Jefferson County PUD

10-Year Forecast Analysis

February 29, 2024

CCG CONSULTING

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SUMMARY

This report summarizes the recently completed 10-year forecast for the broadband business at the Jefferson Public Utility District.

This forecast includes the latest known facts about the broadband business. For example, this forecast reflects the most current retail and whole rates that have been approved by the Board. The forecast includes the known facts from the various grant awards made to the PUD. CCG had created a forecast report in 2022 that was largely speculative and was before JPUD had won any broadband grants. This report represents the first 10-year forecast based on all of the facts available to us.

The good news is that the forecast shows that there is a high likelihood that JPUD will be successful in the broadband business. There are no guarantees since a new business line might not unfold as expected. But using everything we know, the conservative forecasts prepared for this analysis show the broadband business ought to reach a cash flow positive position.

There are factors that could affect future cash flows, and this report explores them in a sensitivity analysis. Some of the factors that could change the forward trajectory of the broadband business include:

- Customer Penetration Rate. The forecast assumed a customer penetration rate after five years of 63.7%. That penetration is the combined level of the retail and wholesale customers combined. The penetration is based on the basis for the grant funding being awarded to the PUD. Our analysis shows that the business will maintain positive cash flow with a penetration rate 5% lower than that, or 58.7%. When considering the vast majority of the business plan involves building fiber in areas where there is no other broadband competition, it seems reasonable and likely that the PUD will eventually surpass the 63.7% penetration rate.
- Retail and Wholesale Prices. The current retail and wholesale rates are based on the assumption that the lowest-priced JPUD retail rate is $65. That rate will eventually achieve a positive cash flow position, , but the business cannot sustain lowering the rates by $5.
- Level of Wholesale Sales. The forecast assumes that ISPs will win 33% of customers with the rest being JPUD retail sales. The business will have a hard time remaining cash flow positive if wholesale sales exceed 50%.
- Inflation and Rate Increases. The base forecast includes inflation at 2.5% per year but includes no assumed future rate increases. It's likely that the PUD will raise rates from time to time to compensate for expense increases. Any rate increase will improve the forecast.

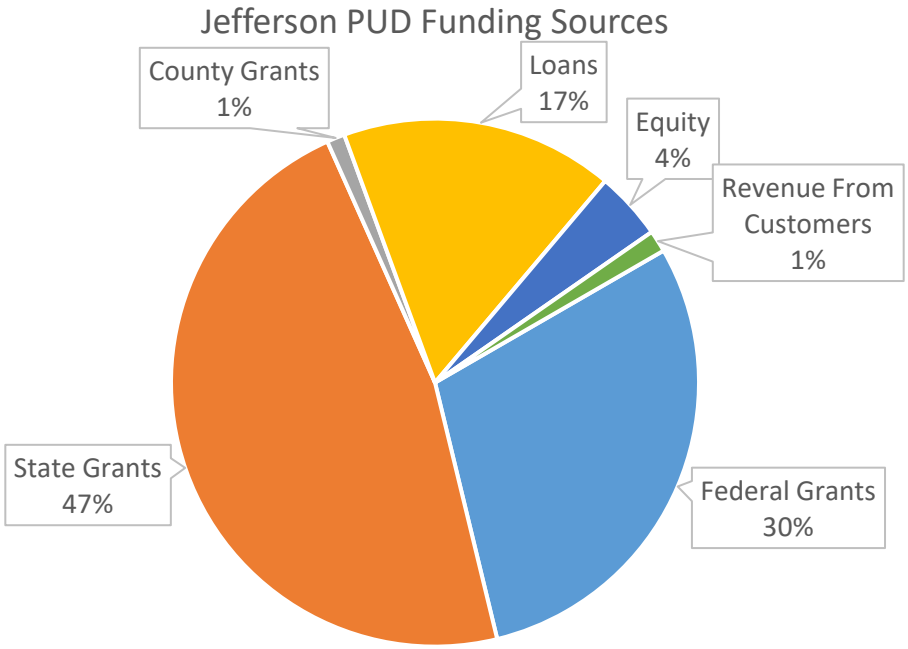
FORECAST ASSUMPTIONS

Following are the key assumptions used to create the 10-year forecast.

Funding Assumptions

The broadband business is the result of JPUD winning seven different federal and state grant and/or loan programs. Even where loans are involved, the interest rates on the loans are being subsidized by the State or Federal government. There is one additional grant program shown in the forecast. The PUD plans to pursue the upcoming BEAD grants that are part of the $42.5 billion federal grant program that was funded by the 2021 Infrastructure Investment and Jobs Act. The forecast assumes the BEAD grant request will be for approximately $9.8 million and will be 100% funded by the combination of State and Federal grants.

The following pie chart shows the overall composition of the funding for broadband. The PUD has been adept in pursuing the grant and loan programs. CCG Consulting works nationwide, and we don't know of another ISP, except for a few Tribes, that has gotten 77% of broadband expansion funded by grants, particularly with the debt also being through subsidized interest rates. The 4% equity investment required of the PUD is by far the smallest we have ever seen.



Revenue Assumptions

Retail vs. Wholesale. JPUD is both a retail ISP and offers wholesale rates on an open-access network for other ISPs. One of the most important assumptions in the forecast is that wholesale ISPs will win 1/3 of the customers on the JPUD network. In the financial results presented below, there is a sensitivity analysis that quantifies the impact of ISPs winning a smaller or greater share of customers.

JPUD Retail Rates. Following are the current JPUD Retail Rates.

Residential Retail Rates	
150/150 Mbps	$ 65
1/1 Gbps	$ 75
1/1 Gbps+	$ 95
3/3 Gbps	$150
3/3 Gbps+	$175
Low-Income Discount	$ 20

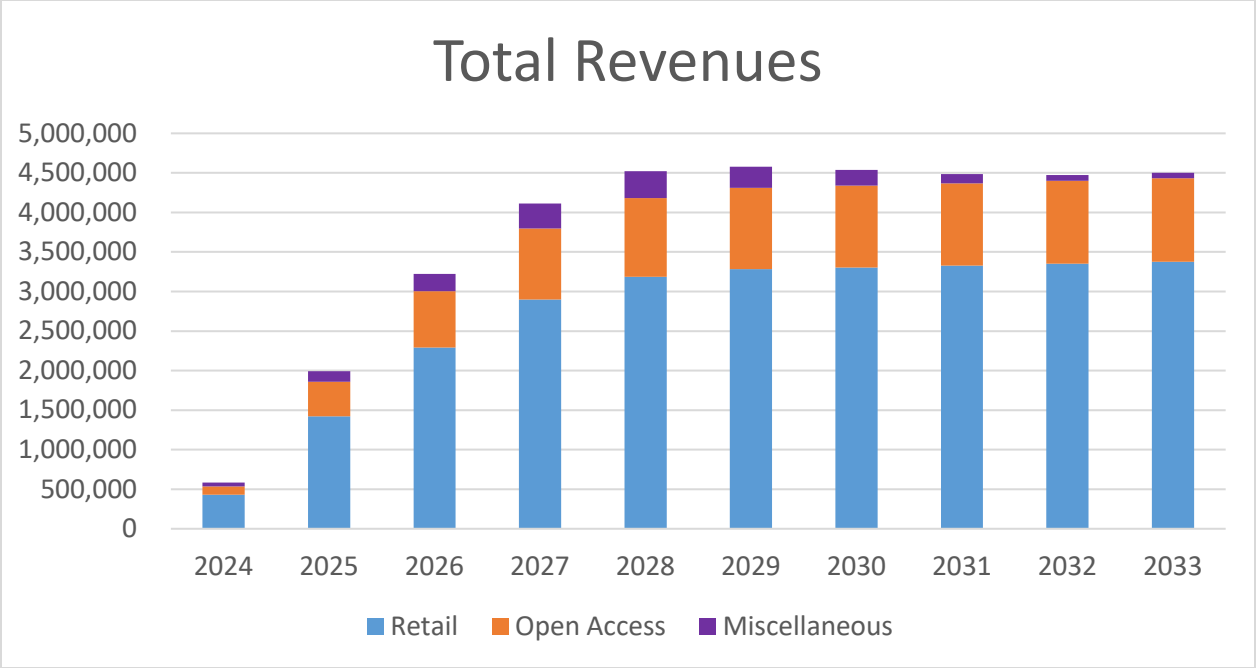
Business Retail Rates	
1/1 Gbps	$ 95
3/3 Gbps	$200
5/5 Gbps	$375

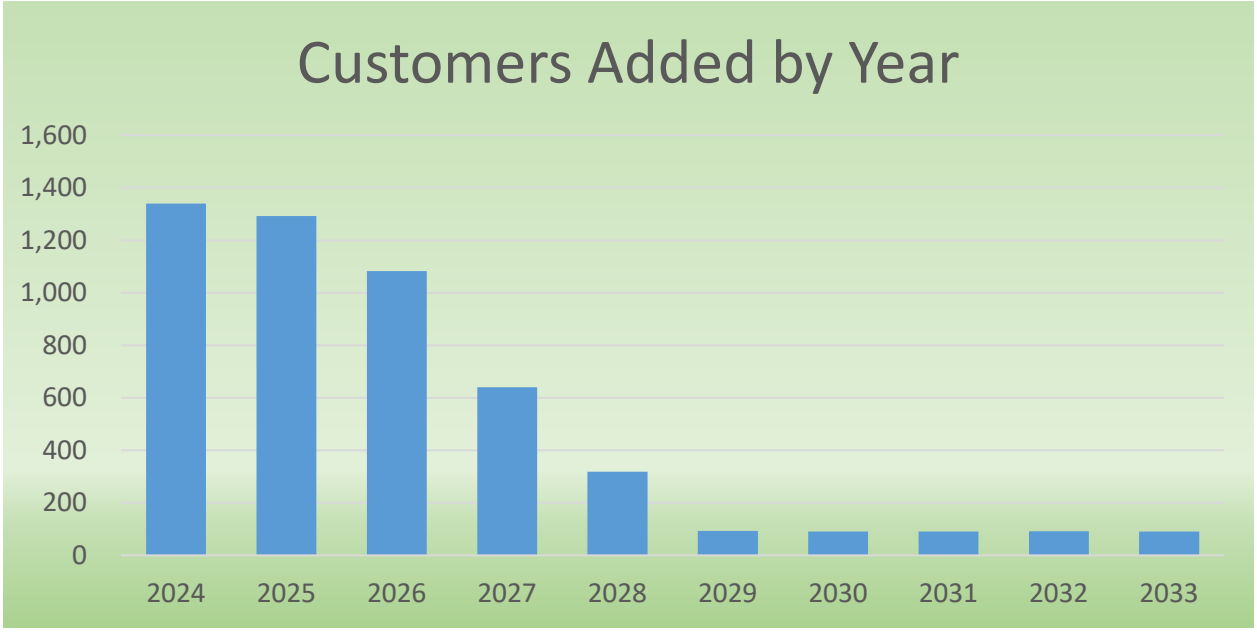
JPUD Wholesale Rates. Following are the current JPUD Wholesale rates that are charged to other ISPs for using the network. These rates represent the option where an ISP buys a 'loop' from the PUD to reach a customer. There is another option for ISPs to buy a loop that is bundled with a connection to the Internet, but JPUD doesn't expect that many ISPs will choose that option.

Residential Wholesale Rates	
150/150 Mbps	$ 47
1/1 Gbps	$ 54
3/3 Gbps	$117
Low-Income Discount	$ 10

Business Wholesale Rates	
1/1 Gbps	$ 54
3/3 Gbps	$117
5/5 Gbps	$287

Summary of Revenues. The following chart shows the mix of revenues in the base forecast. Revenues are a mix of the retail and wholesale revenues using the rates listed above, plus miscellaneous revenues like installation fees.





Comparative Retail Rates

Following looks at the retail broadband rates for a few key ISPs. This provides a way to compare the JPUD broadband rates.

Wave Broadband is a subsidiary of Astound Broadband[1] with headquarters in Kirkland, Washington, and provides service in Jefferson County. The company provides broadband, voice, and video services.

[1] https://www.astound.com/

Astound Broadband serves over 1 million customers in California, Illinois, Massachusetts, Oregon, New York, Pennsylvania, Texas, the DC metro area, and Washington State.

In January 2022, the company announced its regional divisions would become Astound Broadband. RCN Corporation, Grande Communications, Wave Broadband, enTouch Systems, and Digital West.

In Jefferson County, Wave competes with a cable network.

Residential Cable Broadband		
100/5 Mbps	$ 69.95	400 Gigabytes of Data
300/10 Mbps	$ 69.95	500 Gigabytes of Data
500/10 Mbps	$ 89.95	1 Terabyte of Data
600/10 Mbps	$ 89.95	1 Terabyte of Data
1 Gbps/10 Mbps	$ 99.95	Unlimited
1.5 Gbps/50 Mbps	$117.95	Unlimited
Router	$ 14.00	
Internet Infrastructure Fee	$ 12.97	
Unlimited Data	$ 25.00	

There are a few key things to note about the Wave rates. First, the 100/5 and 300/10 products have a data cap. Data caps are a significant issue for customers. OpenVault recently announced that nationwide average household broadband usage is 641 gigabytes per month, which is higher than the Wave data caps.

Wave broadband customers also pay extra fees. In addition to the base broadband rate, every customer pays a $12.97 Internet infrastructure fee. This fee is an example of what the industry labels as a hidden fee - because there is no basis for the fee and it's just a way to advertise a lower base rate. Customers are also charged $14 for a broadband router. This means that a typical customer will pay $26.97 more than the listed prices. For example, the base bill for a 300/10 M customer is $96.92 before any fees for a customer that doesn't exceed the data cap.

Rock Island Communications[2] is the broadband arm of Orcas Power & Light Cooperative (OPALCO). OPALCO provides service to San Juan County since 1937. Rock Island Communications was started in 1996. Currently, the company is building a fiber network to reach every home and business in the county.

Residential Fiber Broadband	
100/100 Mbps	$ 85
200/200 Mbps	$100
500/500 Mbps	$130
1/1 Gbps	$185
2/2 Gbps	$285

Comcast Xfinity[3] is the largest ISP in the country and markets using the "Xfinity" brand name. Comcast serves Seattle and many other cities in western Washington. The company offers the traditional triple play

[2] https://rockisland.com/

[3] https://www.xfinity.com

of cable TV, broadband, and voice services. Comcast had 2023 revenues of $121 billion. At the end of the third quarter of 2023, the company had 32.2 million broadband customers and 14.1 million cable customers. In addition to providing triple-play services, the company owns a number of media assets like NBC, Telemundo, MSNBC, CNBC, USA Network, The Golf Channel, Syfy, numerous regional sports networks, Universal Pictures (and theme parks), Dream Works, and the Philadelphia Flyers hockey team and arena.

Residential Standalone Broadband

Following are the most recent list prices for standalone broadband. These rates include a $3 rate increase announced in January 2024. New customers are generally not offered products below the 200 Mbps tier.

Connect	75/5 Mbps	$ 64
Connect More	200/5 Mbps	$ 76
Fast	400/5 Mbps	$ 86
Superfast	800/15 Mbps	$ 96
Gigabit	1000/35 Mbps	$106
Gigabit Extra	1200/35 Mbps	$116
WiFi Modem		$ 15
WiFi Modem (Gigabit Pro)		$ 19.95

Customers must pay $15 more than the listed prices to use the modem. A customer buying the 200/5 Mbps broadband product has a total monthly fee of $91.

Comcast has data caps in much of the country – but not in every market. The monthly data cap varies between 1 and 1.2 terabytes of total data per month. A terabyte is 1,000 gigabytes. When customers exceed the cap for a given month (the usage adds together both download and upload data usage), Comcast bills $10 for each additional fifty gigabytes of data used, with a maximum of $50 extra.

Charter Communications (Spectrum)[4] is the second-largest ISP in the country, with over 30.5 million broadband customers and 14.1 million cable TV customers at the end of the third quarter of 2023. The company brands its triple-play products as "Spectrum." Charter had revenues of $54 billion in 2022. The company reached its current size after its 2016 acquisitions of Time Warner Cable and Bright House Networks. Charter is the ISP in most of the large cities in California.

Standalone Residential Broadband

Spectrum Internet	300/10 Mbps	$ 84.99
Spectrum Internet Ultra	500/20 Mbps	$104.99
Spectrum Internet Gig	1 Gbps/35 Mbps	$114.99

The company has raised rates by $5 per year for the last six years, with the latest increase announced in the summer of 2023. There are no data caps on the monthly broadband download. However, in June 2020, Charter asked the FCC to allow data caps but was denied. The company has been prohibited from using

[4] https://www.spectrum.com/

data caps as a condition for being allowed to purchase Time Warner Cable. The FCC agreement expires in 2024, and it seems likely that the company will implement data caps.

Summary. JPUD's retail gigabit price of $75 is far less expensive than Wave, the local cable company, and the other ISPs above. There are some small ISPs around the country with lower rates than JPUD, but not many.

EXPENSE ASSUMPTIONS

Expenses are the recurring costs of operating the business once it's built. When building financial forecasts, we strive to be conservatively high with expense estimates. The primary expense assumptions are as follows:

Employees: The PUD projects having five full-time broadband employees this year, growing to eight in 2025 and nine in 2026. These are mostly technical positions, and the assumption is that electric customer service will absorb the broadband customer service functions.

Sales and Marketing Expenses: Projected marketing expenses are small in 2024 since customers are currently pre-signing during the construction process. Current marketing expense is mostly for the software used to solicit and track customer sales. The marketing budget will increase beginning in 2025 with efforts to reach out to potential customers.

Maintenance Expenses: There are a number of routine maintenance expenses that the new business would incur on an incremental basis. These include:

- Vehicle expenses to maintain the vehicles required for the field technicians.
- Computer expenses to support the computers used by employees.
- Tools and equipment expenses.
- Power expenses to provide power to the network.
- Maintenance Agreements. There are maintenance agreements in place for various electronics.
- Internet Backbone. Fees for carrying broadband to and from the Internet.

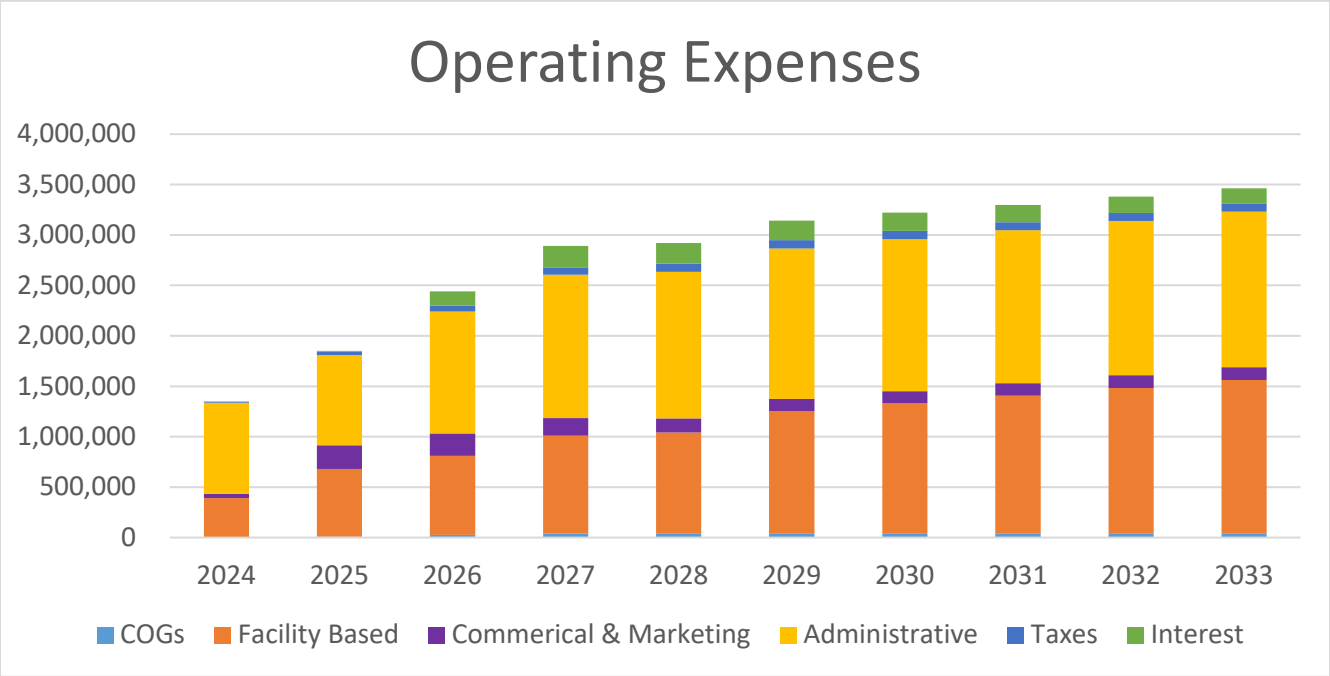
Taxes: The PUD is subject to State B&O tax on revenues. The forecasts do not include any taxes that are assessed to customers, and those collections are passed on to the tax authorities.

Overhead Expenses: There is substantial overheads being charged by the PUD in 2024 based on assigning 7% of PUD overheads to the business. In future years, the assessment will be based on the relative number of broadband customers compared to customers of the other utilities.

Depreciation and Amortization Expense: The forecasts include both depreciation and amortization expense. These are the expenses recognized by writing off assets over their expected accounting lives.

Interest Expense. The forecast includes interest expense on the various loans. All of the loans in the forecast have low interest rates that are subsidized by the State or Federal government.

Summary of Expenses. The following chart shows the composition of expenses over the 10-year forecast.



Capital Cost Assumptions

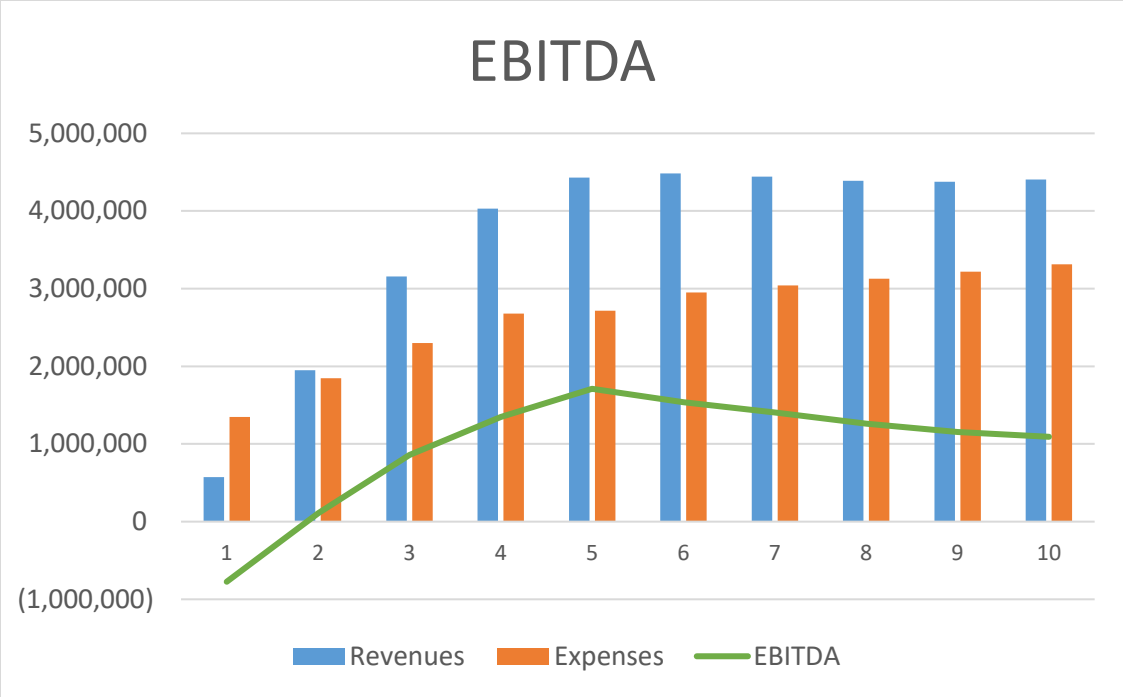
The telecom industry uses the term capital costs to describe the cost of assets required to operate the broadband business. Assets have been estimated for the various grants by outside engineers.

Following is a summary of the expected assets to be built by the end of the various grants in 2028.

Fiber	$55,049,193
Fiber Drops	$ 8,413,798
Core Electronics	$ 1,279,791
Customer Electronics	$ 3,019,065
Operational Assets	$ 550,133
Total	$68,311,980

10-Year Forecast Results

The 10-year forecast is purposefully conservative. Perhaps the best way to show that is with the following graph, which shows revenues, expenses, and EBITDA (which is the gross margin) over the next ten years.



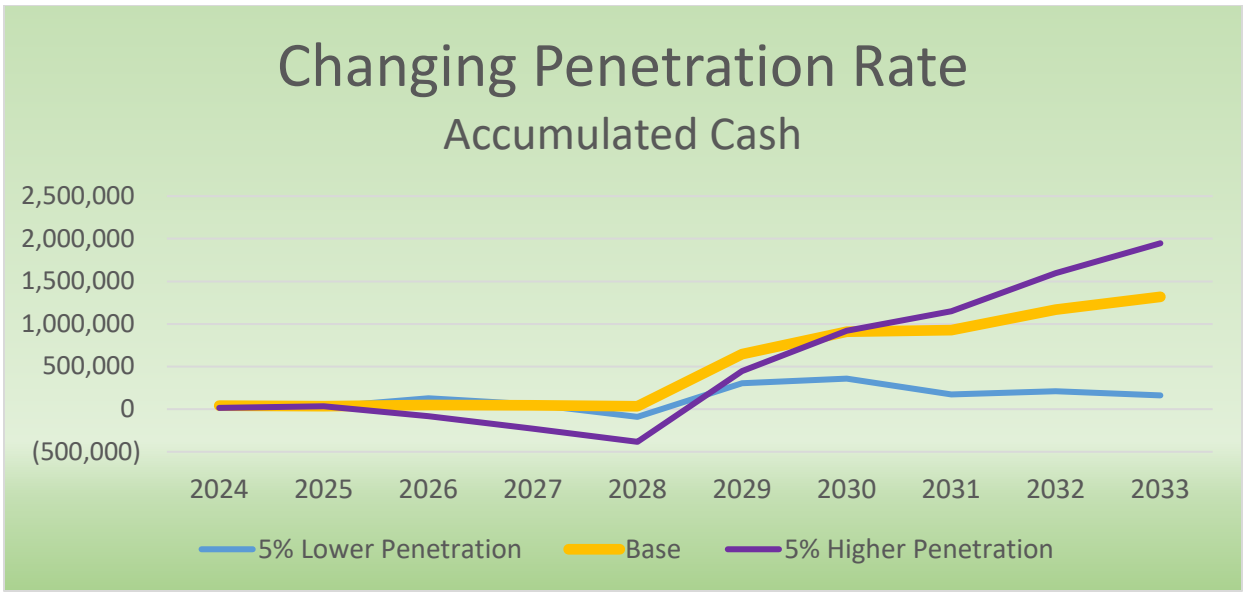
These results show that revenues reach a peak in 2028 and then erodes over time. This is due to several assumptions. First, we assume that the customer penetration rate will peak and will not continue to grow. We also have built inflation into the expenses, but never included any rate increases in the revenues.

Note that the forecasts show an accumulation of future cash that we suspect will not happen. It seems likely that any excess cash generated by the business would be roiled back into the business to connect additional customers in the grant areas.

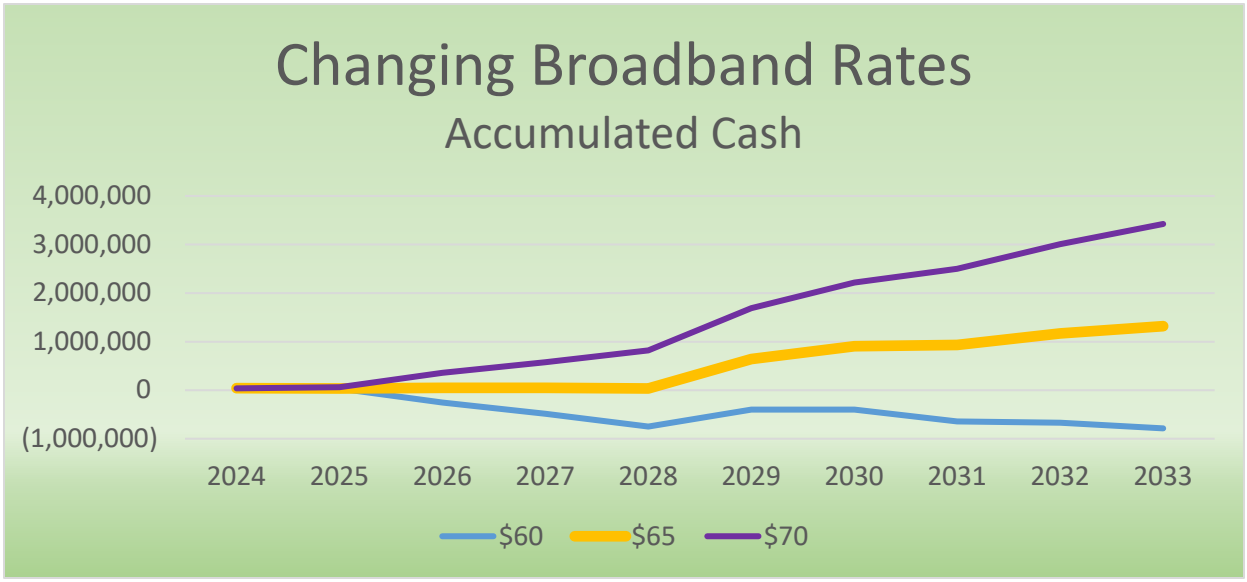
Sensitivity Analysis

In preparing the presentation we looked at the impact of changing a few key variables.

Changing Customer Penetration Rate. The base customer penetration rate was different for each of the various grant programs, with most assuming an eventual 60% market penetration rate, but a few assuming 65% or 70%. The overall penetration in the forecast is 63.7%. The following chart shows the impact of changing the overall penetration rate either 5% higher or 5% lower. The chart shows that the business can remain cash positive even if overall penetration rates are lower than predicted.

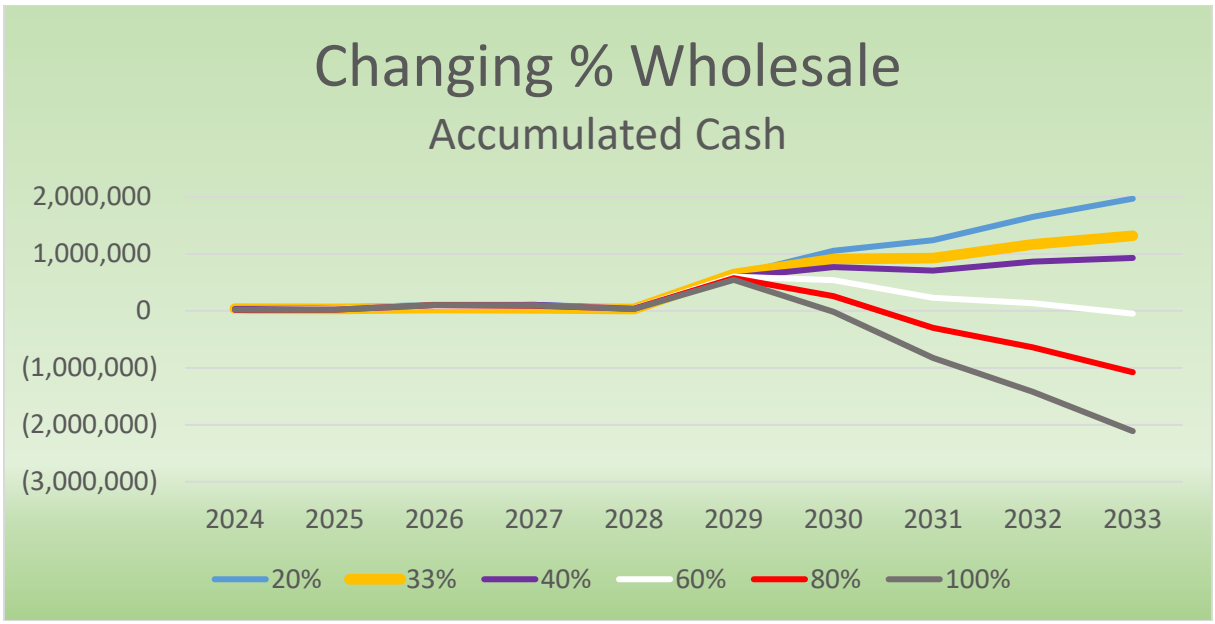


Changing Broadband Rates. The other most important variable is pricing, and the following graph looks at the impact of changing retail and wholesale rates. The base study assumes that based retail prices start at $65. The sensitivity changes all retail and wholesale rates by $5 per month.

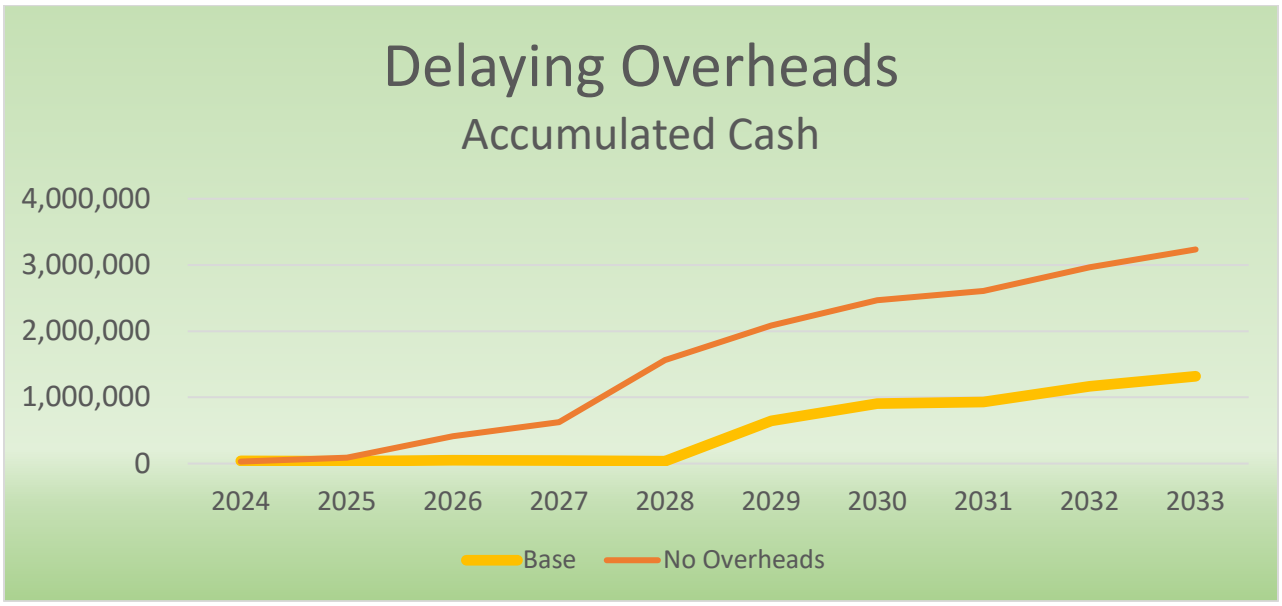


Changing The Mix of Wholesale Rates

The base analysis assumed that wholesale ISPs would capture 33% of all customers. The following chart shows the impact of varying the percentage won by ISPs from 20% of the market to 100% of the market.



PUD Overheads. Most corporations do not allocate corporate overheads to newly formed business ventures until the new ventures begin to succeed. The following graph shows the impact of not allocating not allocating PUD overheads to broadband in the sixth year. That date was chosen since it is when the grant construction and customer acquisition is completed. As can be seen in the graph, the broadband business would generate some modest positive cash in the early years by eliminating or paring back the overhead allocations. This graph does not reflect that the PUD is projected to provide equity to the broadband business in the early years which is then used to repay the overheads.



Future Rate Increases. The following chart compares the current forecast, which includes no rate increases over ten years to a scenario that raises retail and wholesale rates by 2% each year starting in 2029. Rate increases will be needed if the PUD wants to maintain the margins for the broadband business.

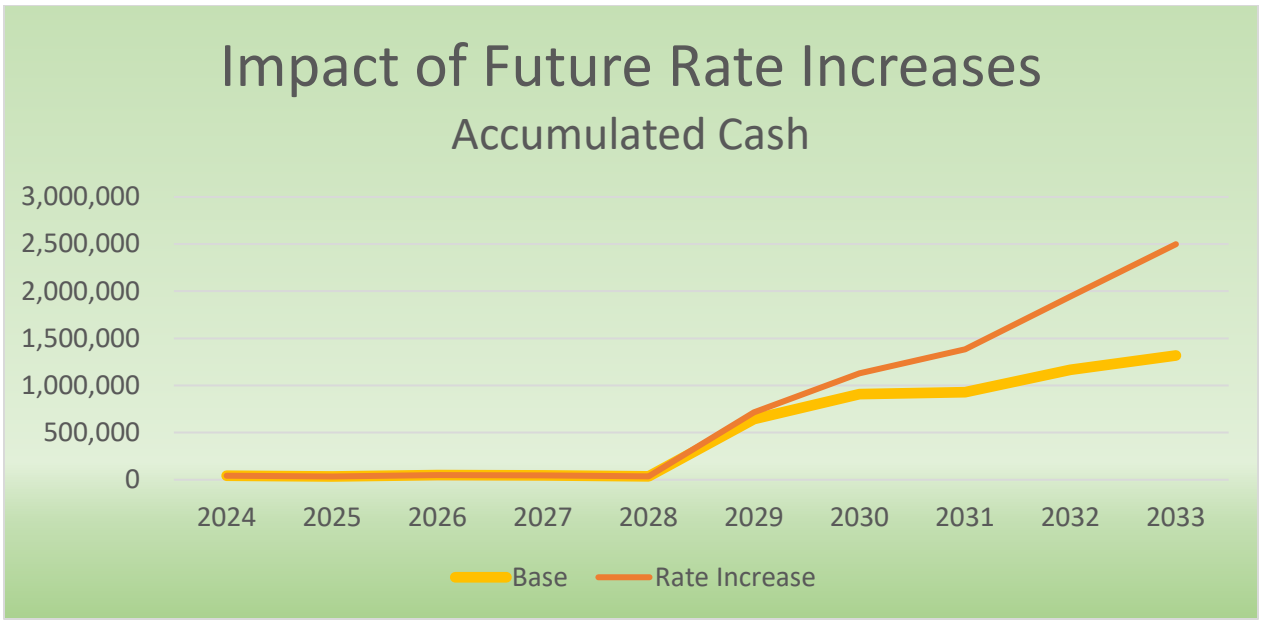

Impact of Future Rate Increases
Accumulated Cash
3,000,000
2,500,000
2,000,000
1,500,000
1,000,000
500,000
0
2024
2025
2026
2027
2028
2029
2030
2031
2032
2033
Base
Rate Increase

EXHIBIT I: SUMMARY OF SENSITIVITY ANALYSIS

		2028 Assets	2028 Penetration	Loan	Equity	Grant	Total Financing	Year 5 Cash	Year 10 Cash
1	**Base (33% Wholesale)**	$68.3 M	63.7%	$11.4 M	$3.2 M	$53.1 M	$67.7 M	$0.04 M	$1.32 M
2	**5% Higher Penetration**	$69.1 M	68.7%	$11.4 M	$3.2 M	$53.1 M	$67.7 M	($0.38 M)	$1.95 M
3	**5% Lower Penetration**	$67.8 M	58.8%	$11.4 M	$3.2 M	$53.1 M	$67.7 M	($0.09 M)	$0.16 M
4	**20% Wholesale**	$68.3 M	63.7%	$11.4 M	$2.8 M	$53.1 M	$67.3 M	$0.05 M	$1.97 M
5	**40% Wholesale**	$68.3 M	63.7%	$11.4 M	$3.4 M	$53.1 M	$67.9 M	$0.04 M	$0.93 M
6	**60% Wholesale**	$68.3 M	63.7%	$11.4 M	$4. 0M	$53.1 M	$68.6 M	$0.04 M	($0.05 M)
7	**80% Wholesale**	$68.3 M	63.7%	$11.4 M	$4.6 M	$53.1 M	$69.2 M	$0.04 M	($1.08 M)
8	**100% Wholesale**	$68.3 M	63.7%	$11.4 M	$5.3 M	$53.1 M	$69.8 M	$0.03 M	($2.11 M)
9	**$5 Higher Rates**	$68.3 M	63.7%	$11.4 M	$3.2 M	$53.1 M	$67.7 M	$0.82 M	$3.42 M
10	**$5 Lower Rates**	$68.3 M	63.7%	$11.4 M	$3.2 M	$53.1 M	$67.7 M	($0.75 M)	($0.79 M)
11	**Future Rate Increases**	$68.3 M	63.7%	$11.4 M	$3.2 M	$53.1 M	$67.7 M	$0.04 M	$2.50 M
12	**No Overheads for 5 Years**	$68.3 M	63.7%	$11.4 M	$1.1 M	$53.1 M	$64.8 M	$1.56 M	$3.23 M

EXHIBIT II: 10-YEAR FORECAST

		2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
	Income Statement										
	Operating Revenue										
1	Telephone Revenue	0	15,945	61,920	94,260	103,440	105,900	105,720	106,260	107,580	108,600
2	Broadband Revenue	310,003	1,278,128	2,097,828	2,663,844	2,935,771	3,024,425	3,038,794	3,052,522	3,066,509	3,080,117
3	Open Access Revenue	107,666	437,843	713,784	899,966	995,488	1,027,727	1,034,624	1,041,521	1,049,066	1,055,962
4	Enterprise Revenue	120,000	126,000	132,300	138,915	145,861	153,154	160,812	168,853	177,296	186,161
5	Installation Revenue	19,688	106,317	193,500	295,313	336,000	267,375	198,000	114,000	69,938	68,250
6	Miscellaneous Revenue	13,500	13,350	10,950	6,450	3,150	900	900	900	900	900
7	Existing Revenue	13,056	13,056	13,056	13,056	0	0	0	0	0	0
8	Total Revenues	583,913	1,990,639	3,223,338	4,111,804	4,519,710	4,579,481	4,538,850	4,484,055	4,471,288	4,499,990
9	Less Bad Debt:	(9,705)	(39,223)	(65,121)	(82,937)	(91,271)	(93,937)	(94,362)	(94,790)	(95,250)	(95,689)
10	Net Revenues	574,208	1,951,416	3,158,217	4,028,868	4,428,439	4,485,544	4,444,487	4,389,265	4,376,039	4,404,302
	Operating Expenses										
11	Cost of Goods Sold	0	7,253	25,650	38,703	41,689	42,739	42,573	41,457	41,886	42,261
12	Vehicle Expense	40,700	46,415	54,687	55,199	55,724	59,682	60,234	60,799	61,379	61,973
13	Tools & Equipment	0	1,700	4,162	4,245	4,330	4,416	4,505	4,595	4,687	4,780
14	Building Maintenance	53,880	53,880	53,910	53,941	53,972	54,905	54,938	54,972	55,006	55,042
15	Computer	4,422	5,712	7,985	8,184	7,064	7,241	7,422	7,608	7,798	7,993
16	Network Maintenance	85,770	269,972	453,924	636,080	662,141	861,274	932,062	1,002,013	1,072,336	1,143,041
17	Maintenance Contracts	86,004	172,000	86,000	88,150	90,354	92,613	94,928	97,301	99,734	102,227
18	Interconnection Expense	0	1,398	1,694	646	328	98	98	98	98	98
19	Internet Backbone	121,041	121,041	121,041	124,067	127,169	130,348	133,607	136,947	140,370	143,880
20	Advertising	6,000	179,400	151,200	91,600	48,600	27,933	28,379	28,938	29,511	30,099
21	Billing	5,843	24,232	40,406	52,299	58,168	59,397	59,288	59,011	59,242	59,993
22	Software Maintenance	29,017	31,358	31,472	32,259	33,066	33,893	34,740	35,608	36,498	37,410
23	Management	284,880	292,008	299,305	306,787	241,227	247,258	253,439	259,775	266,270	272,927
24	Consultants	60,000	36,000	20,000	20,600	21,218	21,855	22,510	23,185	23,881	24,597
25	Allocated PUD Overheads	560,004	567,000	890,015	1,092,766	1,190,906	1,223,166	1,229,003	1,234,585	1,240,373	1,245,949
26	State B&O Tax	10,563	36,042	58,109	74,182	81,808	82,895	82,169	81,183	80,953	81,475
27	Total Operating Expenses	1,348,123	1,845,412	2,299,560	2,679,709	2,717,765	2,949,713	3,039,894	3,128,074	3,220,022	3,313,747

35	EBITDA	(773,916)	106,005	858,657	1,349,158	1,710,674	1,535,831	1,404,593	1,261,191	1,156,017	1,090,555
37	Depreciation	256,364	1,283,991	2,512,963	3,039,215	3,100,161	3,104,725	3,097,546	3,080,959	3,011,675	2,944,705
38	Amortization	0	7,650	7,650	7,650	7,650	7,650	7,650	7,650	7,650	7,650
39	Interest Expense	321	5,570	141,502	210,615	201,275	191,639	181,695	171,432	160,836	149,895
43	**Net Income**	(1,030,601)	(1,191,206)	(1,803,458)	(1,908,322)	(1,598,412)	(1,768,183)	(1,882,298)	(1,998,850)	(2,024,144)	(2,011,695)

	Statement of Cash Flow	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**
44	Net Cash Provided by Operations:	(770,061)	71,033	677,191	1,101,943	1,477,800	1,357,737	1,232,970	1,100,819	1,003,024	945,167
45	Capital Assets	(15,209,922)	(23,200,575)	(16,764,611)	(11,975,862)	(1,084,510)	(335,080)	(246,796)	(345,253)	(19,452)	(39,791)
46	Capitalized Software	(76,500)	0	0	0	0	0	0	0	0	0
47	Federal Grants	1,312,719	3,213,449	9,459,247	6,197,169	0	0	0	0	0	0
48	State Grants	11,714,091	13,781,263	4,022,739	2,659,621	0	0	0	0	0	0
49	County Grants	109,741	639,750	509	0	0	0	0	0	0	0
50	PWB Loan 1	361,382	1,477,913	0	0	0	0	0	0	0	0
51	PWB Loan 2	1,100,000	3,700,000	200,000	0	0	0	0	0	0	0
52	Reconnect Federal Loan	0	310,773	2,508,650	1,781,693	0	0	0	0	0	0
53	PUD Equity	1,500,000	0	425,000	925,000	300,000	300,000	0	0	0	0
54	Principal Payments	0	0	(512,972)	(694,539)	(703,879)	(713,515)	(723,459)	(733,722)	(744,318)	(755,259)
55	Net Increase (Decrease) in Cash	41,450	(6,395)	15,753	(4,975)	(10,589)	609,143	262,715	21,844	239,255	150,117
56	Cash, beginning of period	0	41,450	35,055	50,808	45,833	35,244	644,387	907,102	928,945	1,168,200
57	Cash, end of period	41,450	35,055	50,808	45,833	35,244	644,387	907,102	928,945	1,168,200	1,318,317