

In response to the
Commerce Commission's
“Fibre regulation emerging views:
Technical Paper” of 21 May 2019

Public Version

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1 Introduction

1. By publishing its emerging views paper (“the EVP”) the Commerce Commission (“Commission”) in May 2019 has further specified the key economic principles of its future fibre regulation model in New Zealand. At the same time the Commission has invited stakeholders to make comments and statements regarding the intended regulatory model.
2. WIK-Consult has been appointed by Enable Networks (“Enable”) and Ultrafast Fibre (“UFF”) to support both fibre companies in the course of developing the fibre regulation model of the Commission by preparing a report on selected issues of the EVP. Nevertheless, this report is brought to the attention of the Commission as an independent expert report.
3. WIK-Consult has been asked by the two LFCs to submit on the following two issues:
 - (a) Is the Commission’s conclusion to apply a service-wide asset beta in determining the WACC notwithstanding the different risk profiles of Chorus and the LFCs (based on the recommendations of the CEPA report¹) appropriate?
 - (b) How relevant may the issue of asset stranding become in the New Zealand fibre market? How can the different proposals of the Commission to deal with the regulatory options on asset stranding be assessed?

Section 3 of this report deals with issue (a) and Section 4 with issue (b).

4. There is a confidential and a non-confidential version of this report.

¹ CEPA: Cost of capital for regulated fibre telecommunications services in New Zealand: Asset beta, leverage, and credit rating, Final report to the Commerce Commission, 20 May 2019.

2 Executive Summary

5. CEPA's recommendations to the Commission to ignore differences in systematic risk between Chorus and the LFCs is methodologically incorrect, relies on a poor assessment of identified risk factors and ignores major risk factors which make a difference. Our paper shows that there are relevant differences in systematic risk which should motivate the Commission to abandon the intended service-wide beta/cost of capital approach and to differentiate cost of capital between Chorus and the LFCs according to their actual variations of risk.
6. Although CEPA acknowledges reasons to think that the systematic risk exposure of the LFCs could be above that of Chorus, they ignore it because they have not identified a robust basis to estimate. That is methodologically not correct. The regulatory decision maker has to make judgements even subject to fundamental uncertainty as the Commission has done in other cases.
7. In re-assessing the risk factor analysis of CEPA we have shown that the LFCs face a higher risk relative to Chorus in the factors "growth opportunities", "operating leverage" and "asset stranding". In addition, the risk factors "business model" and "competition" which are ignored by CEPA generate a further asymmetric risk. The following table summarizes and compares our own risk assessment with that of CEPA.

Table 2-1: Systematic risk of LFCs relative to Chorus according WIK and CEPA

	CEPA	WIK
Demand	▲	▲
Growth opportunities	✓	▲
Operating leverage	✓ or ▲	▲
Asset stranding	✓	▲
Company size	✓	✓
Business model	-	▲
Competition	-	▲
Other risk factors	✓	✓

▼ = lower risk; ▲ = higher risk; ✓ = similar risk

8. Given the higher risk that the LFCs are facing relative to that of Chorus, an uplift of the value of the asset beta for the LFCs of up to 10 percentage points relative to that for Chorus would be reasonable. There is a precedent where the Commission made such a decision in the energy sector. Alternatively, on the basis of its own

analysis, CEPA should have proposed an asset beta value for the LFCs that lies at least in the 0.46-0.55 range for the integrated service providers and be at a higher than the 50th percentile of that range.

9. There are basically two forms of asset stranding: (a) Assets are stranded when they are no longer used in the service production process, are not fully depreciated and will be disposed. (b) Assets continue to be used, but no longer generate the necessary revenues to recoup the initial investment. Besides partly stranding there are already now clear signals for the emergence of fully stranded assets in the fibre networks. These may occur if addresses already connected to the fibre network are no longer connected for whatever reason.
10. Shortening asset lives compared to the typical economic lifetime of an asset category and accelerating depreciation of assets that are at risk of being stranded is a rather targeted and flexible means to compensate for the stranding risk. It is, however, only insofar a solution as the relative amount of stranded assets is limited such that remaining assets can generate the missing revenues due to stranding.
11. Retaining stranded assets in the RAB has the same limitations as the approach of shortening live times. Nevertheless, retaining stranded assets in the RAB is a useful approach in case of partial or temporary stranding.
12. Providing a fixed amount of ex-ante compensation via a WACC uplift would be the most appropriate solution. We agree in principle with this conclusion but want to make the Commission aware of the necessity of applying an individual WACC uplift to each operator and not a service-wide WACC approach, because the risk of stranding will occur asymmetrically between operators.
13. An approach discussed in relation to the energy sector involves ceasing to revalue the RAB through indexation. This approach, when done within the context of a regulatory pricing approach that generates revenues leading to a given net present value, could also be considered to mitigate the risk of asset stranding.

3 Service-wide vs. asymmetric cost of capital

14. The Commission proposes to estimate a service-wide cost of capital when determining the cost of capital IMs for FFLAS, including a service-wide asset beta that will apply to all providers of FFLAS.² In other words, the Commission intends to apply the same WACC for all (regulated) fibre operators in the market, for Chorus as well as for the LFCs.
15. Potentially there are three parameters in cost of capital estimation that could be estimated either on a supplier-specific or on a service-wide basis - asset beta, leverage and debt premium. We follow the Commission's approach to focus on the asset beta parameter because the optimal values of the other two depend on the value of that one.
16. The WACC calculation based on the CAPM model, and thereby on the asset beta, determines a level of the WACC that corresponds to the level of risk that investors in the regulated company perceive - and want to be compensated for by the company - relative to the risk that all other companies quoted on the stock exchange are facing. Into investors' assessment of this risk flows their view how the value of the company will vary relative to other companies when fluctuations in macroeconomic conditions cause the overall market risk premium to fluctuate up- or downwards. A company's asset beta is thus a factor - with a known value - which shows this company's reaction to macroeconomic shocks, as expressed in changes of the overall market risk premium.³ Underlying investors' views of how macroeconomic shocks affect a company's risk are the expected effects on demand uncertainty, expected technological change, degree of competition, and regulatory intervention that will be a consequence of these developments. When from here on reference is made to a company's systematic risk, risk profile or risk exposure, the just described process is understood to have generated the corresponding risk.
17. Now calculating the WACC as a service-wide cost of capital assumes that all regulated firms in the market face the same degree of fluctuations in their company value due to macroeconomic developments. To put it into other words: A service-wide cost of capital assumes that investors have a view of the systematic risk of the companies in this market that does not take into consideration any differences that may exist between the various fibre companies.

² See Commission, EVP, para. 428.

³ Note that the effects of macroeconomic shocks on the market risk premium may be positive, thus also being positive for the company, or negative, also being negative for the company. Since the negative effects, although in the long run expected to even out with the positive effects, may in the short run have dire consequences in terms of possible company failure, they are weighted more heavily and give rise to the overall market risk premium.

18. That is what the Commission assumes: The Commission does not consider that fibre companies face materially different levels of systematic risk and therefore the Commission does (currently) not consider firm-specific asset betas as appropriate.⁴
19. The Commission's conclusion is mainly based on its consultant's CEPA findings and conclusions. In summary, our assessment of CEPA's conclusions is that they are weak, not fact-based and do not consider (all) relevant dimensions of risk. Therefore CEPA's conclusion is incorrect.
20. Our critique begins with CEPA's wording. CEPA acknowledges that "*there may be reasons to think that the systematic risk exposure of the LFCs could be above that of Chorus. However, we have not identified a robust basis to estimate a different asset beta for the LFCs.*"⁵ This is a surprising statement. It is consistent with a potential finding of material differences of systematic risk of firms and nevertheless ignoring such differences because CEPA was unable to find a robust basis for estimating differences. This is an unacceptable conclusion from a decision logic point of view. A regulatory decision maker always has to make judgements on a variety of subject matters to come to an equitable regulatory decision, even though they cannot be based on "robust estimations". The decision maker could for instance make appropriate comparisons or analogies of his case to other cases or situations to quantify analytically identified differences. The Commission itself highlighted the necessity to make judgements in a WACC decision related to the electricity sector:⁶

"There are several key relationships which directly influence the 'optimal' WACC percentile, but which are subject to fundamental uncertainty. For example, it is extremely difficult to empirically estimate the link between the WACC allowed by the regulator, the level of investment by regulated suppliers, and how this affects quality of service. [...] judgement is still required when deciding the appropriate WACC percentile. [...]"

21. It is simply a non-coherent approach to ignore differences in risk – if they exist – just because the consultant feels unable to provide a robust estimate. There are always the options of searching for analogous - and in their case tractable - situations in other industries, or using a higher percentile than the average from the range of available asset beta estimates. And it would be the task of the advisor to deliver relevant proxies for calculating the effect of differences. We come back to this point with regard to our own recommendation in para. 51.
22. We will secondly evaluate the risk assessment analysis of CEPA. Because CEPA could not identify pure-play wholesale fibre providers (beside Chorus, which, how-

⁴ See Commission, EVP, para. 443.

⁵ CEPA, p. 43.

⁶ Commerce Commission: Amendment to the WACC percentile for price-quality regulation for electricity lines services and gas pipeline services, Reasons paper, 30 October 2014, X14 and X15.

ever, also provides copper-based services), they had to rely on a judgement that their comparator set of operators offers a reasonable approximation of the systematic risk faced by the NZ fibre providers.⁷ CEPA compares the relative systematic risk exposure of the fibre operators in NZ with integrated service providers and other wholesale-only providers. When carrying out this comparison, CEPA separately assesses the degree of systematic risk for the LFCs and Chorus. By this approach CEPA also tries to identify substantial differences in the systematic risk of Chorus and the LFCs.

23. CEPA's risk assessment is structured around the following risk factors:⁸

- Demand,
- Growth opportunities,
- Operating leverage,
- Asset stranding,
- Company size,
- Long-lived investments,
- Other risk factors, including counterparty risk, market weight and monopoly power.

We are surprised that the business model of the fibre companies as such and the competitive position in the market are not factors which CEPA takes into consideration. We refer to these decisive factors in para. 32ff. Before analysing the impact of the business model and the competitive situation we will firstly analyse CEPA's results of its risk analysis.

24. Under the risk factor "demand" CEPA mainly discusses income elasticity of demand and expects the systematic demand risk of fibre operators as falling between that of the wholesale-only service providers and the vertically integrated companies. Not even indirectly CEPA reflects the impact of competition on demand. Although CEPA assumes that the underlying income elasticity of demand of the LFCs is similar to Chorus, CEPA expects a higher degree of systematic risk of the LFCs relative to Chorus due to two (sub-) factors (a) Because the LFCs will not be subject to a revenue cap, their revenues may be more subject to systematic fluctuations in demand, relative to Chorus. (b) The revenue cap with wash-up mechanism for Chorus provides a buffer from demand fluctuations. The LFCs, on the other hand, are more similar to integrated companies in terms of contracting arrangements. Because of its regional footprint (e.g. covering Auckland and Wellington), CEPA concludes that Chorus has a higher proportion of business customers than

⁷ See CEPA, p. 22.

⁸ See CEPA, p. 22.

- the LFCs. This implies less fluctuations in demand with a different level of systematic risk. This relevant difference in the risk profile between Chorus and the LFCs is not further reflected in CEPA's own risk assessment.
25. CEPA expects greater growth opportunities for Chorus relative to the LFCs, given that its fibre footprint includes larger urban centres that are projected to have a greater share of NZ's future population growth. We agree with this analysis which would imply a greater risk for the LFCs. In addition, the LFCs are subject to more onerous restrictions on their permitted business activities than apply to Chorus. Due to Chorus' revenue cap constraints CEPA expects the value of this relative greater growth potential, however, to be partly off-set. Although this analysis holds in principle, what is the meaning of "partly off-set". Although a partial off-setting is not a total off-setting, CEPA concludes that there is no systematic risk difference between Chorus and the LFCs. This conclusion is methodologically not correct. Without discussing the relative importance of the (remaining) difference CEPA simply ignores the difference. CEPA does not discuss the impact of the different business models of Chorus and the LFCs on the growth opportunities. We will assess these issues in para. 32ff.
26. Under the risk factor "operating leverage" CEPA discusses the ratio of fixed costs to variable cost. A company with lower leverage (lower proportion of fixed to variable cost) can better adopt its cost to changing economic conditions, would have a relatively lower volatility in profits, a lower risk and thus a lower asset beta. Due to the high level of upfront investment for the fibre infrastructure, Chorus as well as the LFCs have a similar degree of operating leverage. In the case of Chorus, according to CEPA, the impact of operating leverage of earnings volatility is dampened by its revenue cap. Therefore Chorus has a lower risk resulting from operating leverage. We agree with this assessment as far as it goes, since CEPA ignores the fact that Chorus could much more make use of existing infrastructure to be re-used for deploying the UFB fibre network than the LFCs. This opportunity generates a (significantly) better position of Chorus relative to the LFCs with regard to its operating leverage. As a result, Chorus and the LFCs do not, as CEPA concludes, have here a similar systematic risk exposure. It is rather the case that with regard to operating leverage the LFCs face a relative higher systematic risk.
27. Regarding asset stranding CEPA identifies a similar potential exposure to systematic stranding risk. It is remarkable to note that CEPA does not consider competition faced by the LFCs from Chorus in their fibre areas as a source of systematic stranding risk. We come to a totally different conclusion when we reflect the impact of competition on risk in para. 37ff. Furthermore, we discuss the issue of potentially stranded assets in detail in Section 4 of this report.

28. We agree with the major part of the academic literature and most NRAs that company size as such does not generate a higher risk and therefore a higher asset beta for smaller firms.
29. We also agree with CEPA's view that the long-lived nature of new fibre networks does not contribute to a higher asset beta relative to other firms in the sample and between Chorus and the LFCs. Chorus, however, not only is a fibre network operator. By its access to a legacy copper network it has a lower systematic risk than a pure-play fibre operators.⁹
30. Other potential risk factors like counterparty risk, market weight and monopoly powers are considered by CEPA as either irrelevant or inconclusive.
31. Table 3-1 (adopted from CEPA's Table 2.7) summarises the relative systematic risk exposure of the LFCs relative to that of Chorus as developed by CEPA. Even in its own assessment CEPA has identified relative risk differences between Chorus and the LFCs with the implication of a systematic lower risk for Chorus relative to the LFCs. This result is driven by the risk factors "demand" and "operating leverage". Our evaluation of CEPA's risk factors leads in addition to clear and large differences related to the risk factors "growth opportunities" (para. 25) and "asset stranding" (para 27). On the basis of CEPA's own risk assessment and our re-assessment of the analysis relating to major risk factors, demonstrates that LFCs face a substantially higher systematic risk of their fibre business than Chorus.

Table 3-1: Systematic risk of LFCs relative to Chorus according to CEPA – Summary

Demand	▲
Growth opportunities	✓
Operating leverage	✓ or ▲
Asset stranding	✓
Company size	✓
Other risk factors	✓

▼ = lower risk; ▲ = higher risk; ✓ = similar risk

32. Furthermore, CEPA's risk factor analysis is incomplete. Two further risk factors are relevant to the NZ fibre market which generate systematic differences between the risk exposures of Chorus and the LFCs: (a) the business model and (b) the particular competitive situation in the broadband infrastructure market. These two factors are discussed in the following paragraphs.

⁹ See our analysis in para 32ff.

33. While both Chorus and the LFCs face similar line-of-business restrictions and are wholesale-only operators and build similar fibre networks under similar constraints and obligations, there is one major difference in the business model: While the LFCs are pure-play fibre network providers, Chorus runs in parallel to its UFB fibre network a nationwide copper network. This difference in the business model generates major differences in the risk profile relative to each other.
34. The by far most relevant group of fibre customers migrates from copper to fibre. There is relatively minor migration from FWA, cable and non-broadband customers to fibre. Effectively the copper customers comprise the addressable market for the fibre networks. Because of the pure-play fibre business model of the LFCs, their profitability as a company purely depends on their ability to get fibre customers. They only become EBITDA-positive, cash flow-positive or achieve their (cumulated) break even if they achieve a certain amount of fibre customers in their coverage area and a corresponding take-up rate. Their business risk is predominantly driven by demand and take-up. If they achieve a lower target take-up rate than in their business plan, or achieve that in a lower speed than planned, they may not earn their cost of capital and may not achieve their target profitability.
35. In contrast with this is the situation of Chorus who faces an altogether different risk profile. While in the fibre areas of the LFCs Chorus competes with the LFCs by offering (upgraded VDSL2 vectored) copper, in its "own" areas it has a customer base that may either use UFB or copper that has not been upgraded. Focusing on the latter areas, if Chorus copper customers migrate to Chorus' fibre networks, Chorus' net customer base remains stable. It is not only Chorus' customer base which is unaffected by migration of customers to fibre. This also holds for Chorus profitability. For each customer who migrates, Chorus loses contributions from the copper network but it wins contributions from its fibre network. The level of contribution will not be exactly the same but will be similar, because the wholesale price for the unbundled service as well as the UBA service in the copper network is determined by the Commission according to the current cost of a fibre modern equivalent asset (MEA).¹⁰ This means wholesale copper prices are calculated as if they were provided over a modern fibre network. The implication of this wholesale price structure is that Chorus is more or less indifferent as to whether customers migrate to fibre or stay with its copper network. The implication is that Chorus' company risk is less affected by fibre demand and fibre take-up. If fibre develops slowly, Chorus does not get the same profitability shortcoming as the LFCs, but continues to earn profits over its copper network. Thus, the ownership of a copper and a fibre network reduces Chorus risk compared to a pure-play fibre operator.

¹⁰ See Commerce Commission, Final pricing review determination for Chorus' unbundled copper local loop, Final determination, 15 December 2015.

36. Given the above, it should have been self-evident for the Commission and CEPA to include a consideration of these stark differences in the competitive situation in their analysis and assessment. A company which faces (more) competition compared to those which face less competition has greater difficulties to forecast its demand. Its volatility of demand is higher, and therefore the volatility of revenue generation and profits is higher. The risk to achieve business plan targets is higher.
37. It is often assumed that if there is competition then this competition affects all companies in the relevant market equally. This would imply that there is no need to assume differences in systematic risk which can therefore be ignored as a factor causing asymmetries between different firms in the same market. This may hold *ceteris paribus* but it does not hold if firms, in fact, face substantially different competitive threats in their individual markets. We will show in para. 38ff that the LFCs face significant more competition than Chorus.
38. According to the latest Telecommunications Monitoring Report of the Commission from December 2018¹¹ and data up to September 2018 there still were more broadband copper than fibre connections in NZ (s. Figure 3-1). The number of fibre connections continued to increase rapidly with the UFB roll-out reaching 79% completion in March 2019. As at 31 March 2019 there were 765,362 fibre connections out of the 1.4 million households and businesses able to connect to the UFB network.¹² This makes a take-up rate of 51.7% on a nationwide basis. This means copper broadband connections have now been overtaken by fibre. While VDSL connections significantly increased over the last four years, they are now also slightly declining. Fixed wireless connections increased to 10% of total broadband connections, although the rate of increase slowed in the six months to 30 June 2018. Cable is of less importance with less than 5% at the national level. The major cable network is built in Christchurch and is much more important in that region.

¹¹ Commerce Commission: Annual Telecommunications Monitoring Report – 2018 Key facts, 18 December 2018.

¹² Ministry of Business Innovation & Employment, Quarterly Connectivity Update, March 2019.

[REDACTED]

[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]

[REDACTED]

- 40. While the number of copper broadband connections is in decline, the number of VDSL connections is growing (until 2018), even increasing by 53% in the 2017 fiscal year.¹³ Copper customers who upgrade to VDSL services which is capable to speeds up to 100 Mbps are less likely to change to a fibre access service. Super-Vectoring provides a further upgrade to a capacity of around 250 Mbps. As a consequence copper remains a suitable alternative to fibre to a large range of customers and will be a competitive constraint on fibre access services for longer than envisaged so far.
- 41. It is important to shed some light on the strategic copper upgrade behaviour of Chorus. Since 2017 Chorus has introduced VDSL2 vectoring into its copper network selectively in areas where it does not operate a fibre network. On 30 April 2018, Chorus announced that it had completed its trials and planned to deploy VDSL vectoring for more than 100,000 customers outside its fibre coverage area.¹⁴
- 42. The introduction of VDSL2 vectoring has dampened the decline of VDSL, and reduced migration to fibre. We made the Commission aware on this incentive structure of Chorus already in the context of the Commissions pricing review determination for Chorus unbundled copper local loop service in a proceeding of 2014/2015.¹⁵ In a submission related to that proceeding we stated in May 2015:

“Upgrading VDSL to VDSL/Vectoring will significantly increase the capability of VDSL both in speed and in quality. Download speeds can be upgraded up to 100 Mbps and upload speeds up to 40 Mbps. The avoidance of

¹³ According to Chorus’ Annual Report for 2017.
¹⁴ Chorus boost broadband bandwidth with VDSL 2 vectoring, ComputerWorld, 15 October 2018.
¹⁵ See Commerce Commission, Final pricing review determination for Chorus’ unbundled copper local loop, Final determination, 15 December 2015.

crosstalk significantly increases the utilisation and productivity of VDSL. It increases bandwidth and coverage area due to increased line length for high bandwidth transmission, allows to fully load a cable up to 100% of copper pairs with broadband signals, significantly increases the minimum bandwidth per cable and at the same time significantly reduces the spread of maximum and minimum bandwidth between different customers, thus increasing bandwidth predictability....

If Chorus would invest in these innovative upgrades of the copper network ... it would jeopardise its own UFB investments. Upgrading the copper access network would make it less distinguishable from a fibre network. Services and qualities which can only be provided over the fibre network – and there are not too many of them – will then also be provided over the copper network. Demand studies show that the quality difference to copper services has a relevant impact on the decision to migrate to fibre. Investments to innovate within the copper network would be counterproductive for fostering migration to fibre. The incentives to migrate for users would even be discouraged and reduced.”¹⁶

In the same proceedings the Commission’s advisor Professor Ingo Vogelsang provided a similar analysis:

“Another difference of potential relevance is that in its own UFB area Chorus will likely shut down the copper-based network if the (expected) profit from operating the UFB network alone exceeds the sum of profits of operating the two networks in parallel (plus some shutdown costs). Such shutdown can happen even if the copper network remains profitable, since the shutdown will reduce competition and induce further customer migration to the UFB network. In contrast, Chorus will not shut down its copper network in areas where it does not provide UFB, unless the copper network becomes unprofitable. Thus, an increase in the UCLL portion of the aggregate UBA price will in the areas where Chorus is not the UFB provider lead to a later shutdown of the copper network than in those areas where Chorus is the UFB provider (ceteris paribus). In addition, the LFCs face Chorus as a formidable copper competitor who may undercut the regulated wholesale UBA price cap, because on account of sunkness Chorus’ forward-looking costs will be much below the TSLRIC...

Furthermore, the effects of a UBA price increase on the financing ability for UFB investment differs substantially between Chorus and the LFC areas. For Chorus in its own UFB investment areas there is a direct effect from its UBA revenues plus an indirect effect via the penetration of UFB affected by

¹⁶ WIK-Consult, Submission on the Commerce Commission’s analytical frameworks for considering an uplift to the TSLRIC price and/or WACC, 8 May 2015.

the UBA price, while for the LFCs in their areas there is only the latter indirect effect. This implies that a UCLL price increase has a lesser innovation effect on UFB in markets, where Chorus is not the UFB provider than where it is.”¹⁷

43. These statements highlight how Chorus’ incentives in relation to its copper network strategy differ between Chorus and LFC UFB areas. While the (upgraded) copper network remains a competitive threat and challenge to the LFCs, Chorus is more or less neutral in the Chorus UFB areas whether the copper network keeps customers or not. The copper network does not generate a competitive risk to Chorus, it is even a strategic instrument which Chorus can use to optimise migration.
44. Should the LFCs have anticipated such an aggressive competitive behaviour? We would say that not, because Chorus selective copper upgrading strategy is a discriminatory behaviour which is not in line with Chorus’ non-discrimination obligations in its undertakings. By its strategically selective network upgrading policy Chorus is treating access seekers differently in relation to the UBA service based on the location of the customer. The difference in treatment of access seekers is not due to a timely roll-out strategy, it is strategically intended to compete against the LFCs. This differentiation of service quality according to end-user location is not objectively justifiable. In particular because access seekers pay the same wholesale price for the UBA service independent of receiving an inferior service. The intention of Chorus network upgrade policy is not serving customers better but it aims at harming competition by preventing or slowing customer migration to fibre.
45. Fixed Mobile Access was a rather niche product as a substitute to a fixed line connection in NZ when the UFB Initiative commenced in 2011. Spark has invested into the density of its LTE mobile network to make it capable for a superfast broadband service in particular in remote and rural areas. Upon Spark’s success of achieving more than 100,000 FWA customers within two years, Vodafone followed with similar products.
46. By investing in FWA the mobile operators can fully bypass the copper and fibre networks as an input service of their broadband offerings. The economic incentives to engage in such upgrades of the mobile network clearly depend on the price difference of close substitutes to FWA like UCLL. The fact that Spark and Vodafone did not invest in FWA at the copper wholesale prices at that time but in 2015 underlies that wholesale prices played some role.
47. When the fibre companies made their business plans for their fibre investment they might have acknowledged that FWA plays some role in other countries but not in

¹⁷ Ingo Vogelsang, the effects of the UCLL contribution to the UBA aggregate on competition for the long-term benefit of end-users in New Zealand telecommunications markets.

NZ. Therefore it was a proper risk assessment not to regard FWA as a relevant competitor. It was an unforeseeable event that this assessment had to change.

48. The CAPM – if applied correctly – picks up through the estimate of the asset beta all the effects making up the company's systematic risk. As has been made abundantly clear above, CEPA falls short of having done such a correct job. This is so because it fails to determine the substantially higher risk that the LFCs face in comparison to Chorus. Even among the LFCs the systematic risk may be different. Compared to the other LFCs, Enable faces a higher degree of infrastructure competition by Vodafone's HFC network. As we have shown these differences apply to all the risk components that CEPA itself enumerates, i.e. "demand", "operating leverage", "growth opportunities", "asset stranding", and in addition to LFCs' "business model" and their "particular competitive situation", for which the existence of all these differences has been copiously documented above. Table 3-3 summarizes our own assessment of the LFC's risk relative to the one of Chorus:

Table 3-3: Systematic risk of LFCs relative to Chorus according to WIK

Demand	▲
Growth opportunities	▲
Operating leverage	▲
Asset stranding	▲
Company size	✓
Business model	▲
Competition	▲
Other risk factors	✓

▼ = lower risk; ▲ = higher risk; ✓ = similar risk

49. In the following two paragraphs we will show how this shortcoming can be remedied by using one or a combination of the two approaches as below:
- Follow the Commission's own example in the 2016 decisions regarding the asset betas for the gas pipeline businesses (GPBs) relative to electricity distribution businesses (EDBs) and
 - Follow through CEPA's arguments more strictly as they apply to differences between Chorus and the LFCs.

50. In its 2016 document on the IMs for power distribution and transmission as well as regulated airports,¹⁸ the Commission decided to make a 0.05 uplift to the gas asset beta relative to that of the electricity beta. It pointed out that none of the reasons in support were very strong in isolation, but that in combination they would justify the uplift. As pointed out in the same document, the Commission in its 2010 decision on the matter had applied a 0.1 uplift. These examples demonstrate that there are cases where the Commission heeds evidence regarding differences in risk profiles between different types of business, when fixing the values of beta. Given as we have shown that the LFCs are exposed to substantially higher risk than Chorus, an uplift of the LFCs' beta relative to that of Chorus in the range applied to the asset beta of the GPBs in 2010 appears to be appropriate.
51. CEPA bases its recommendation for possible values of the asset beta for fibre providers on the beta estimates for the wholesale-only providers and the vertically integrated service providers. CEPA states that the wholesale-only companies (tower companies and fixed satellite operators), for whom the beta estimates are low in relation to the other comparators, have long-term contracting arrangements and wholesale customers providing revenue stability which makes them similar to that of Chorus under a revenue cap. Nevertheless considering that the risk of fibre providers is higher than that of the wholesale-only providers, CEPA combines the average estimates for the wholesale providers, which is 0.41 out of a range of 0.38-0.45, with the average estimate for the integrated service providers, which is 0.51 out of a range of 0.46-0.55. In the process of developing this recommendation, CEPA neglects to take into consideration that the revenue stability that it notes regarding Chorus does not hold for the LFCs. This is reflective of what we have noted all along that CEPA has failed to quantify the higher risk for the LFCs. Had it done so, it should have proposed an asset beta value for the LFCs that lies at least in the 0.46-0.55 range for the integrated service providers. Also, this should, for the reasons outlined, be at a higher than the 50th percentile of that range.

¹⁸ Commerce Commission, Input methodologies review decisions, Topic paper 4: Cost of capital issues, 20 December 2016.

4 Asset stranding

52. The risk of asset stranding is closely related to the irreversible or sunk character of a certain type of investment. Deploying a fibre network in NZ requires from the fibre companies to build out the network in the whole coverage area from the Central Office ("CO") to the border of the property of customers. This network from the CO to the so-called Fibre Access Point ("FAP") is deployed for 100% of the potential customer base within the coverage areas. The FAP can be hosted in a handhole or a distribution box at the edge of the street (or on a pole). Only if a particular customer wants to be connected to the fibre network is the connection investment from the FAP to the External Termination Point ("ETP") and the ONT made. While the fibre investment from the CO to the FAP is sunk and mainly fixed, the investment from the FAP to the ONT is customer driven and therefore a variable investment. Once the customer is connected, also the later investment becomes irreversible.
53. There are basically two forms of asset stranding: (a) Assets are stranded when they are no longer used in the service production process, are not fully depreciated and will be disposed. (b) Assets continue to be used, but no longer generate the necessary revenues to recoup the initial investment. This distinction correlates with the Commission's distinction between fully and partially stranded assets.¹⁹
54. Given this structure of investment and cost in a fibre network, what defines a stranding risk under the specific fibre network deployment realities in NZ? The Commission defines "... *asset stranding occurs when the actual returns are less than necessary to compensate for the initial investment due to 'other' events*".²⁰ This general definition has to be interpreted in the context of the actual investment and competition conditions within the NZ fibre market. As part of their obligations in the governmental undertakings the fibre companies had to commit to deploy their fibre networks for 100% of their coverage area. The roll-out obligations had to be met in a certain timeframe and were subject to penalties for non-performance. Thus, the fibre companies had no flexibility to adapt their strategy according to actual demand and take-up. Only a small part of the fibre network investment could flexibly be adapted according to actual demand.
55. The business plans of the fibre companies had to anticipate the sunk and irreversible nature of the fibre investment, and had to cope with the inherent risk of failing to achieve an acceptable level of timely uptake. The parameter in the business plan to cope with that risk is the assumption of a certain take-up rate over time. The usual assumption was a fibre market share of around 60% by 2020 and to achieve a market share of close to 100% in the long-run. Insofar as these business plan assumptions are no longer realistic given the success of fixed wireless access (FWA)

¹⁹ See Commission, EVP, para. 598.

²⁰ See Commission, EVP, para. 594.

- and the copper network due to its upgrade to vectoring, asset stranding will occur, because the invested asset generate lower revenues than anticipated in the business plan.
56. Although the success of FWA and vectoring is a systematic risk of the LFCs, the Commission considers it as a separate issue to be addressed through different avenues than through the WACC.
 57. Besides partly stranding there are already now clear signals for the emergence of fully stranded assets in the fibre networks. These may occur if addresses already connected to the fibre network are no longer connected. This phenomenon of inactive addresses may have several reasons which the wholesale provider cannot fully verify. The most relevant reason will be customers churning to other technologies (FWA, copper, cable) or customers which have moved their location. [Confidential:
] Inactive addresses are no longer generating revenue. Assets specifically related to inactive addresses are stranded. They may not be totally and forever stranded. They might only be temporarily stranded if those inactive addresses become active customers at a later period in time. In that case the corresponding assets are not fully but only partially or temporarily stranded.
 58. The risk of asset stranding is not symmetrical between Chorus and the LFCs. Chorus and the LFCs share the same risk with regard to FWA. The stranding risk due to selective copper network upgrading, however, remains a risk for the LFCs only.
 59. How are fibre companies to be compensated for lost or missing revenues in case of stranded assets? For the Commission there is only a residual stranding risk remaining for which the compensation issue comes up.²¹ The Commission argues that for regulated network businesses the existence of the RAB disconnects the value of an asset from the revenue it generates. For assets that provide services to a smaller number of customers than expected, the RAB approach implies – so the Commission says – that they are not necessarily stranded in a revenue sense because the full cost of the investment is in the RAB and can therefore be recovered across the (remaining) customer base. This argumentation of the Commission may be valid if certain prerequisites are given. To earn relevant revenues not only from active customers but also for inactive parts of the infrastructure, the company has to set prices above costs. While the RAB regulatory approach may allow for that, price setting may be constrained by the price level of competing infrastructure like mobile, cable and upgraded copper. Therefore, the Commission's proposal does not solve the problem. It might be even counterproductive because it may increase the level of stranded assets by incentivizing customers to migrate to other technol-

²¹ See Commission, EVP, para. 602.

ogies due to overpricing. The Commission itself refers to the ‘death spiral’ problem in this context²² but does not draw the proper conclusions.

60. In considering asset stranding as a potential risk for investors, the Commission reflects four options or possibilities to compensate or mitigate the stranding risk:²³

- (1) Ability to shorten asset lives and bring forward compensation;
- (2) Retention of assets in the RAB after stranding;
- (3) Ex-ante compensation allowance as an
 - ex-ante cash flow allowance or as an
 - increment of the WACC;
- (4) Ring-fenced ex-ante compensation allowance until and to the extent that stranding does occur.

In the following paragraphs we assess these options with regard to their ability to efficiently compensate for systematic risk.

61. Shortening asset lives compared to the typical economic lifetime of an asset category and accelerating depreciation of assets that are at risk of being stranded is a rather targeted and flexible means to compensate for the stranding risk. This measure is targeted because it can be applied (and limited) to the assets of those network elements which are most vulnerable for becoming stranded. It may, furthermore, only be applied to those fibre companies which most probably will face stranding and not to all fibre operators in the market. Therefore, if properly applied, this measure does not generate inefficiencies in the form of windfall profits. Whether that approach solves the potential shortfall in revenues or not, however, depends on the relative amount of asset (value) stranded. If this relative amount is high the asset live of the (remaining) asset have to be depreciated in such a short period of time that a significant impact on the wholesale price occurs. In such case the problem of the ‘death spiral’ as already referred to in para. 59 occurs. Thus, shortening asset live times is a solution to properly compensate for the risk of stranding assets only if the relative amount of stranded assets is limited, and the company is able to sustain the required price increases.

62. Retaining stranded assets in the RAB as compensation for stranding risk is – in the Commission’s own assessment – unlikely to be feasible.²⁴ This is basically due to the fact that remaining regulated end-users may not be able to pay for all the regu-

²² See Commission, EVP, para. 602.

²³ See Commission, EVP, para. 615.

²⁴ See Commission, EVP, para. 627.

lated assets. We have elaborated on this point already in para. 61. For this reason an ex ante allowance is necessary.

63. Nevertheless, retaining stranded assets in the RAB is a useful approach in case of partial or temporary stranding. In case of partial stranding the asset is still in use and cannot be disposed from the RAB. Properly dealing with stranding in this case would require to re-value the asset and to dispose the stranded part of it. The asset as such would remain in the RAB. In case of temporary stranding, the asset – like e.g. the end-user fibre connection of non-active customers – may still be used at a later stage. Therefore it is not appropriate to remove those assets from the RAB. Once currently inactive connections become again active, it will be possible to terminate the stranding.
64. Under the ex-ante compensation approach the Commission acknowledges an ex-ante cash flow or revenue allowance and alternatively an uplift of the WACC, accepting it thereby as a systematic risk. A revenue allowance requires to explicitly calculating the extent of compensation by transposing the risk of stranding into revenue terms. There is not only the disadvantage due to asymmetry of information, as the Commission states in para. 631. Even if asymmetry would not be an issue, the proper calculation objectively remains a difficult task, in particular in case of partly and/or temporarily stranding of assets. Reflecting an identified stranding risk, which so far is not covered in the WACC, by incrementally uplifting the WACC, is an easier approach to implement and therefore the more preferable one. Because the fibre operators are asymmetrically subject to a stranding risk, compensating for the stranding risk cannot be conducted on a service-wide approach.
65. The fourth option rests on the ex-ante cash flow compensation approach for stranded assets under option (3). In this option as a difference the ex-ante compensation is not provided to the operator right from the beginning, but only when it becomes obvious (by a certain event) that assets effectively are stranded. One mechanism to achieve this may be through a compensation fund. Although this approach looks bureaucratic, it is superior to the previous one because it compensates and burdens end-users (in the end) only if stranding actually occurs.
66. The Commission concludes²⁵ that providing a fixed amount of ex-ante compensation via a WACC uplift would be the most appropriate solution. We agree in principle with this conclusion but want to make the Commission aware of the necessity to applying an individual WACC uplift to each operator and not a service-wide WACC approach, because the risk of stranding will occur asymmetrically between operators. In addition we recommend to keep stranded assets within the RAB as long as and insofar as they are subject to partial and/or temporary stranding. Furthermore,

²⁵ See Commission, EVP, para. 645ff.

as long as the risk of stranding affects only a moderate share of assets, those assets should get a shorter asset lifetime for depreciation.

67. There has been a discussion of an alternative solution to the problem of asset stranding, taking place in relation to the energy sector,²⁶ which consists of ceasing the indexation of the RAB. Our understanding is that this proposal is made within the context of a particular regulatory pricing approach. According to this approach, costs - and for that matter capital costs as part of those costs - are determined in a way that the prices based on these costs lead to net revenues over the lifetime of the asset that when discounted back to the time of investment render a net present value (NPV) equalling the initial value of the investment. Now, when revaluation of the RAB over time through indexation is part of this approach, then, providing indexation leads to increases in the value of the RAB, the outcome is a back-loading of the revenue stream. This means that revenues start out lower but increase with time in step with the increase in the index, while leading to the same NPV. The approach without indexation avoids this back-loading. This means that at the beginning of the lifetime of the asset revenues are higher while being lower toward the end of its lifetime, while again leading to the same NPV. This would reduce the risk to the operator as it is able to earn a larger share of its revenues earlier in time than under the approach with revaluation. Provided this type of regulatory pricing regime is applied to the fibre operators, ceasing the indexation could also be considered as a viable option to mitigate the risk of asset stranding.

²⁶ See Commerce Commission, input methodologies review draft decisions - Topic paper 3: The future impact of emerging technologies in the energy sector, 16 June 2016, p. 36.