to specifications
 - **For LFC’s:** (1) Partner builds the network; (2) LFC acquires the network off the Partner (for cash and “voting” shares); and (3) CFH funds the LFC’s acquisition (in return for “voting” shares)
- The Partner funds each “drop” (the connection from the premise to the fibre in the street) as it connects end-users
 - **For LFC’s:** (1) Partner connects to the end-user’s premises; and (2) LFC acquires that end-user connection (for cash and/or “dividend” shares)
- CFH will directly invest up to \$929 million in Chorus, essentially via a 50:50 mix of debt and equity securities, based on an agreed cost per premises passed with UFB fibre

The UFB contracts

- Each Partner has entered into UFB contracts with CFH
- Key terms include:
 - Coverage areas & deployment plans
 - Products & pricing: wholesale price caps and “building block” approach, eg:

Product	Upstream and Downstream Speeds	Committed Information Rate	How UFB Products Can Be Used	Wholesale Price Cap (2011)
Entry level Consumer	30 Mbps Downstream / 10Mbps Upstream	Minimum 2.5Mbps Symmetric	Upload a 30MB folder of photos in 24 seconds	\$37.50
Entry level Consumer + HD Video	10 Mbps Downstream only	10 Mbps Downstream only	Watch HD video stream	\$5.00 (2 nd channel \$2.50)
Household 100Mbps	100Mbps Downstream / 50Mbps Upstream	Minimum 7.5 Mbps Downstream, 2.5Mbps Upstream	Download a High Definition movie in <8.5 minutes	\$55.00

Additional Bandwidth:		Additional Ports:	
CIR 2.5Mbps	\$1.25 Down / \$2.50 Up	2nd Voice port	\$15
EIR 10Mbps	\$1.35 Down / \$2.70 Up	2nd and subsequent Ethernet port	\$10
		Wi-Fi port	\$2.50

Source: Crown Fibre Holdings - Fact Sheet: Agreement With Chorus

- Technology: both GPON (home/retail) and Point-to-Point (corporate/enterprise)

Products & pricing

- LFCs/Chorus sell ultra-fast broadband components such as downstream & upstream bandwidth, and Committed Information Rate (guaranteed minimum rate of data transfer for priority traffic) to the requirements of RSPs
- May sell services to RSPs at prices at or below the **wholesale price cap**
- Pricing lists are publicly available – for the most part, **uniform pricing**
- No additional one off charge for consumer connections

Deeds of undertaking

- LFCs and Chorus have entered deeds of undertaking to ensure they provide “open access” to all RSPs on their fibre networks, ie must:
 - divest any retail telecommunications business
 - meet and maintain standards of **equivalence** and **non-discrimination** between RSPs
 - provide the specified Layer 1 and Layer 2 services to any and all potential RSPs who meet specified criteria on equal terms
- Enforceable under the Telco Act by the NZCC
- Chorus has also given undertakings for its legacy copper network (replacing “operational separation”) which require it to supply wholesale copper services on an “open access” basis, and for RBI

UFB undertakings: Non-discrimination

- When doing or omitting to do anything in respect of a “Service” (includes layer 1 & 2 services) Chorus will not Discriminate:
 - (a) between Access Seekers;
 - (b) in favour of any Chorus Related Party; or
 - (c) where Chorus supplies a Service to itself, in favour of Chorus itself
- “Discriminate” means to **treat differently**, except to the extent a particular difference in treatment is **objectively justifiable** and **does not harm, and is unlikely to harm, competition** in any telecommunications market
- The undertakings deem certain differential treatment to be objectively justifiable

UFB undertakings: Equivalence

- Chorus will ensure that the design and build of the Network (in areas in which Chorus has been selected as a UFB partner) enables Access Seekers to purchase the “Input Services” (essentially layer 1 services and POI co-location) on an Equivalence basis on and after 1 January 2020
- Equivalence means “equivalence of inputs”
- **What this means for layer 1 services:** Prior to 1 January 2020, a non-discrimination standard applies. From 1 January 2020, the layer 1 service must be supplied to an “equivalence” standard

Originally proposed “regulatory holiday”

- Originally proposed that there would be an 8½ year regulatory forbearance period in the 2011 Telco Act amendments – but this was abandoned and replaced with “contractual mechanisms”
 - Regulatory forbearance period would have exempted UFB contract holders from NZCC scrutiny (ie regulation) until 1 January 2020
- Now, the NZCC’s normal regulatory powers under the Telco Act apply to UFB. If the NZCC regulates UFB prices lower than those negotiated in the UFB contracts, the government will essentially “cover the difference” in the form of an LFC/Chorus being given longer to pay-off its government co-investment
 - The contractual mechanisms would not apply where there was behaviour by LFCs/Chorus which resulted in regulatory change
 - Led to new section 18(2A) of the Telco Act: The NZCC must consider “...*incentives to innovate that exist for, and the risks faced by, investors in new telecommunications services...*”

UFB progress – overall (30 June 2014)

WHAT WAS ACHIEVED

1st IN OECD FOR GROWTH IN FIBRE COVERAGE

26% OF NEW ZEALANDERS ABLE TO CONNECT

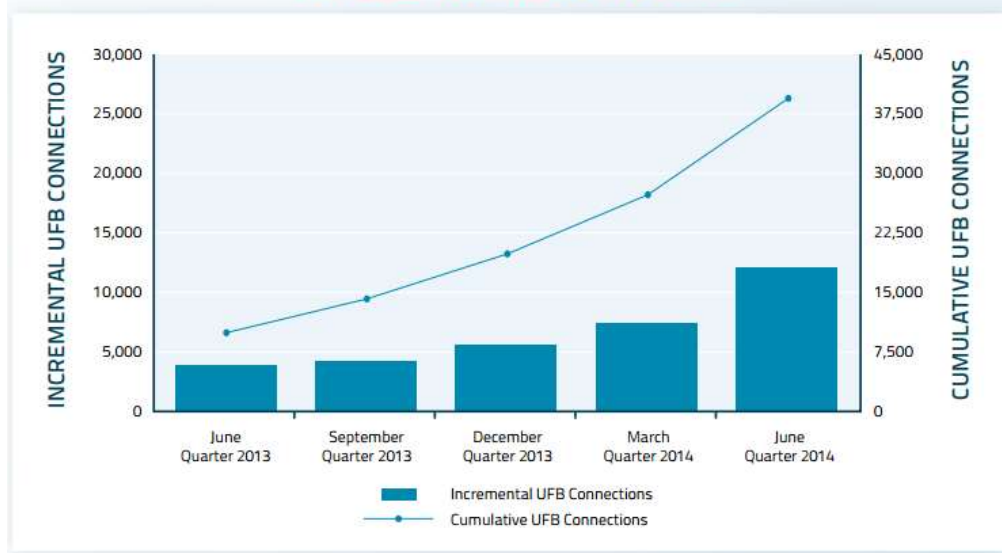
39,510 CUSTOMERS CONNECTED

77% OF BUSINESSES ABLE TO CONNECT

93% OF SCHOOLS ABLE TO CONNECT¹

32/33 CANDIDATE AREAS WHERE FULL SCALE DEPLOYMENT HAS BEGUN

CONNECTIONS IN THE FINAL QUARTER ALMOST TRIPLED THOSE IN Q4 2013



PRIORITY USERS A FOCUS IN DEPLOYMENT



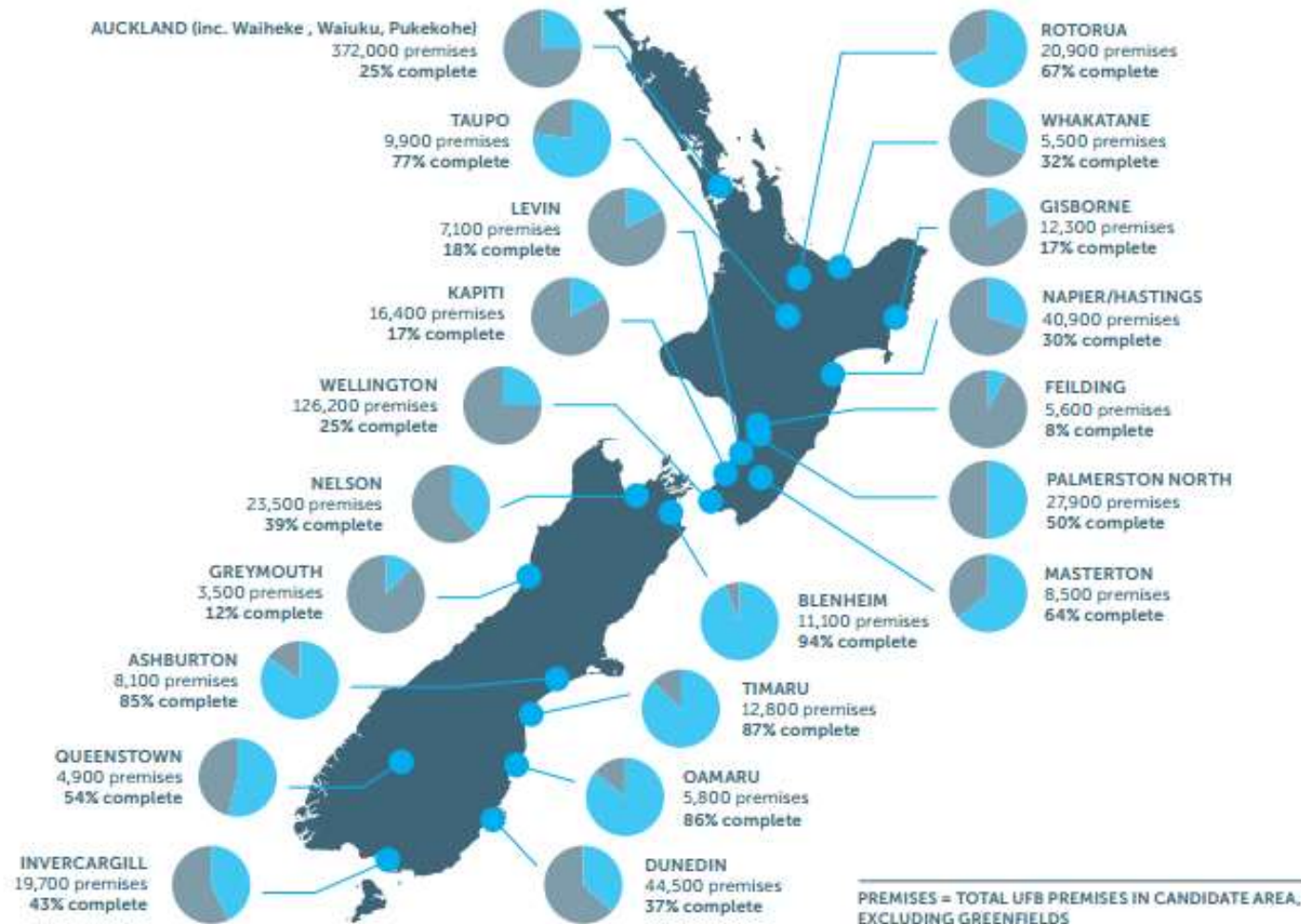
Source: CFH Annual Report, Year ended 30 June 2014

= Approx. **36%** UFB programme completion as at 30 June 2014

UFB progress – Chorus (30 June 2014)

Figure 2: Progress by Chorus UFB Area as at 30 June 2014

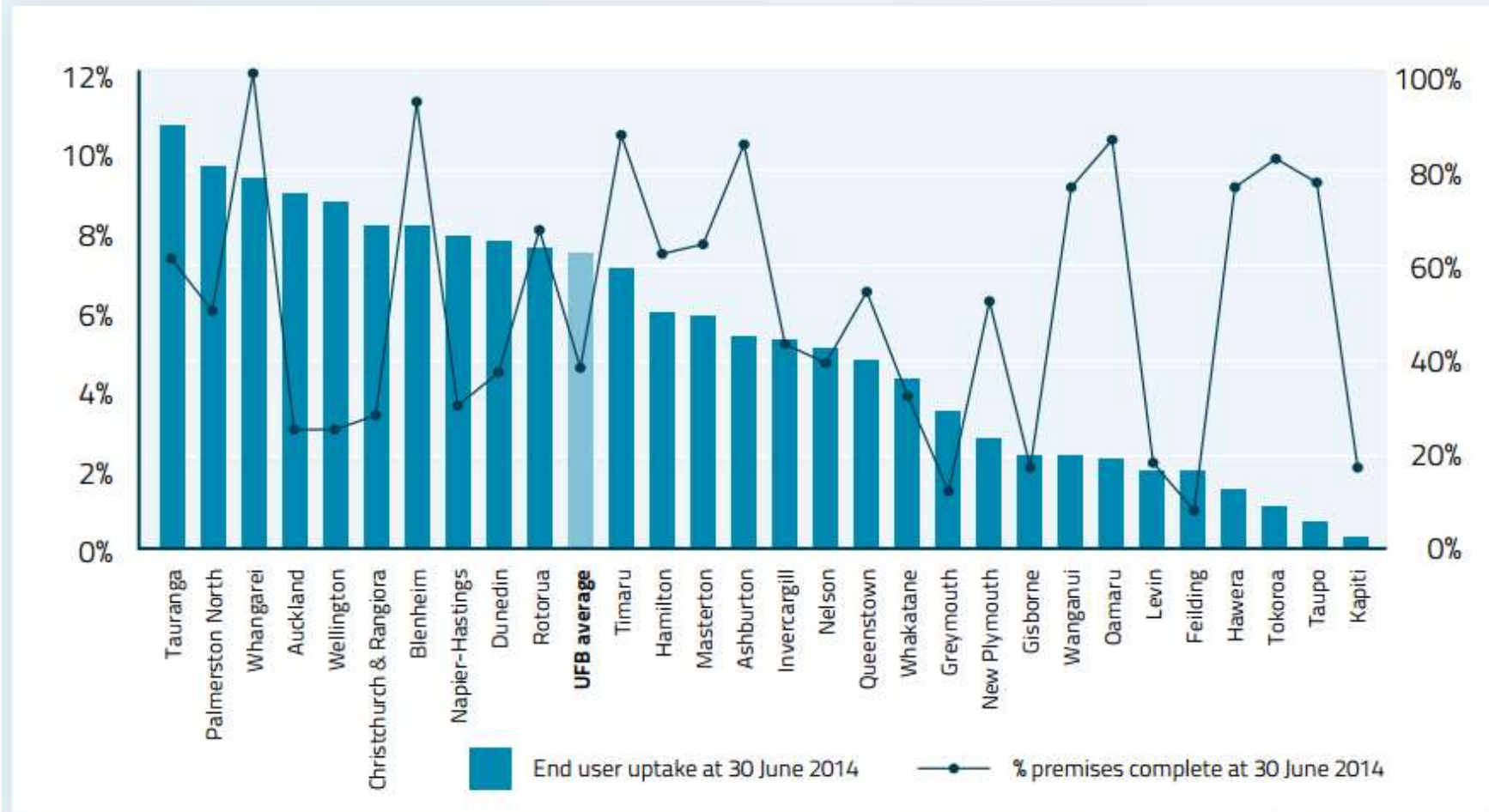
Chorus UFB
programme
completion:
31%



Source: Chorus Annual Report, Year ended 30 June 2014

UFB uptake

DEMAND IS STRONGEST IN THE LARGER CITIES



Source: CFH
Annual Report,
Year ended 30
June 2014

The Auckland region includes four Candidate Areas: Auckland, Waiheke Island, Pukekohe and Waiuku. The Hamilton Candidate Area includes Te Awamutu and Cambridge. Christchurch and Rangiora are two separate Candidate Areas. Figures for these two areas exclude new growth.

RBI – overview

- Contracts awarded to Chorus and Vodafone
 - Deemed Commerce Act authorisations
- RBI will deliver broadband to 252,000 rural households at prices and levels of service comparable with urban areas
 - Broadband peak speeds of at least 5Mbps
 - 87% of rural New Zealand will get ADSL2+ or VDSL broadband
 - Incorporates copper, fibre and wireless networks
- All public hospitals and schools, as well as a large number of rural public libraries, will receive a fibre connection
- Extended cellphone coverage
- Chorus is laying fibre to Vodafone cell sites
- Progress is “ahead of schedule” – updates are less forthcoming than UFB

RBI – The roles of Chorus and Vodafone

Chorus	Vodafone
<ul style="list-style-type: none">• Laying 3,350 km of fibre by the end of the programme in 2015• Installing/upgrading over 1,000 new broadband cabinets• Enabling over 40,000 lines in rural areas to access broadband services that had no previous access• Connecting over 1,000 rural schools to fibre• Connecting 154 new Vodafone cell sites to fibre• 50 hospitals and integrated family health centres will have the benefit of 100Mbps fibre connections• Connecting 183 rural libraries to fibre	<ul style="list-style-type: none">• Building 154 new RBI cell sites• Upgrading 387 RBI cell sites• Projected incremental 6200 square KMs of new RBI 3G coverage• Projected additional 4000KM of additional 3G road coverage• More than 250,000 address points in new RBI 3G coverage



2. Practical and political issues

Rollout costs

- Higher than expected UFB rollout costs – cost forecast for UFB build increased by \$300m
 - *“While we have made progress and reduced deployment costs for about 90% of our ultra fast broadband build areas, we did not anticipate the extreme costs in the remaining 10% of areas. This is specifically because of the significant variability in regional compliance requirements and civil work that is driving up the cost per premises passed”* (Chorus CEO Mark Ratcliffe, Interim FY13 result, 25 February 2013)

Access to multi-unit complexes

- Access to multi-unit complexes generally requires consent from all owners – Chorus has consent forms on its website
- However, the Telco Act provides a statutory right of access to multi-unit complexes if an access agreement is not negotiated with the owners
 - Some pre-conditions for statutory access, including (1) agreeing to be bound by the Code; (2) taking all reasonable steps to negotiate an agreement with the owner for access in accordance with the Code, etc.
 - 2 stage notification process: (1) notice of intention to investigate; and (2) notice of proposed work
 - Owners may “opt out” of the access regime – in which case the FTTP service provider may apply to the District Court for access (access may be granted by the court if it is satisfied the owner has unreasonably opted out)
- **Code: Code of Access to Multi-unit Complexes** – published May 2013
 - Sets out the basic processes for property owners and FTTP service providers to follow when installing and servicing fibre networks in buildings with multiple owners
 - Covers issues such as gaining consent for the installation, apportioning costs and on-going access for maintenance and upgrades

Political issues

- UFB high priority for National Government
- Tension between Government objectives and the NZCC's regulatory process for copper pricing
 - Communications Minister Amy Adams (7 August 2013): “...*significant concern about the on-going uncertainty over changes to the regulated copper wholesale price and the destabilising effect that could have on the transition to fibre*”
 - Allegations from Opposition that the Government was “*intervening directly in a regulatory process to prop up Chorus who say they can't lay the fibre for the price negotiated*” (16 September 2013)
- Telco Act review brought forward – consultation paper released, but hasn't gone anywhere

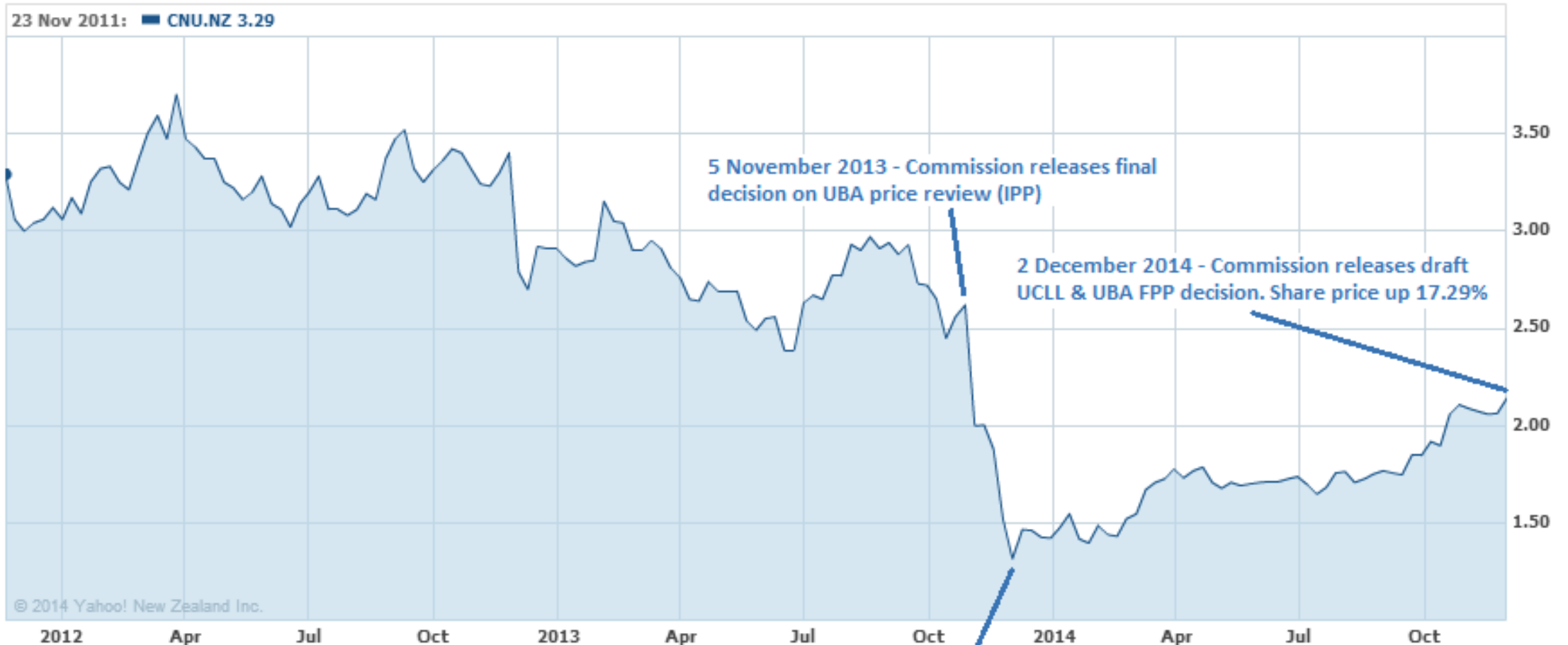
Low fibre uptake

- There has been no *official* government directive on fibre migration
- Copper pricing and performance appears to have played a key role in hindering fibre uptake
- However, Chorus' attempts to encourage migration to fibre don't appear to have been particularly successful:
 - Chorus offered VDSL as a “stepping stone” to fibre – VDSL has experienced significant growth, but migration from VDSL to fibre has been lower than expected
 - **New UBA Variants:** Chorus proposed to introduce 2 new UBA variants (Boost HD & Boost VDSL) in 2014 as “commercial” ie non-regulated copper products. At the same time, it proposed to artificially constrain and/or withdraw parts of the regulated UBA service
 - Chorus “postponed” its plans to artificially constrain/withdraw, but went ahead with launching Boost HD. This has prompted a NZCC review of the UBA STD

Financial implications for Chorus

- \$1b funding gap outlined in independent Ernst & Young Report (commissioned by MBIE, December 2013) following the NZCC's UBA IPP decision
 - Confirmed Chorus' own estimate of funding shortfall
 - *"The Commerce Commission's 5 November 2013 initial pricing principle benchmarking decision on Chorus' regulated broadband pricing placed new and additional demands on Chorus in relation to the viability of its business model."* (Chorus Annual Report 2014)
- Chorus issued proceedings against the NZCC in relation to its IPP decision, but lost in the High Court and Court of Appeal
- Arguably, a lower copper price was inevitable and should have been foreseen by Chorus when it was negotiating its fibre contracts?
 - *"But the new statutory regime was always going to drive a pricing sea-change"* (Kos J, Chorus v Commerce Commission, April 2014)

Impacts on Chorus' share price



Source: Underlying graph from Yahoo! New Zealand Inc

Bridging Chorus' funding gap

- Chorus has taken mitigating action
- Conditional agreement with CFH (18 July 2014)
 - Option to bring forward part of CFH's existing investment funding tabled for FY18 and FY19 (up to \$178m) – only able to be drawn from October 2015
 - Effective finance rate of 8.5% - translates into Chorus receiving between \$141 -149m of advance funding if fully drawn, depending on timing of the draw down
 - Does not affect Chorus' build obligations
- New service company agreements with Downer and Visionstream (25 November 2014):
 - Enable Chorus to reduce its connection costs guidance for the current financial year from a previous range of \$1,300 to \$1,500 (excluding layer 2 and for standard installations only), to a new range of \$1,150 to \$1,350 (excluding layer 2 and for standard installations only and some non-standard single dwelling unit installations)
 - Provide network connections at fixed prices, varying according to agreed deployment types – covers Auckland, and the lower North and lower South Island UFB areas



3. Conclusions

Conclusions

- The UFB initiative in particular has experienced a number of political stumbling blocks – especially between the National Government and the NZCC
- Copper pricing has had a major impact on Chorus' share price and ability to (profitably) perform its UFB obligations
- Chorus has had to engage in other initiatives to bridge the funding gap caused by (inevitably) lower copper prices

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