

## Lumen Technologies, Inc. (LUMN) *AI-N't Gonna Fix This Mess*

We are short shares of Lumen Technologies, a \$26bn telecommunications company trying to spin how AI will fuel the dramatic turnaround of a secularly declining business saddled with \$19bn of debt. In recent weeks, a mixture of buzzy headlines, misplaced retail investor enthusiasm, and short covering has sent a previously moribund stock soaring 400%. Incredibly, Lumen, a company with a long history of disappointing investors and which just reported *EBITDA down -13%*, is now trading in line with telecom peers with healthy growth outlooks, lower leverage, and attractive dividends. We understand the allure of trying to find the next great AI play, but at these levels, an investment in Lumen lacks more than just *artificial* intelligence.

Lumen's recently announced \$5bn in Private Connectivity Fabric deals isn't about AI, it's a desperate bid to raise cash amid deteriorating revenues and growing liquidity concerns. Lumen will net only ~\$800m from these deals in the next few years. Longer-term, the contracts provide a meager ~\$21m / year in recurring profit for operations and maintenance. While any infusion of cash is admittedly positive for a company that would otherwise bleed out, the deals do not solve Lumen's fundamental growth and balance sheet problems. Awarding \$5 in share gains to what we estimate is only \$1.18/share in total value, from Lumen's role as general contractor on a massive construction project, is just silly.

Lumen has identified \$7bn in additional "sales opportunities" but customers in this tranche are not leading technology firms like Microsoft with ambitions to sell AI tools and platforms. Rather, they are enterprises in healthcare, retail, financial services, etc. Hyperscalers and other large technology companies are building out remote datacenter footprints and need to purchase new connectivity infrastructure at scale. None of that applies to bureaucratic, regulated healthcare companies and banks, which are only beginning to explore what AI might mean for their businesses and will lean on cloud providers for their needs for the foreseeable future. By Lumen's own admission, discussions with these institutions are in an early phase, and we believe will take long to close and face rising competition.

The deal announcement (timed conveniently the day before weak 2Q earnings) distracted investors from underlying business trends which showed further deterioration across nearly every key category. Core Business segment revenue fell -8.6%, the worst in company history. Business segment products the company has targeted for growth actually fell -1.1% in 2Q, while legacy product declines continue to spiral downward due to post-pandemic workplace restructurings. Despite considerable investment in new product development and [sales force](#) productivity, former executives we interviewed stated Lumen's software applications remain uncompetitive against those of leading tech competitors. Consequently, we view Lumen's strategy of trying to become more than a dumb pipe and transitioning customers from legacy products to more modern cloud-based services as flawed and the company will continue to fail at stabilizing the business.

AI is an exciting technology and there are many compelling ways to invest in this powerful theme. A rapidly shrinking wireline telecom with inferior software and a history of underdelivering on growth is not one of them. The new deals provide near-term cash but then what? We expect AI deal hype will fade to dismal legacy telco reality, leaving the company's share price much like its fiber – buried in the ground.

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## Executive Summary

**Don't buy the AI hype.** Lumen has used a string of buzzy headlines to portray the rise of AI as key to resurrecting the company's dimming turnaround hopes but it's really just a transparent attempt to glom onto the hottest theme in the market. Lumen's core revenues are deteriorating at an accelerating rate and the recent increase in full-year free cash flow guidance merely reflects the timing benefit of prepayments for construction spending that is forthcoming. To bolster liquidity, Lumen has agreed to lengthy, complex, and capital-intensive projects, which will net the company much needed near-term cash, but do little to address declining recurring revenue and a daunting debt maturity profile.

**\$5bn in custom networks is only slightly over \$1 per share of value.** Investors who believe \$5bn in announced Custom Networks contracts is a game changer worthy of a \$6+ increase in share price are mistaken. Lumen is effectively a general contractor on a \$4.5bn construction project of which we estimate \$3.7bn will be spent on capex, opex, and taxes. After the project is complete, the recurring revenue portion (operations and maintenance) will amount to ~\$21m in EBITDA / year based on our calculations, less than 1% of the company's current EBITDA. The CEO of a Lumen competitor stated it has turned down the opportunity to bid on hyperscaler deals because of the risks and low returns involved.

**\$7bn in AI "sales opportunities" is a pipedream.** Customers in the \$7bn of potential sales opportunities tranche are wholly different from Microsoft and the hyperscalers included in the [\\$5bn](#) of announced custom networks contracts. Microsoft is in the business of selling AI tools and hosting AI service providers. They have built large AI cloud datacenters in increasingly remote locations to source sufficient power. These companies have a unique need (and ability) to purchase massive amounts of fiber infrastructure. \$7bn of potential sales are based on preliminary discussions with a wholly different customer set – large, bureaucratic enterprises in healthcare, retail, and financial services. We believe the majority of these enterprises are using cloud-provided AI tools to streamline certain internal processes. For the next several years, these companies will continue to lean on cloud providers for AI use cases and winning new business from upgrading of colocation/on-prem facilities will be gradual and highly competitive.

**Revenue in key sales channels and categories is deteriorating.** Investors distracted by recent headlines are ignoring concerning trends within the Business segment that extend beyond just dying legacy products. Business segment revenue (excluding volatile, low margin Other revenues) fell -8.6% in 2Q24. The ironically named "Grow" category of Business revenues shrank -1.1% in 2Q24. Management has suggested revenue stability will not happen *until 2027* at the earliest. According to a former executive, Lumen's security (ex. DDoS), UC&C and edge cloud services are simply uncompetitive against leading pureplay tech companies and the company's strategy of "migrating customers up the stack" will continue to face headwinds.

**The pop in shares is overdone.** Nearing 7.0x EV/EBITDA, shares of Lumen are now valued in line with Verizon and AT&T despite far worse revenue/EBITDA outlooks, a highly levered balance sheet, and zero prospects of shareholder returns. The setup after this move is precarious. We believe management will continue to be tight-lipped on the financial details of signed contracts and new deals will be slow to materialize. 2024E free cash flow guidance was raised due to the timing benefit of cash prepayments, but now the company must execute and spend that capital. Management has already downgraded 2025E EBITDA expectations and we think investors should remain skeptical of a meaningful rebound in 2026E.

## Company Overview

\$ Millions, Balances as of June 30, 2024		Financial Summary (\$ mm)					
		Fiscal year end Dec 31,	2023A	2024E	2025E	2026E	2027E
LUMN share price	\$6.00						
Common shares	1,017	<b>Revenue by segment (ex. Custom Networks) <sup>(1)</sup></b>					
Market capitalization	<b>\$6,101</b>	Business	\$11,583	\$10,247	\$9,783	\$9,411	\$9,183
Cash and cash equivalents	<b>1,495</b>	<i>Growth y/y</i>	-11%	-12%	-5%	-4%	-2%
Qwest Corp Sr. Notes	1,986	Mass market	2,974	2,732	2,522	2,393	2,320
Qwest Capital Funding Sr. Notes	192	<i>Growth y/y</i>	-33%	-8%	-8%	-5%	-3%
Subtotal Qwest Corp. Debt	<b>2,178</b>	<b>Total revenue</b>	\$14,557	\$12,979	\$12,306	\$11,804	\$11,503
Level 3 Financing TL B	12	<i>Growth y/y</i>	-17%	-11%	-5%	-4%	-3%
Level 3 Financing TL B-1	1,199	Cost of products and service	7,144	6,403	5,907	5,540	5,407
Level 3 Financing TL B-2	1,199	<i>Margin</i>	49%	49%	48%	47%	47%
Level 3 Financing First Lien Notes	2,921	SG&A	3,310	2,987	2,830	2,715	2,646
Level 3 Financing Second Lien Notes	2,229	<i>Margin</i>	23%	23%	23%	23%	23%
Level 3 Financing Sr. Secured Notes	925	Adjusted EBITDA (ex. special items)	4,628	4,008	3,719	3,699	3,551
Level 3 Financing Sr. Notes	1,711	<i>Growth y/y</i>	-33%	-13%	-7%	-1%	-4%
Level 3 Financing Unsecured Notes	154	Cash flow from operations (reported)	2,160	3,202	2,416	2,355	2,444
Subtotal Level 3 Financing Debt	<b>10,350</b>	Capex	(3,100)	(2,806)	(2,620)	(2,608)	(2,485)
Lumen Technologies TL A	368	Levered free cash flow (FCF)	(940)	396	(204)	(253)	(41)
Lumen Technologies TL B	57	<b>Custom networks <sup>(2)</sup></b>					
Lumen Technologies TL B-1	1,621	Cash prepayments		1,260	2,000	800	440
Lumen Technologies TL B-2	1,621	Less:					
Lumen Technologies Superpriority Notes	812	Opex		(200)	(200)	(175)	(90)
Lumen Technologies Sr. Notes	2,037	Capex		(400)	(1,250)	(650)	(360)
Subtotal Lumen Technologies debt	<b>6,516</b>	Cash taxes		0	(112)	(178)	(71)
Total LUMN consolidated debt	<b>\$19,044</b>	Net change in PCF cash flow		660	438	(203)	(81)
Finance lease and other	270	<b>PF consolidated</b>					
Total net debt	<b>\$17,819</b>	Adjusted EBITDA		3,808	3,519	3,524	3,461
Benefit plan obligations (post-tax)	1,925	Capex		3,206	3,870	3,258	2,845
Total enterprise value	<b>\$25,845</b>	Free cash flow		<b>\$1,056</b>	<b>\$234</b>	<b>(\$456)</b>	<b>(\$122)</b>
'24E net leverage (incl. finance lease)	<b>4.5x</b>	<b>Key Metrics</b>					
		EV / adj. EBITDA		6.8x	7.3x	7.3x	7.5x
		Net leverage		4.5x	4.8x	4.9x	5.1x

Source: Kerrisdale analysis. Historical financials per Lumen SEC filings, earnings press releases, and [2024 trending schedules](#).

- Kerrisdale projections excluding newly announced Custom Networks division. 2024E adjusted EBITDA, capex, and free cash flow based on company-provided initial guidance adjusted for \$100m of lower cash interest and \$190m from asset sales as disclosed in [2Q24 results](#) and [earnings call](#).
- Kerrisdale projection for Custom Networks and impact of announced [\\$5bn](#) in Private Connectivity Fabric contract value. Consistent with the company's [presentation](#), we assume 90% of the total contract value to be received over the next 3-4 years (\$4.5bn) to support front-end loaded construction capex and incremental opex (see: PFC Deal Economics section for more detail). According to Lumen, capex will be "meaningful" and timing will be "lumpy." 2024E PF consolidated EBITDA, capex, and free cash flow are in line with ranges provided by the company in its updated 2024 financial outlook included in [2Q24 results](#) (see: Appendix I).

Headquartered in Monroe, Louisiana, Lumen Technologies is a telecommunications company that offers a broad array of facilities-based products and services. Revenue from global enterprise and public sector customers are reported in the *Business* segment (80% of total revenue). Lumen's domestic residential/small business revenues are reported within the *Mass Market* segment (20% of total revenue).

Lumen was formed in 2017 through the merger of CenturyLink (a roll-up of rural local exchange carriers including CenturyTel, Embarq, and Qwest Communications) and Level 3 Communications (a Tier 1 internet backbone operator which provided enterprise-focused

network, VoIP, cloud, and data center services). Lumen's network infrastructure is extensive and includes both copper and fiber optic cables. Lumen's fiber network (owned and leased) spans 350k miles of fiber optic plant, 6m intercity fiber miles, and is connected to approximately 170k buildings. President and CEO [Kate Johnson](#) joined the company in 2022. From 2017-2021 Johnson was President of Microsoft US. Lumen's [CRO](#) and [CMO](#) are also former Microsoft executives.

Lumen's financial profile is characterized by declining revenue, margin pressure, declining/negative free cash flow (absent asset sales and other 1x items), and high leverage ('24E net leverage of 4.5x including finance leases). Normalized total revenue (excluding Other) fell -8.5% y/y in 2Q24. Management has suggested revenue stability is unlikely until at least 2027. In 2Q24, adjusted EBITDA declined -15% y/y organic (~18% [reported](#)). Management anticipates EBITDA will decline further in 2025 due to costs associated with the new [Custom Networks](#) division before rebounding in 2026E.

## **Recent Developments**

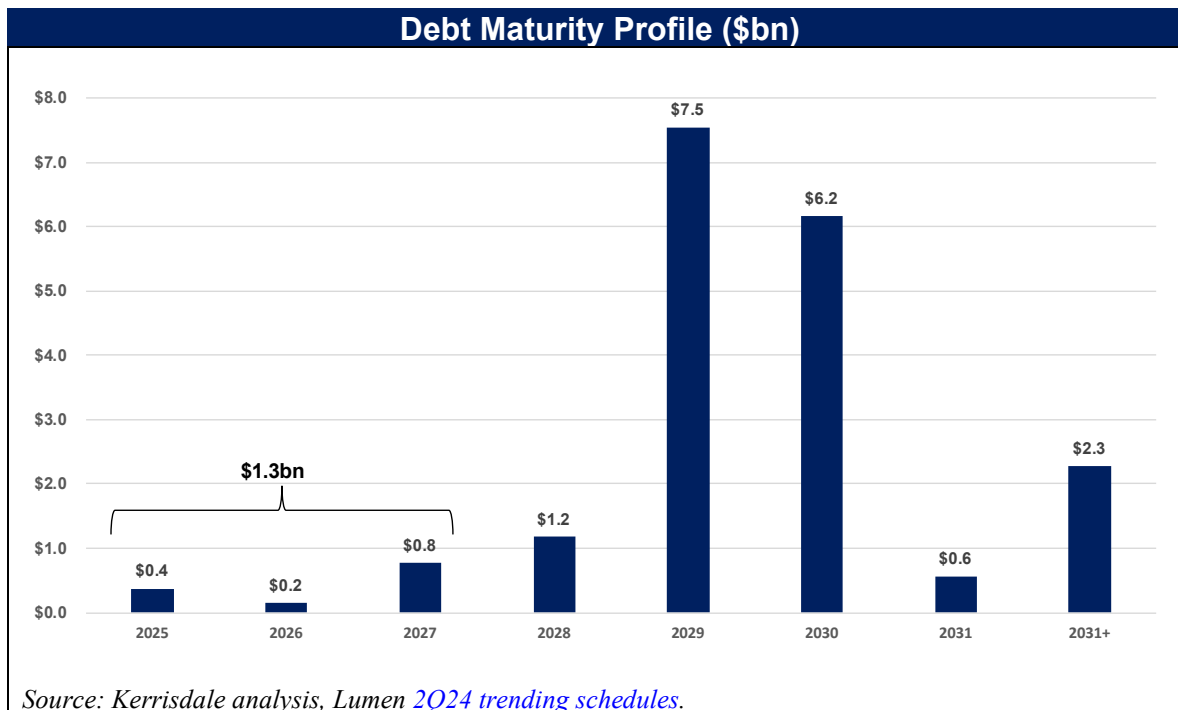
On July 24<sup>th</sup> Lumen announced a new [partnership](#) with Microsoft to "power the future of AI" by strengthening connectivity between Microsoft's datacenters using Lumen's Private Connectivity Fabric infrastructure. A week later, Lumen put out another [release](#) announcing a supply agreement with Corning for 10% of its fiber optic cable capacity to support data center AI demands and that the company will more than double its intercity network miles to unlock AI for cloud data centers. Finally, on August 5<sup>th</sup> (the day before 2Q earnings) Lumen [announced](#) the creation of a new Custom Networks division to manage \$5bn in newly secured Private Connectivity Fabric (PCF) business driven by AI connectivity needs. The release also goes on to mention active discussions with customers to secure another \$7bn in "sales opportunities."

The PCF deals provide an upfront infusion of cash to address ~\$1.3bn in maturities over the next three years (see debt maturity profile below). Prepayments toward construction projects embedded in the deal led the company to raise 2024E FCF guidance, but this is a timing-related working capital benefit. At ~\$3.8-\$4.0bn in EBITDA, ~\$1.25bn in cash interest expense, and \$2.5-\$3.0bn in capex, before additional cash tax and pension obligations, Lumen's underlying operations exist in an impaired breakeven/negative free cash flow state.

The cumulative impact of these announcements helped send shares from ~\$1.50 to over \$7 in the span of a couple weeks, driven by what we view as misplaced AI excitement, poor retail investor understanding of the true cash impact of PCF deals, and aggressive short covering from investors positioned for Lumen's death rather than the extension of a sudden lifeline. According to a bulge bracket analyst who covers Lumen, the company did not expect the level of stock reaction to its deal announcements.

To counter ongoing pressures on profitability, during 2Q earnings Lumen also announced a 3-year \$1bn cost takeout program focused on rationalizing its product portfolio and reducing the number of order management (24) and billing (17) systems – byproducts of the numerous acquisitions folded into the company over the years. Incredibly, Lumen still maintains order entry systems from Level 3, CenturyLink, US West and [Global Crossing](#) (acquired by Level 3 13 years ago). The new cost takeout program strikes us as standard operations for a declining business. We think wireline companies under secular pressures wake up every day looking to cut costs and Lumen has continually engaged in [restructurings](#) (such as the sale of its international operations and CDN business) and [layoffs](#) to reduce expense and improve efficiency.

A word search for “billing” in Lumen’s earnings transcripts returns discussions of initiatives to fix and consolidate systems for billing, back office, network inventory and order entry going back years. We believe management is correct in its desire to finally address these legacy problems, which, based on conversations with former Lumen executives, cause frustration among sales teams and frequently impact customer service. That said, we think there is a reason previous management regimes kept putting off rationalizing these systems, due to the costs, challenges, and potential disruption caused by trying to modernize and streamline these systems. Veteran investors in the space know billing system integrations in particular are risky exercises, which even when carefully planned has contributed to the demise of levered [wireline companies](#).



## Accelerating Revenue Declines: Not Just a Legacy Problem

Contrary to management’s [claim](#) during recent earnings that “Lumen’s enterprise operational turnaround is progressing well,” normalized Business segment revenue (excluding Other) fell -8.6% y/y in 2Q24, the worst in company history. Revenue within the largest sales channel, Large Enterprise, fell -6.9%, also the worst in company history.

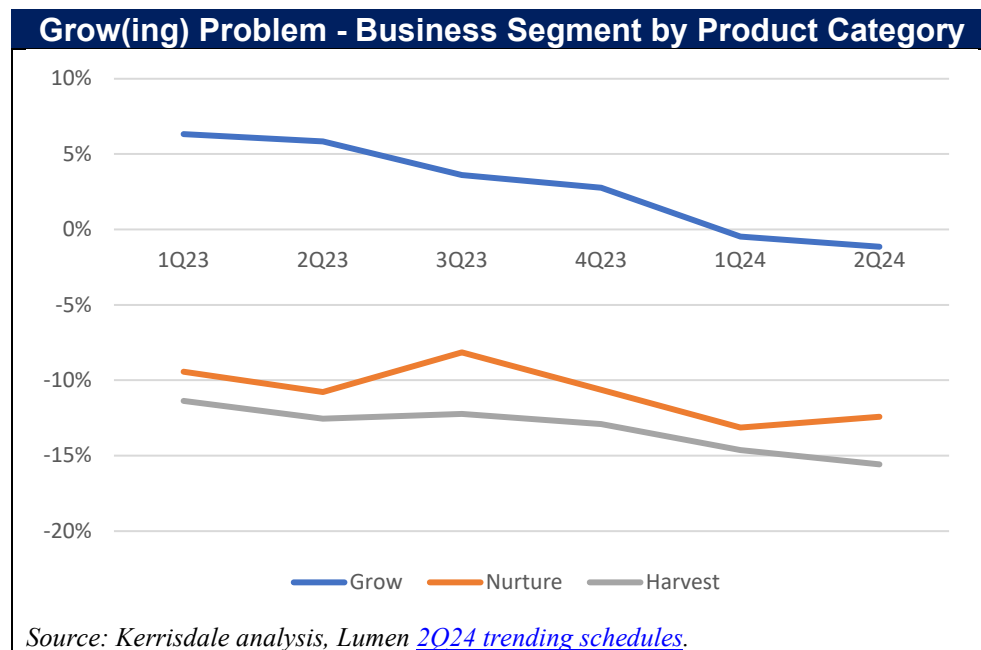
As typical with traditional wireline operators, Lumen operates a mixture of legacy products and more advanced, growth-oriented offerings. Within Mass Markets, this split is driven by high-speed broadband services provided to homes and small businesses using fiber-based network infrastructure (branded *Quantum Fiber*) versus lower speed data and voice carried by copper. Within the larger and more strategically important Business segment, Lumen has assigned products and services to 4 groups based on their respective outlooks:

1. “Grow” (41% of Business). Both infrastructure and software products anticipated to grow including SD WAN, security solutions, IP transit, laid but unlit optical fiber known as “dark fiber”, wavelengths, and unified communications and collaboration or UC&C (VoIP,

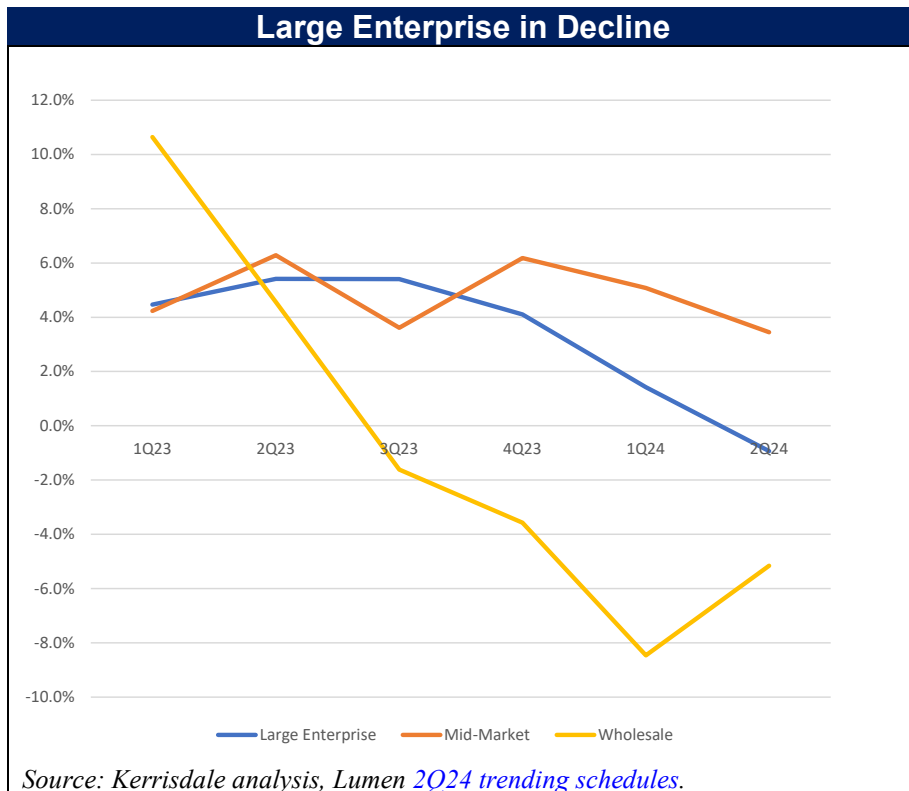
- messaging, video conferencing).
- 2. “Nurture” (29% of Business). Mature offerings such as: VPN, point-to-point and multipoint ethernet connections.
- 3. “Harvest” (22% of Business). Legacy services that are acknowledged as going away and managed for cash flow: traditional TDM voice services (local, toll-free, long distance) and private line services.
- 4. Other revenue (8% of Business). Primarily low-margin equipment sales, legacy data hosting services.

Management has historically blamed lackluster revenue performance on [legacy](#) streams of revenue, noting how declines “have accelerated to some extent, [masking] progress unfortunately in the near term” but that understates the extent of current Business segment difficulties. Trying to outrun worsening declines in Nurture (-12% y/y) and Harvest (-16% y/y) is unquestionably challenging, but these trends are secular and at least directionally consistent with management (and investor) expectations.

The more pressing concern for investors should be that despite investing in new product development and supposedly improving [sales force](#) productivity, the Grow category is no longer growing. And the problem is getting worse. On a normalized basis (excluding divestitures and post-closing adjustments), the so-called “Grow” category *shrank* -1.1% y/y in 2Q24 (versus -0.5% last quarter), a deceleration of nearly 700bps since present management took the reins in late 2022.



Weakening performance is not isolated to a single sales channel. “Grow” category revenue within Large Enterprise, the single largest sales channel, went negative in 2Q24, falling -0.9% y/y versus +1.4% in the prior quarter. “Grow” products within Wholesale (the 2<sup>nd</sup> largest sales channel) fell -5% y/y.



## Growth is Fundamentally Challenged

One of the touted benefits of the announced PCF deals was that the improved liquidity buys time for turnaround efforts to bear fruit and drive revenue stability. We have heard arguments from sell-side analysts that this “option value” potentially justifies gains in the stock that have far exceeded the intrinsic cash value of the deals themselves (we discuss our calculations behind this cash value shortly). This view is flawed and fails to appreciate the extent to which Lumen is fundamentally growth-challenged.

We think three main factors have contributed to faltering performance within Large Enterprise and “Grow” products across the company. First, as described by [AT&T](#) earlier this year, legacy declines are accelerating due to businesses transitioning to “mobile and cloud-based services at an accelerated rate as post-pandemic workplace restructuring takes hold.”

Second, despite the company stating that “[significant](#)” customer concerns over Lumen’s liquidity and financial future have [abated](#), “noise” in the marketplace created by balance sheet restructuring efforts from last year still appear to be having an effect on [inbound](#) call volume.

The final factor is the most serious and structural. Based on multiple conversations with former Lumen executives, “Grow” is not living up to its namesake because the company lacks competitive “up the stack” applications. Recall, within “Grow” is a mixture of both infrastructure (wavelengths, dark fiber, dedicated internet access (“DIA”)) and applications (SD WAN, cloud, UC&C, etc.). One former senior sales executive pegged infrastructure-related products as well north of 50% of the revenue in this category and growing modestly. The worsening trends in reported “Grow” revenue are therefore driven by increasingly weak sales of software applications. This runs directly counter to Lumen’s growth strategy of “[digitiz\[ing\] our physical network](#)”, “cloudifying telecom” and transforming Lumen from a telco into “techco.”



According to the executives, despite significant investment in SG&A and R&D, Lumen’s internally developed software solutions are inferior versus offerings from leading tech companies who possess larger R&D budgets and innovate at a faster pace.

To retain customer contract values and compete successfully, Lumen has turned to partnering with players like [Zoom](#), [Palo Alto](#), [Fortinet](#), and [Cisco Webex](#), reselling their products at a mark-up (~20-30% in most cases). Remarkably, even a core networking application such as SD WAN, a product which in theory embodies Lumen’s strategy of being a more software defined network, is a product Lumen [resells](#) from VMware, Versa Networks, and Cisco.

Revenue stability can only materialize if “Grow” reverses recent trends and reaccelerates, but this appears unlikely. Given its balance sheet, Lumen is not in position to make sizable increases in investment necessary to develop compelling new software applications. Reselling 3<sup>rd</sup> party solutions as a middleman helps prop up total contract values at renewal, but at a lower margin (Lumen pays for the underlying 3<sup>rd</sup> party product, clipping only the surcharge). The reliance on 3<sup>rd</sup> party products also exposes the company to the enterprise sales forces of partners who then look to poach customers from Lumen and sell products directly when contracts are up for renewal.

While wavelengths and dark fiber are likely infrastructure bright spots, DIA is suffering the consequences of strategic decisions made in recent years. Selling EMEA and LatAm operations succeeded in simplifying operations and raising cash but hurt the company’s once differentiated customer value proposition of being a global end-to-end network operator (which appears to be why Lumen has [lost](#) its status as a [Leader](#) for Network Services, Global in the latest Gartner analysis). Lumen is not even on the Gartner [grid](#) for Managed Network Service. Now as a solely national player, Lumen’s on-net footprint of 170k fiber-lit buildings pales in comparison with [850k](#) business buildings for AT&T, and [trails](#) Verizon, Spectrum Enterprises ([300k](#)), and Comcast, impacting Lumen’s ability to compete when trying to provide internet services to customers with multi-location needs.

We think investors who believe a few hundred million in cash liquidity provides enough runway to address these significant structural issues fail to grasp the severity of the growth problem. Notably absent from the PCF deals is mention of an agreement to sell any “up the stack” enterprise services. We argue \$5bn in custom networks contracts is a defensive “back to basics” maneuver – an acknowledgement that Lumen’s ambition to turn more into a cloudified “techco” *isn’t* gaining traction and its core business remains selling dumb pipes.

## Custom Networks Economics 101

*“The \$5bn deal is about funding, not AI growth”*

— Bank of America Global Research, August 8, 2024

*“Lumen actually regretted selling fiber to us. I had conversations with two previous CEOs who both said they enabled us to compete with them and they wish they had never sold us fiber...For the past 20 years, Lumen has been very reluctant to sell fiber. I think now, based on their liquidity profile, they are selling that.”*

— Dave Schaeffer, CEO Cogent Communications, [Oppenheimer Technology, Internet, and Communications Conference](#), August 12, 2024

The lack of financial detail included in the PCF deal announcements (and, according to a bulge bracket analyst who covers Lumen, the company’s reluctance to provide granularity on key items) has contributed to confusion in the market as to the deals’ true cash flow significance. The increase in Lumen’s 2024 free cash flow outlook in 2Q results reflects prepayments for costs earmarked for future years – the working capital benefit of receiving cash ahead of when capex and opex in conjunction with a multi-year construction project must later be spent. This is why when Lumen updated its guidance, adjusted EBITDA was *lowered* to reflect incremental costs associated with the new venture, while the benefit of upfront cash prepayments was captured in an increase in cash provided by operating activities (see: Appendix I).

Lumen has not disclosed the exact prepayment amount for the \$5bn in contracts (neither for 2024 nor in aggregate) but based on the company’s change in FCF outlook guidance and the management comments regarding the upfront nature of cash paid in advance of construction, we estimate ~\$1.3bn will be received in 2H24E.

Implied 2H24E PCF Prepayment					
	Change at Midpoint	Current Low	Outlook High	Previous Outlook Low	Previous Outlook High
Adjusted EBITDA	(250)	3,900	4,000	4,100	4,300
Net cash interest	100	1,150	1,250	1,250	1,350
Custom networks <sup>(1)</sup>	190				
Capex	(400)	3,100	3,300	2,700	2,900
Implied 2H24E PCF prepayment	1,260				
Change in FCF	900	100	300	1,000	1,200

Source: Kerrisdale analysis, [Lumen 2Q24 earnings press release](#).  
 1. FCF outlook boosted by \$190m after-tax from asset sale per [2Q24 earnings call](#).

## What Does \$5bn in PCF Contracts Really Mean for Lumen?

PCF is a “fabric” or bundle of services that includes dark fiber, wavelengths, and various lit services. Based on management comments on the earnings call and subsequent callbacks it held with the street, 10 customers are represented by the \$5bn of announced contracts and include hyperscalers, social platforms, and cloud companies. These deals are weighted toward very large, dark fiber infrastructure with “some of the other things mixed in.” Leasing dark fiber is done under an IRU arrangement (Indefeasible Rights of Use) with an upfront cash component for infrastructure and recurring revenue element for ongoing operations and maintenance once the fiber is in service. IRUs are a featured element in these deals, which is why Lumen provided a [video](#) and [presentation](#) reviewing the mechanics and timing of cash prepayments, opex, capex, etc.

Of the \$5bn in contract value, 90% is associated with construction for which Lumen is effectively being paid as a general contractor. Over the next 3-4 years, “lumpy” capex, opex and cash taxes ([25%](#) effective tax rate) will ramp up to support construction activities. Management has

provided scant detail about the timing or size of cash flows other than that they will be front-loaded. Given the large pre-payment in 2H24E without a similarly sized increase in capex or any change in cash taxes, in 2025 we expect there will be a “catch-up” in these cost items which will drive more muted free cash flow next year. We expect this will drive negative free cash flow in 2026E as costs continue while prepayments begin tailing off (see financial summary and capitalization on p. 4 of this report). The net result of this multi-billion dollar construction project is ~\$800m in cash value (\$0.76/shr).

From an ongoing revenue perspective, only ~10% (\$500m) derived from operations and maintenance will be paid over the life of the IRU with annual CPI escalators starting once the fiber has been laid. \$500m at 85% margins works out to \$21m / year in EBITDA over 20 years, subject to the escalator – meaning the long-term recurring cash benefit of \$5bn in PCF contracts is less than 1% of Lumen’s current annual EBITDA or \$0.42/shr.

<b>What Does \$5bn in PCF Deals Really Mean for Lumen?</b>	
<i>\$ Millions</i>	
Total contract value	<b>\$5,000</b>
Construction Project (90% of contract value)	4,500
O&M (Year 4-20)	500
Less: pre-tax cash costs	(3,400)
Total pre-tax cash contribution margin (32%)	<b>\$1,600</b>
Less: taxes (25%)	(400)
Total after-tax cash profit (construction + O&M) (a)	<b>\$1,200</b>
\$ per share	<b>\$1.18</b>
Net cash profit on construction (a)-(b)	<b>\$775</b>
\$ per share	<b>\$0.76</b>
O&M Profit (85% margin) (b)	<b>\$425</b>
\$ per share	<b>\$0.42</b>
Annual EBITDA (20 year IRU)	\$21
Total 4-year construction project cash costs:	\$3,725
includes: Capex (80% of pre-tax cash costs)	2,660
includes: Opex (20% of pre-tax cash costs)	665
includes: Taxes (allocated to construction)	400
<i>Source: Kerrisdale analysis, Lumen Form <a href="#">8-K Ex 99.3</a> – Modeling Constructs for Indefeasible Rights of Use, <a href="#">2Q24 earnings call</a>.</i>	

In summary, based on our calculations, \$5bn in complex, execution risk-laden, multi-year construction projects nets only \$1.18 per share in value, most of which is non-recurring in nature. Given the decrepit state of its balance sheet and the funding gap Lumen’s CFO

referenced repeatedly on the earnings call, it's easy to see why Bank of America's telecom analyst has described the transactions as more about funding than AI growth.

## \$7bn in “Sales Opportunities”

In addition to \$5bn in signed PCF contracts, management indicated it is in discussion with customers covering \$7bn in sales opportunities. On the earnings call, management clarified that they are still very much in an “early phase” of those talks and do not know the “full scale” of customer needs or even whether Lumen is in position to satisfy them (which begs the question as to why they would put the figure in a press release other than to pump the stock). We believe investors should heavily discount Lumen's ability to convert a meaningful amount of these sales discussions into signed contracts before debt maturities once again become problematic in 2028/29.

As Johnson described on the earnings call, this “second tranche” of potential customers is fundamentally different from those in the \$5bn. They are not large hyperscalers or cloud companies, but rather large enterprise customers in healthcare, retail, and financial services. This is an important distinction. [Microsoft](#), [Meta](#), and [Amazon](#) are in the process of building out scaled AI-dedicated datacenter footprints to train bespoke LLM models and support potential customer demand for AI tools and services. In contrast to datacenters built to accommodate e-commerce or high-frequency trading applications, where low latency is essential, AI training datacenters need not be situated close to major urban centers. The more pressing challenge is finding enough available energy to satisfy power-hungry computing needs. With [power](#) availability constrained in Tier 1 datacenter markets (i.e., [Northern Virginia](#)), hyperscalers have built facilities in areas that are relatively remote and historically underserved by fiber infrastructure such as in rural/suburban Wyoming, Iowa, Mississippi, and Eastern Oregon. These new remote datacenters are now being connected using dark fiber, representing a unique new source of cash for a company willing to take on the project to plug a liquidity gap.

None of the preceding applies to the opportunity set Lumen described as existing from large healthcare companies and financial institutions. Based on our research, these companies are predominantly using a handful of cloud-based AI use cases to streamline internal operations. To the extent bandwidth is constrained, there are upgrade paths using existing fiber from multiple providers. Dark fiber makes little sense for the majority of these customers because of the upfront capital and ongoing operational support expense. Lumen can sell higher bandwidth wavelengths to these companies, a service for which it has leading market share, but this is an increasingly competitive market with Cogent setting [aggressive](#) targets of taking [25%](#) market share over the next few years.

We interviewed an IT director of a Lumen customer in the healthcare space (40,000+ employees, 30+ hospitals) to better understand how \$7bn in “sales opportunities” will likely (not) translate to signed contracts in the medium-term. The director explained how for the next three years his company would rely on cloud-based AI service providers for use cases such as [contract lifecycle management](#), [diagnostic image scanning](#), and [virtual scribing](#). He is interested in purchasing AI-enabled products and buying proven LLMs from hyperscalers, not using customer data to train bespoke LLMs. Only once use cases become much more sophisticated and ROIs more clearly defined would his company consider devoting more internal on-prem/colocation resources to GenAI workloads. His datacenters currently already have enough dedicated bandwidth for AI workloads for the foreseeable future. If additional capacity was necessary, it could be easily achieved through upgrading transceivers on existing fiber at little to

no incremental increase in monthly service cost. We think Lumen is trying to frame \$7bn in sales opportunities as an encore to the \$5bn in signed contracts, but deal flow from large non-tech enterprises will proceed at a much more modest pace, face stiff competition, and be folded into normal contract renewals.

## Spinning an AI Story

***“Kate [Lumen CEO Kate Johnson] has painted this picture of the demand for the fiber as solely tied to AI...that’s not the whole picture, these companies have been buying fiber IRUs since I first got into Level 3 [many] years ago...it’s the best marketing effort I’ve seen in a long time from them...Why would you ever talk about taking down 10% capacity from Corning?...They’re trying to paint the picture of ‘AI, AI, AI’ and “we’re the best company positioned now for infrastructure”...believe me, that’s a fantastic f-cking story what they’re doing right now, but that is not going to solve the overall business balance sheet the way they need to.” [emphasis added]***

— Former senior executive, Lumen and Level 3

The timing and nature of Lumen’s recent press releases creates the impression Lumen is doubling network capacity, moving to [“quickly secure fiber and bandwidth”](#) ahead of competition (implying supplies are limited), all to capitalize on an AI-driven windfall which will net the company billions in profit. It’s clever marketing spin and a “fantastic story” but the reality is less impressive than these announcements imply.

### ***Doubling Intercity Fiber is Not a New Plan***

Doubling the amount of intercity fiber miles is framed as a new initiative tied directly to AI which features prominently in the \$5bn in PCF and Corning supply announcements. We think this is a clever bit of marketing spin because Lumen has had plans to double the amount of intercity fiber since at least [December 2022](#). Back then, the doubling of fiber miles over the next few years was [described](#) rather mundanely, a move to increase market share that would fold into existing capital budgets. Johnson [mentioned](#) building out an additional 6m in intercity fiber miles in February 2023 and the initiative was referenced again in Lumen’s June 2023 Investor Day presentation ([p. 28](#)). Never before was AI cited as the driving force behind doubling fiber miles – only now when AI is all the rage in the market is network expansion framed so dramatically as needing to add “significant capacity to major cloud data centers racing to stay ahead of AI workloads...”

### ***Reserving Corning Capacity is Marketing Hype, Optical Fiber is Not Scarce***

Reserving 10% of Corning’s fiber optic capacity for the next two years because the “rise of AI is driving technology companies to quickly secure fiber and bandwidth before their competition” is more marketing spin designed to portray Lumen’s actions as suddenly all AI-driven and imply that sourcing optical fiber is becoming a challenge. Corning’s financial statements and public comments reveal the latter is certainly not the case. Corning posted \$5bn in optical sales in 2022. In the years since, sales have been in a cyclical slump (‘24E consensus revenue estimates for the Optical division are ~\$4.3bn). Corning has said it has the capacity in place to

service \$3bn-\$5bn in additional sales (project “[Springboard](#)”) over the next three years, without significant new investment. 10% of capacity, or about \$430m per year (confirmed by [Corning](#) as the correct way to size the agreement) is only 1/7<sup>th</sup> the lower end of what Corning frames as excess capacity. The supply of fiber from an industry giant like Corning is hardly constrained (Corning’s stock shrugged off the supply announcement) and ~\$430m in fiber purchases within a Lumen capex budget of nearly \$3bn does not strike us as a step-function change from normal budgeting.

## Valuation

Rather than applying a single multiple or DCF for Lumen on a consolidated basis which would not capture the discrete nature of cash flows (and appropriate discount rates) for the two business lines, we have opted for a simplified sum-of-parts approach. We value Lumen’s “core” operations excluding custom networks at ~\$16.2bn using a DCF (see: Appendix III). This represents an implied 4.4x our 2025E EBITDA of \$3.7bn (in line to where the company traded prior to recent AI-related announcements). We value custom networks at \$1.2bn to reflect the undiscounted cash value of \$5bn in announced PCF deals.

Our estimate of fair value is \$0. We believe Lumen is fundamentally insolvent.

Valuation Analysis - SOP			
	2025E EBITDA	Implied Mult.	EV
Core (DCF)	\$3,719	4.4x	16,252
Custom networks			1,200
Total enterprise value			17,452
Less: '24E net debt			(17,159)
Less: underfunded post-retirement (after tax)			(1,925)
Implied equity value			(1,632)
/ shares outstanding			1,017
<b>Estimated fair value per share</b>			<b>\$0.00</b>

*Source: Kerrisdale analysis.*

## Conclusion

A recurring sentiment we encountered when speaking with former Lumen executives and sell-side coverage analysts was things with the company aren’t always quite what they seem. For example, to hear management describe the state of Lumen’s enterprise business, one would think things have never been better – except the company just reported some of the worst results in its history. Doubling intercity fiber miles features prominently in two recent AI-related announcements – except this is not a new initiative. \$5bn in new business from booming AI-fueled demand sounds incredible – except it’s more like \$800m to dig ditches and pull glass. Initial soundbites sound enticing, but the story lacks substance upon closer inspection. The Lumen AI turnaround story is little more than a (fiber) optical illusion.

## Appendix I: 2024E Guidance Update

### Lumen 2024E Financial Outlook

#### 2024 Financial Outlook

The Company updated its full-year 2024 financial outlook which is detailed below:

Metric <sup>(1)(2)</sup>	Current Outlook	Previous Outlook
Adjusted EBITDA	\$3.9 to \$4.0 billion	\$4.1 to \$4.3 billion
Free Cash Flow <sup>(3)(4)</sup>	\$1.0 to \$1.2 billion	\$100 to \$300 million
Net Cash Interest	\$1.15 to \$1.25 billion	\$1.25 to \$1.35 billion
Capital Expenditures	\$3.1 to \$3.3 billion	\$2.7 to \$2.9 billion
Cash Income Taxes/(Refund) <sup>(4)</sup>	(\$200) to (\$300) million	(\$200) to (\$300) million

<sup>(1)</sup> For definitions of non-GAAP metrics and reconciliations to GAAP figures, see the attached schedules and our Investor Relations website.

<sup>(2)</sup> Outlook measures in this chart and the accompanying schedules (i) exclude the effects of Special Items, goodwill impairments, future changes in our operating or capital allocation plans, unforeseen changes in regulation, laws or litigation, and other unforeseen events or circumstances impacting our financial performance and (ii) speak only as of Aug. 6, 2024. See "Forward-Looking Statements."

<sup>(3)</sup> Assumes no discretionary pension plan contributions during 2024.

<sup>(4)</sup> Includes an approximately \$700 million tax refund received during the first quarter 2024.

Adjusted EBITDA guidance reduced \$200m. Net CFO range raised to \$4,100 - \$4,500 from \$2,800 - \$3,200 prior to reflect working capital benefit of PCF prepayment.

#### Adjusted EBITDA Outlook

Twelve Months Ended December 31, 2024

	Range	
	Low	High
<b>Net (loss) income</b>	<b>\$ (300)</b>	<b>100</b>
Income tax expense	50	250
Total other expense, net	1,190	920
Depreciation and amortization expense	2,900	2,700
Stock-based compensation expense	60	30
<b>Adjusted EBITDA</b>	<b>\$ 3,900</b>	<b>4,000</b>

#### Free Cash Flow Outlook

Twelve Months Ended December 31, 2024

	Range	
	Low	High
<b>Net cash provided by operating activities</b>	<b>\$ 4,100</b>	<b>4,500</b>
Capital expenditures	(3,100)	(3,300)
<b>Free Cash Flow</b>	<b>\$ 1,000</b>	<b>1,200</b>

<sup>(1)</sup> For definitions of non-GAAP metrics and reconciliation to GAAP figures, see the above schedules and our Investor Relations website.

<sup>(2)</sup> Outlook measures in this chart (i) exclude the effects of Special Items, goodwill impairments, future changes in our operating or capital allocation plans, unforeseen changes in regulation, laws or litigation, and other unforeseen events or circumstances impacting our financial performance and (ii) speak only as of Aug. 6, 2024. See "Forward-Looking Statements."

<sup>(3)</sup> Assumes no discretionary pension plan contributions during 2024.

<sup>(4)</sup> Includes an approximately \$700 million tax refund received during the first quarter 2024.

Source: [Lumen 2Q24 earnings press release](#).

## Appendix II: Mass Markets Strategic Options

Lumen has long discussed an interest in exploring [strategic options](#) for its Mass Market consumer business to generate incremental cash. Management has stated a “[one-and-done](#) kind of deal” is less likely than a more piecemeal, market-by-market (i.e., state-by-state) approach involving a menu of potential structures (outright divestiture, wholesaling fiber, JV). Lumen’s Quantum Fiber footprint remains underpenetrated (~25% as of 2Q24) and in the near-term we believe Lumen will wait for a more favorable interest rate environment and continue investing in the business.

At 7.0x EBITDA (versus ~5.5x EBITDA received in Lumen’s previous ILEC [divestiture](#) to Apollo in 2021 to reflect higher fiber penetration and the 6.25x median of 12 [precedent](#) transactions) we estimate that an outright sale of the business (however unlikely near-term) would likely fetch net proceeds of ~\$6bn. While a transaction along these lines would be slightly deleveraging and FCF accretive, we struggle to see why *pro forma*, the company – which would still be significantly levered, generating little to no FCF, and grappling with secular decline – would trade at a substantially better multiple than it does presently. We view the level of potential value creation to be marginal. Any partial or JV-type divestments would be even less catalytic.

Mass Markets Valuation			
'24E Mass Markets revenue	\$2,732		
Assumed margin	40%		
EBITDA	\$1,093		
Multiple	<b>7.0x</b>		
Gross proceeds	\$7,649		
less: taxes	<u>(1,377)</u>		
Net proceeds	\$6,272		
Lumen Core	<b>Current</b>	<b>Adjustment</b>	<b>Pro forma</b>
EBITDA	3,808	(1,093)	2,715
Cash interest	(1,167)	439	(728)
Capex	(2,806)	900	(1,906)
FCF (ex. tax refund)	(304)	246	(58)
Current net debt	17,819	(6,272)	11,547
Net leverage	<b>4.7x</b>		<b>4.3x</b>

*Source: Kerrisdale analysis.*



## Appendix III: DCF Analysis

### Discounted Cash Flow Analysis (ex. Custom Networks)

Year	Projected																										
	2024	2025	2026	2027	2028	2029	2030	2031	TV																		
<b>Total Revenue</b>	\$12,979	\$12,306	\$11,804	\$11,503	\$11,267	\$11,086	\$10,864	\$10,647	\$10,541																		
<i>Growth</i>		-5%	-4%	-3%	-2%	-2%	-2%	-2%	-1%																		
<b>EBITDA</b>	4,008	3,719	3,699	3,551	3,402	3,320	3,259	3,194	3,131																		
<i>Margin</i>	31%	30%	31%	31%	30%	30%	30%	30%	30%																		
<i>Growth</i>		-7%	-1%	-4%	-4%	-2%	-2%	-2%	-2%																		
EBIT	1,052	848	926	743	660	644	652	639	601																		
<b>NOPAT</b>	\$1,052	\$848	\$926	\$743	\$660	\$644	\$652	\$639	\$601																		
Add: D&A	2,956	2,871	2,773	2,808	2,742	2,676	2,607	2,555	2,530																		
Less: Capex	(2,806)	(2,620)	(2,608)	(2,485)	(2,383)	(2,329)	(2,282)	(2,236)	(2,214)																		
Add: Other	\$1,021	\$430	(\$302)	\$12	\$0	\$0	\$0	\$0	\$0																		
<b>Unlevered Free Cash Flow</b>	\$2,223	\$1,528	\$788	\$1,078	1,018	991	978	958	917																		
<b>Discounted Value of Unlevered FCF</b>	2,124	1,333	628	784	676	601	541	484	423																		
Interest Expense (Net)	(1,167)	(1,294)	(1,244)	(1,201)	(1,201)	(1,200)	(1,199)	(1,198)	(1,197)																		
<b>Levered FCF</b>	\$1,056	\$234	(\$456)	(\$122)	(\$182)	(\$208)	(\$221)	(\$240)	(\$280)																		
Terminal EBITDA	3,131	<table border="1"> <thead> <tr> <th colspan="2">WACC Assumptions</th> </tr> </thead> <tbody> <tr> <td>Risk Free Rate</td> <td>3.50%</td> </tr> <tr> <td>Equity Risk Premium</td> <td>8.5%</td> </tr> <tr> <td>Equity Beta</td> <td>0.93</td> </tr> <tr> <td>Equity Cost of Capital</td> <td>8.2%</td> </tr> <tr> <td>Equity Capitalization</td> <td>25%</td> </tr> <tr> <td>Cost of Debt</td> <td>10.0%</td> </tr> <tr> <td>Debt Capitalization</td> <td>75%</td> </tr> <tr> <td>WACC</td> <td>9.5%</td> </tr> </tbody> </table>								WACC Assumptions		Risk Free Rate	3.50%	Equity Risk Premium	8.5%	Equity Beta	0.93	Equity Cost of Capital	8.2%	Equity Capitalization	25%	Cost of Debt	10.0%	Debt Capitalization	75%	WACC	9.5%
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Terminal value	\$18,784																										
Discounted terminal value	8,660																										
Discounted value of interim UFCF	7,593																										
Implied enterprise value	16,252																										
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Implied equity value	(2,832)																										
/ FDSO	1,017																										
<b>Estimated fair value per share</b>	\$0.00																										

Source: Kerrisdale analysis.

## Appendix IV: Trading Comparables

Telco Trading Comparables								
	Mkt. Cap.	TEV	EV / EBITDA		Div. Yield	'25E Growth		
			2024E	2025E		Sales	EBITDA	Net Lev.
Verizon	\$171,559	\$343,474	7.0x	6.9x	6.5%	1.8%	1.9%	3.4x
AT&T Inc.	\$139,282	\$299,981	6.7x	6.5x	5.7%	1.6%	2.5%	3.0x
Frontier Comm.	\$7,168	\$17,220	7.7x	7.3x	NA	1.7%	5.5%	4.9x
		<b>Mean</b>	7.1x	6.9x	6%	2%	3%	4.0x
		<b>Median</b>	7.0x	6.9x	6%	2%	3%	4.0x
Lumen Technologies	\$6,101	\$25,845	6.8x	7.3x	NA	-5.2%	-7.6%	4.5x

*Source: Bloomberg consensus. Lumen estimates per Kerrisdale forecast.*

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On July 26, 2024, the Securities and Exchange Commission ("SEC") brought a complaint against Andrew Left, who runs Citron Research. In that complaint, the SEC effectively alleged that (i) by making public communications arguing that certain securities are longs or shorts, and (ii) then very soon after those communications were made public, trading in the opposite direction of those communications (selling a security that he expressed was a long, or buying to cover a short position in a security that he expressed was a short), that Left was committing securities fraud.

Prior to this complaint, Kerrisdale's understanding of securities law was that by not releasing false or misleading information in one's communications and by disclosing to the public that one is long or short a given security, and therefore biased, that there needed to be no restrictions on one's trading of the covered security. Furthermore, as can be seen in the disclaimers above, Kerrisdale discloses that it will transact in the securities covered herein following any communication (i.e. we will buy or sell the security post publication), and may be long, short or neutral at any time after any communication. Kerrisdale also discloses that it is not making any recommendations to anyone to do any transactions whatsoever with regard to a security – we are only explaining why we are long or short a stock, at a given point of time.

But, in light of this complaint, and following its logic, perhaps it would help investors to just assume the following: assume we have shorted lots and lots of the stock of the Covered Issuer immediately prior to publication, and assume we will buy lots and lots of the stock of the Covered Issuer to cover our short position immediately subsequent to publication.

To us, providing a hypothetical but potentially inaccurate trading intention, upon each communication of opinion about a security, doesn't make much sense. Rather, we think the longstanding standard of disclosing our directional bias, and avoiding false or misleading information in our fundamental arguments, is the appropriate standard, as

opposed to communicating to readers a future trading intention that may not turn out to be accurate. But the SEC complaint implies that we may know how we will trade a security subsequent to publication, and that if the trading involves closing out a lot of the position shortly after publication, then we'd be committing securities fraud if investors didn't know that. Certainly, we assume that we can't be expected to provide trading updates on each trade subsequent to publication as we make them, which seems like quite an unreasonable demand of us for expressing our own views on why we ourselves are long or short a stock (to reiterate, we are not making a recommendation – do your own research and make your own opinion). So in the absence of second-by-second trading updates and so that investors don't feel wronged that we may close out of a lot of a position very quickly after publishing, just assume that that is exactly what we'll do. Then, you won't be, er, defrauded. Or something like that.

Furthermore, the complaint also indicated that it was securities fraud when Left communicated price targets, but closed parts or all of his positions well before these price targets were reached. We also communicate prices that we think some securities are worth, in our reports. They're not "price targets". The market can stay irrational far longer than one can stay solvent and thus Kerrisdale doesn't target any price in its reports. Rather, we estimate a security's or company's "fair value", using some valuation methodologies. For instance, we believe that certain stocks are worth zero, as in \$0.00. Worthless. But Kerrisdale has never held a short until it reaches \$0.00. The fair value of a stock may be \$0.00 in our opinion but the prices at which we target covering the short position will vary based on a wide variety of reasons, many of which are not fundamental in nature and most of which relate to Kerrisdale trying to fulfill its fiduciary duties to its client accounts. Again, note that we're not recommending readers of our communications to buy, sell, short or otherwise transact in any securities; we are just explaining our own reasons for having a long or short position in a given security. Given that no recommendations are being made (we're not your financial advisor, let alone even know who you are), we are certainly not recommending that you, or anyone, hold a security until our estimated fair value of the security is reached. But, again following the logic of the complaint, it seems that we should ask you to please assume that we will buy to cover shares of the Covered Issuer long before any estimate of fair value of the share price that we discuss in the report is reached. So please assume that, apparently.