

5 February 2015

Dear Keston

Input Methodologies Review: Cost of Capital

1 Introduction and Summary

Colonial First State Global Asset Management (Colonial) is pleased to make this submission on the Commerce Commission's (Commission) review of the Input Methodologies (IMs) for determining the weighted average cost of capital (WACC). Having recently made substantial investments in regulated gas infrastructure in New Zealand, we place a high value on a stable and predictable approach to estimating WACC. Given the important role that WACC plays in determining the value of regulated businesses, we think that any changes to the approach for setting WACC should have to be particularly compelling.

We do not see any compelling reasons for changing the way that the IMs estimate WACC. More specifically, our view is that:

- Because gas is a fuel of choice, an uplift on the asset beta for gas pipelines over electricity networks makes sense. The evidence presented in this submission indicates that the uplift should be at least 0.1, possibly higher.
- An adjustment to the cost of capital to reflect different forms of regulatory control (such as revenue caps or price caps) is not justified. The form of control is one component within a system of regulatory settings that allocate risk. Other settings—such as allowing or disallowing certain costs as direct pass-through items or enabling cost changes to be reflected in prices—may also have a significant impact on systematic risk. We do not consider it desirable or practical to attempt to reflect the nuances of different regulatory systems in estimates of WACC.

The remainder of this submission explores each of these points further.

2 Retain the Current Approach to Gas Asset Beta

The IMs recognise that the level of systematic, non-diversifiable risk borne by firms regulated under Part 4 can differ by industry.¹ Electricity networks are estimated to have an asset beta of 0.34, gas pipelines are estimated to have an asset beta of 0.44, and airports are estimated to have an asset beta of 0.60. In essence, this approach recognises that the risk of returns for airports will more closely follow market cycles, while electricity networks will have more stable earnings across time—with gas pipelines somewhere in between.

Where these differences in exposure to systematic risk materially affect the cost of regulated businesses raising capital, it is appropriate that those differences are accounted for.

We support the Commission’s current position that gas is more correlated with business cycles than electricity

Under the current IMs, the Commission applies a 0.1 uplift to the asset beta for gas pipeline businesses (GPBs) because of differences in the nature of the product, the composition of customers, and the growth options facing GPBs.

This uplift appears to be based largely on the advice of Dr. Martin Lally to the Commission that:²

- Major gas users have particularly sensitive demand to the price of gas
- Commercial and industrial customers demand is more sensitive to macroeconomic shocks than electricity, which has a far larger exposure to residential demand which is less sensitive
- GPBs have significant options to expand gas networks.

Our experience investing in gas infrastructure in New Zealand and elsewhere supports Dr. Lally’s findings—gas is a fuel of choice, and we expect returns for gas pipelines to follow business cycles more closely than electricity network assets. Accordingly, the implied beta for gas pipelines would be expected to be higher. Having an electricity connection and consuming electricity are necessities—no viable substitutes currently exist for most uses of electricity delivered via transmission and distribution networks. In contrast, gas users are highly sensitive to price, including because:

- Gas dominates the input costs of the largest gas users
- Gas competes with other energy sources for water heating, space heating, and for process heat
- Residential gas customers must actively choose to pay for a gas connection in addition to their existing electricity connection, and make gas-specific appliance investments.

Other regulators also apply a similar approach. As stated by the Queensland Competition Authority, “gas is a fuel of choice, while everyone generally connects to electricity...As

¹ Commerce Commission ‘Input Methodologies (Electricity Distribution and Gas Pipeline Services): Reasons Paper’ December 2010 at H8.167.

² Commerce Commission ‘Input Methodologies (Electricity Distribution and Gas Pipeline Services): Reasons Paper’ December 2010 at H8.172.

such...gas distributors will be subject to a greater level of systematic risk than electricity distributors and that a higher equity beta is justified.”³

Gas use is highly concentrated in three firms that are sensitive to changing gas prices

As Dr. Lally noted, the demand of major gas users is particularly sensitive to the price of gas. This is because gas makes up a large proportion of these firms’ input costs. Given that these major users are highly concentrated and operate in industries which are significantly affected by business cycles (such as the manufacture of industrial chemicals), by implication the market views gas pipeline ownership as carrying greater risk.

Three major users (Methanex,⁴ Contact, and Genesis⁵) account for approximately 70 percent of all gas use—and for each user, gas comprises around 80 percent of their input costs. In contrast, electricity use is far less concentrated in industrial users. Although electricity would be reasonably expected to contribute a major proportion of the Tiwai Point Aluminium Smelter’s costs, the smelter only contributes approximately 12 percent of annual electricity demand, and it is by far the largest electricity consumer.

The risks associated with these characteristics are far from academic, as shown by changes in Methanex’s gas use in the mid-late 2000’s (shown in Figure 2.1). Usage ramped down by over 85 percent in 3 years, and has since ramped back up to approximately 80PJ in 2014.⁶

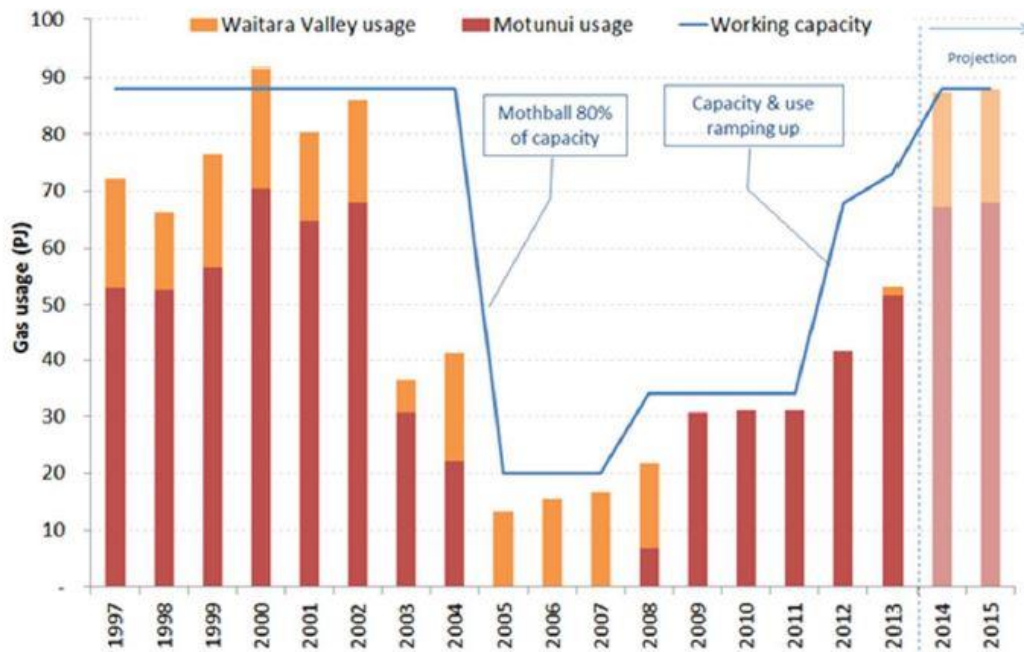
³ QCA, Revised Access Arrangement for Gas Distribution Networks: Allgas Energy, May 2006, p. 75; QCA, Revised Access Arrangement for Gas Distribution Networks: Envestra, May 2006, p. 106.

⁴ Estimated based on financial reports from Methanex ‘FY2014 Annual Report’, accessible at [this link](#).

⁵ International Energy Agency ‘Projected Costs of Generating Electricity’, p.12, accessible at [this link](#).

⁶ Ministry of Business, Innovation and Employment ‘Energy in New Zealand 2015’ at p.37, accessible at [this link](#).

Figure 2.1: Profile of Methanex Gas Use



Source: Concept Consulting 'Long Term Gas Supply and Demand Scenarios' September 2014, accessible at [this link](#).

A regulated revenue stream does not insulate gas infrastructure owners from these systematic risks

It could be argued that regulation under Part 4 of the Commerce Act protects gas infrastructure owners from these risks because GPBs can adjust prices to maintain their earnings if any particular gas user's demand falls away. However, this argument misinterprets the fundamental risks that need to be compensated through WACC.

Investors in gas pipelines face low probability, high consequence risks that their infrastructure becomes stranded or devalued, even with the near term revenue protections provided by Part 4. There are several reasons why these "existential" risks are higher for gas pipelines than electricity networks, including:

- The user characteristics, highlighted above, lead to greater risks of a downward spiral—where recovering the fixed costs of gas infrastructure from a smaller number of customers pushes more users towards alternative energy sources
- The location-specific nature of gas pipelines and the risk that a major gas find in another part of the country leaves current infrastructure worthless
- The fact that technological changes seem likely to promote greater use of electricity, consolidating the position of electricity networks as providing an essential service. For example, the development of large-scale storage of electricity is likely to influence major changes in the cost of electricity generation, and the increasing market share of electric vehicles is likely to drive greater substitution from petroleum products to electricity.

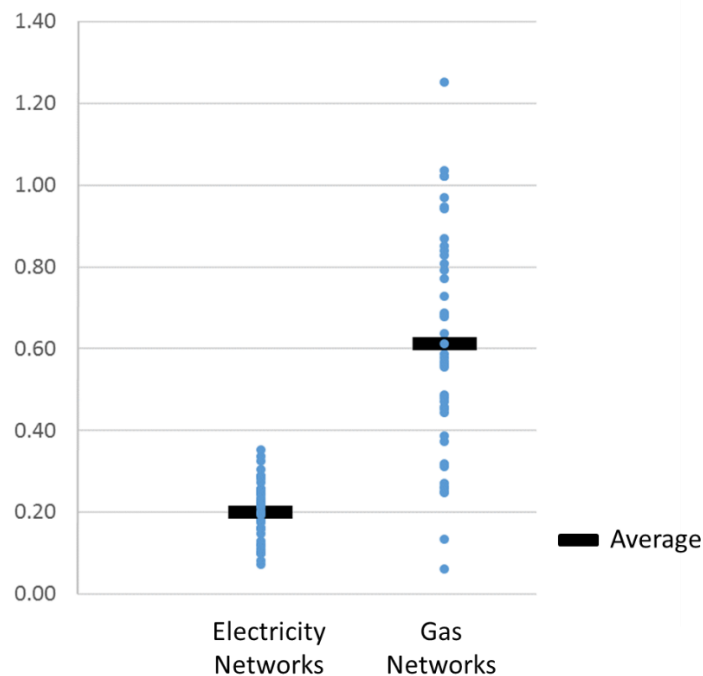
Our experience investing in gas pipelines globally is that capital providers value these long-term risks.

Empirical evidence supports an uplift of at least 0.1 in the asset beta for gas

We acknowledge that empirically estimating asset betas is difficult. Constructing a set of comparator companies is challenging, particularly in New Zealand, and the impact of the estimation procedure can significantly influence the results.

In an effort to test the reasoning set out above in a relatively simple way, we have analysed asset betas reported by Bloomberg for the largest listed gas pipeline and electricity network firms by market capitalisation in the United States.⁷ The results are shown in Figure 2.2, and support the position that gas asset betas are higher than electricity asset betas. Gas pipeline firms have an average asset beta of 0.61 (with a range of 0.06 to 1.25 and standard deviation of 0.28), whereas electricity network firms have an average asset beta of 0.20 (with a range of -0.05 to 0.35 and standard deviation of 0.07). While there is more variation in the data for gas network businesses, this suggests that an uplift of 0.1 is certainly justified, and a larger uplift could be warranted.

Figure 2.2: Asset Betas for The Largest Listed US Gas and Electricity Networks



Source: Colonial analysis using the last 2 years of weekly Bloomberg equity beta estimates

Further detail on the firms and their individual equity and asset betas is provided in Appendix A.

⁷ Specifically, all firms with a market capitalisation above US\$100 million. Electricity networks have been drawn from industry classification as Utility Networks or Integrated Utilities (excluding those businesses which do not operate electricity networks), and gas networks have been defined as those business classified as operating in the Midstream-Oil and Gas sector.

3 No Explicit Form of Control Adjustment Is Warranted

The IMs estimate industry-wide asset betas that do not explicitly account for the effect that the form of regulatory control (price cap versus revenue cap) might have on a gas pipeline's exposure to systematic risk.⁸ We support this approach and encourage the Commission not to introduce any adjustment to reflect differences in form of control.

Unlike the differences in risk facing gas and electricity businesses, variations in the form of regulatory control do not (by themselves) have a significant impact on the value of regulated businesses. The form of control is just one component of the regulatory settings, and while the overall package of regulatory rules can clearly influence the systematic risk facing regulated suppliers, determining the direction or size of this influence is fraught.

We would expect regulatory settings (other than the form of control) that may influence asset beta would include:

- The amount of pass-through or recoverable costs for a regulated supplier (since any change in these costs is passed through, investors do not need to be compensated for variation in these costs)
- The regularity of regulatory resets and the ability to seek re-openers of part or all of the regulatory allowance. Under Part 4, this risk may be influenced by the attractiveness of applying for a Customised Price-Quality Path
- The treatment of cost changes on capital projects, and whether there is any ability to adjust regulated prices or revenues to recover justified overspends or any requirement to pass any savings immediately on to consumers.

The choices made on each of these settings may offset any impact on asset beta. For example, a regulated supplier may be subject to a price cap but have a high proportion of its costs allowed as direct pass-through items. How those settings would affect WACC relative to a firm that is subject to a revenue cap that cannot be reopened is far from clear conceptually.

Even if the Commission could develop a sound basis for tailoring the WACC to reflect nuances across the range of regulatory settings, such an approach would seem impractical to apply empirically. The current approach to determining asset betas relies on having a reasonably large sample of comparable companies—so that differences in the specific circumstances of a particular firm will not substantially skew the results. Attempting to reflect regulatory differences in the asset beta by definition limits the number of comparable companies to those that are subject to the same or similar regulatory settings.

4 Conclusion

Thank you for the opportunity to make this submission. We look forward to continuing our engagement with the Commission on developing and applying the regulatory settings for gas pipelines in New Zealand.

⁸ Commerce Commission 'Input Methodologies (Electricity Distribution and Gas Pipeline Services): Reasons Paper' December 2010 at H8.168.

Best regards

A handwritten signature in blue ink, appearing to be 'GKerr', with a large loop at the start and a trailing flourish.

Gavin Kerr

Director, Unlisted Infrastructure Investments

Colonial First State Global Asset Management

Appendix A Analysis of US Gas and Electricity Network Firms

Table A.1: Analysis of Electricity Network Firms⁹

Company	Industry	Equity beta	Asset beta
DUKE ENERGY CORP	Integrated Utilities	0.16	0.10
NEXTERA ENERGY	Integrated Utilities	0.46	0.20
SOUTHERN CORP	Integrated Utilities	0.18	0.08
DOMINION RESOURCES	Integrated Utilities	0.38	0.12
AMERICAN ELECTRIC	Integrated Utilities	0.34	0.16
EXELON CORP	Integrated Utilities	0.48	0.25
PG&E CORP	Integrated Utilities	0.44	0.22
PPL CORP	Utility Networks	0.57	0.19
SEMPRA ENERGY	Utility Networks	0.67	0.30
PUBLIC SERVICE ENTERPRISE	Integrated Utilities	0.48	0.28
CONS EDISON INC	Utility Networks	0.15	0.07
EDISON INTL	Integrated Utilities	0.28	0.15
XCEL ENERGY INC	Integrated Utilities	0.25	0.11
WEC ENERGY GROUP	Integrated Utilities	0.28	0.13
EVERSOURCE ENERGY	Utility Networks	0.35	0.18
DTE ENERGY CO	Integrated Utilities	0.42	0.20
FIRSTENERGY CORP	Integrated Utilities	0.50	0.18
ENTERGY CORP	Integrated Utilities	0.41	0.16
AVANGRID INC	Utility Networks	-0.08	-0.05
AMEREN CORP	Integrated Utilities	0.39	0.20
CMS ENERGY CORP	Integrated Utilities	0.32	0.10
SCANA CORP	Integrated Utilities	0.38	0.17
CENTERPOINT ENERGY	Utility Networks	0.56	0.18
AGL RESOURCES	Utility Networks	0.41	0.19
PINNACLE WEST	Integrated Utilities	0.41	0.23
ALLIANT ENERGY	Integrated Utilities	0.44	0.22
ATMOS ENERGY	Utility Networks	0.42	0.21
NISOURCE INC	Utility Networks	0.71	0.26
PEPCO HOLDINGS	Utility Networks	0.25	0.10
AES CORP	Integrated Utilities	1.08	0.27
WESTAR ENERGY INC	Integrated Utilities	0.48	0.25
TECO ENERGY INC	Integrated Utilities	0.62	0.24
ITC HOLDINGS CORP	Utility Networks	0.36	0.10
UGI CORP	Utility Networks	0.73	0.35
GREAT PLAINS ENERGY	Integrated Utilities	0.40	0.19
QUESTAR CORP	Utility Networks	0.75	0.34
VECTREN CORP	Utility Networks	0.59	0.29
PORTLAND GENERAL	Integrated Utilities	0.50	0.25
IDACORP INC	Integrated Utilities	0.54	0.29
HAWAIIAN ELECTRIC	Integrated Utilities	0.33	0.16
CLECO CORP	Integrated Utilities	0.38	0.22
NORTHWESTERN CORP	Integrated Utilities	0.46	0.20
ALLETE INC	Integrated Utilities	0.41	0.22
BLACK HILLS CORP	Integrated Utilities	0.52	0.22
PNM RESOURCES	Integrated Utilities	0.44	0.20
AVISTA CORP	Integrated Utilities	0.41	0.19
SOUTH JERSEY INDUSTRIES	Utility Networks	0.53	0.22
EL PASO ELECTRIC	Integrated Utilities	0.55	0.25
MGE ENERGY INC	Utility Networks	0.40	0.26
EMPIRE DISTRICT ELECTRIC	Utility Networks	0.25	0.12
CHESAPEAKE UTILITY CORP	Utility Networks	0.43	0.24
Average electricity asset beta			0.20

Source: Colonial analysis using Bloomberg data

⁹ Equity betas have been de-levered using the approach in Fernandez P, 'Levered and Unlevered Beta' *IIESE Business School Research Paper*, January 2003, accessible at [this link](#).

Table A.2: Analysis of Gas Network Firms¹⁰

Company	Industry	Equity beta	Asset beta
ENTERPRISE PRODUCTS PARTNERS	Midstream - Oil & Gas	0.99	0.47
KINDER MORGAN INC	Midstream - Oil & Gas	1.20	0.56
SPECTRA ENERGY	Midstream - Oil & Gas	1.05	0.45
MAGELLAN MIDSTREAM	Midstream - Oil & Gas	0.86	0.32
ENERGY TRANSFER PARTNERS	Midstream - Oil & Gas	1.36	0.68
WILLIAMS COMPANIES INC	Midstream - Oil & Gas	1.95	0.85
SPECTRA ENERGY	Midstream - Oil & Gas	1.10	0.73
WILLIAMS PARTNERS	Midstream - Oil & Gas	1.44	0.84
ENERGY TRANSFER	Midstream - Oil & Gas	1.76	0.68
PLAINS ALL AMERICAN	Midstream - Oil & Gas	1.12	0.49
ONEOK PARTNERS LP	Midstream - Oil & Gas	1.40	0.69
BUCKEYE PARTNERS	Midstream - Oil & Gas	1.11	0.57
CHENIERE ENERGY	Midstream - Oil & Gas	0.92	0.06
MPLX LP	Midstream - Oil & Gas	0.64	0.25
ENBRIDGE ENERGY	Midstream - Oil & Gas	1.14	0.64
SUNOCO LOGISTICS	Midstream - Oil & Gas	1.55	0.95
EQT MIDSTREAM PA	Midstream - Oil & Gas	1.08	0.56
PLAINS GP HOLDINGS	Midstream - Oil & Gas	1.28	0.59
PHILLIPS 66 PARTNERS	Midstream - Oil & Gas	1.11	0.26
ENLINK MIDSTREAM	Midstream - Oil & Gas	1.19	0.77
CHENIERE ENERGY	Midstream - Oil & Gas	0.87	0.87
GENESIS ENERGY	Midstream - Oil & Gas	1.09	0.46
VALERO ENERGY PA	Midstream - Oil & Gas	0.86	0.44
TC PIPELINES LP	Midstream - Oil & Gas	0.94	0.39
BOARDWALK PIPELINE PARTNERS	Midstream - Oil & Gas	1.05	0.58
NUSTAR ENERGY LP	Midstream - Oil & Gas	0.79	0.27
TARGA RESOURCES	Midstream - Oil & Gas	1.65	0.94
DCP MIDSTREAM PARTNERS	Midstream - Oil & Gas	1.54	0.83
ENLINK MIDSTREAM	Midstream - Oil & Gas	1.49	1.02
TALLGRASS ENERGY	Midstream - Oil & Gas	1.11	0.79
HOLLY ENERGY PARTNERS	Midstream - Oil & Gas	0.81	0.25
ENBRIDGE ENERGY	Midstream - Oil & Gas	1.25	1.25
SEMGROUP CORP	Midstream - Oil & Gas	1.91	1.04
CRESTWOOD EQUITY	Midstream - Oil & Gas	1.52	0.97
NUSTAR GP HOLDINGS	Midstream - Oil & Gas	1.11	1.02
MARTIN MIDSTREAM	Midstream - Oil & Gas	1.15	0.37
TRANSMONTAIGNE PARTNERS	Midstream - Oil & Gas	0.79	0.48
SPRAGUE RESOURCES	Midstream - Oil & Gas	0.67	0.13
ROSE ROCK MIDSTREAM	Midstream - Oil & Gas	1.21	0.31
ARC LOGISTICS PA	Midstream - Oil & Gas	1.27	0.81
AMERICAN MIDSTREAM	Midstream - Oil & Gas	1.74	0.79
BLUEKNIGHT ENERGY	Midstream - Oil & Gas	0.79	0.26
Average gas asset beta			0.61

Source: Colonial analysis using Bloomberg data

¹⁰ Equity betas have been de-levered using the approach in Fernandez P, 'Levered and Unlevered Beta' *IESE Business School Research Paper*, January 2003, accessible at [this link](#).