



Danville Utility Commission Meeting Agenda

4:00 p.m., December 3, 2018

City Council Chambers, Danville City Hall

- I. Call to Order**
 - A. Roll Call
 - B. Announcements
- II. Discussion/Business Items**
 - A. Minutes of the October 1, 2018 Commission Meeting
 - B. Review of Utilities' Financial Statements
 - C. 2019 Biennial Rate Study
- III. Communications**
 - A. City Manager
 - B. Utilities Staff
 - C. Commission Members
 - D. Public Comments
 - E. Director's Report
- IV. Adjournment**

Next Utility Commission Meeting

4:00 p.m. Monday, January 28, 2018

**City Council Chambers
4th Floor, City Hall**



Commission Members Present: Sheila Williamson-Branch, Bill Donahue, Vanessa Cain, Helm Dobbins, Fred Shanks, Bert Eades, Sara Weller*

Commission Members Absent: Ken Larking*

**Sara Weller served as acting City Manager in absence of Ken Larking and Earl Reynolds*

Staff Present: Ryan Dodson, Jason Grey, Janet Davis, Kelly Kinnett, Mike Spencer, Jennifer Holley, Alan Johnson, Phillip Haley

Others Present: Charles Overby, Inframark

Call to Order and Announcements

Chairman Donahue opened the meeting and asked that the attendance be recorded. As a quorum was present, the meeting was called to order.

Mr. Donahue asked were there any announcements. Mr. Grey announced that Mr. Nicholas resigned his position on the Commission due to time constraints.

Discussion/Business Items

Minutes of August 27, 2018 Commission Meeting

Mr. Donahue asked for any corrections, deletions, or adjustments to the minutes from August 27, 2018.

Mr. Eades made a motion to approve the minutes. Mr. Dobbins seconded, all members voted in favor, and the motion carried unanimously.

Review of Utilities' Financial Statements

Mr. Grey stated that no one was present from the Finance department, but that any questions that required answers would be fielded by Utilities' staff or Finance would provide answers following the meeting.

Mr. Donahue requested an update on the PGA and PCA at the December meeting.

Discussion on Fiscal Year 2019 and 2020 Capital Projects

Division Directors presented the progress made on current fiscal year 2019 capital projects and what proposed projects will likely be included in the upcoming fiscal year 2020 budget presentation in January:

- Mr. Alan Johnson, Division Director of Water and Wastewater Treatment, presented the capital improvement projects for the water treatment plant and the wastewater treatment plant.

Mr. Shanks requested information regarding why it is not economically feasible to privatize operations to the water treatment plant. Mr. Grey responded that he will send the information to the Commission.

Mr. Shanks asked if Goodyear had experienced problems in the past that held up production that would cause the backup generator in the Capital Improvements Plan to be necessary.

Mr. Grey responded that it did stop production about two years ago.

- Mr. Kelly Kinnett, Division Director of Water & Gas, presented the capital improvement projects for the water and gas department.

Mr. Shanks asked what the difference in cost is from using private contractors vs. using City of Danville employees on projects. In addition, he asked if the cost for City employees included other associated costs such as retirement benefits.

Mr. Kinnett responded that yes, the comparison formulas do account for this. He also said that he has also put work out for bid with local contractors in order to compare pricing.

- Mr. Jason Grey, Director of Utilities presented the capital improvement projects for the power and light department.

Mr. Shanks asked if the Riverside Substation serviced the Averett area and expressed his concerns about frequent outages. Mr. Grey responded that the project has gone through engineering and two rounds of bidding due to price increases because of tariffs, but is now ready to begin.

Ms. Cain asked about the same issues Mr. Shanks expressed for the New Design substation. Mr. Grey responded that lightning struck multiple arresters and caused the outages at that substation.

- Ms. Jennifer Holley, Division Director of Support Services, presented on the renovations to 864 Monument Street for the Department's warehouse.
- Mr. Michael Spencer, Division Director of Telecommunications presented the capital improvement projects for telecommunications.

Mr. Dobbins said he would be interested in seeing how much the revenue has come from the past 1,900 installations to have an idea of what the future locations will provide.

Department Discussions

There was no further communication from staff, commission members, or the public.

Mr. Grey requested that the November and December meetings be merged into one meeting on December 3, 2018 due to the holiday season.

Adjournment

Mr. Donohue stated the next meeting is scheduled for December 3, 2018. There being no further business, Mr. Donohue adjourned the meeting at 5:15 p.m.

Submitted by Janet C. Davis
Secretary to the DUC

December 3, 2018

Date Approved

Chairman
Danville Utility Commission



Commission Item Number: DUC181203 - 1
Utility Commission Meeting: December 3, 2018
Item: II. B. Review of Utilities' Financial Statements

Financial Report

September financials will be reviewed

UTILITY FUNDS
COMBINING STATEMENTS OF REVENUES, EXPENSES, AND CHANGES IN FUND NET ASSETS
FOR THE PERIOD ENDED SEPTEMBER 30, 2018 (YTD)

	UNAUDITED					CURRENT 18-19 BUDGET	LAST YEAR TO DATE	
	WASTEWATER	WATER	GAS	ELECTRIC	TELECOM	TOTAL		
OPERATING REVENUE	2,549,058.29	2,107,179.63	3,325,787.49	32,695,344.87	368,877.73	41,046,248.01	174,068,820.00	41,509,924.52
COST OF SALES								
PURCHASED SERVICES	-	-	2,546,733.75	24,849,882.80	14,130.75	27,410,747.30	115,643,820.00	27,917,238.71
PRODUCTION	-	-	-	154,900.93	-	154,900.93	1,044,135.64	140,212.86
TOTAL COST OF SALES	-	-	2,546,733.75	25,004,783.73	14,130.75	27,565,648.23	116,687,955.64	28,057,451.57
GROSS PROFIT	2,549,058.29	2,107,179.63	779,053.74	7,690,561.14	354,746.98	13,480,599.78	57,380,864.36	13,452,472.95
GROSS PROFIT %	100.00%	100.00%	23.42%	23.52%	96.17%	32.84%	32.96%	32.41%
OPERATING EXPENSES								
TRANSMISSION & TREATMENT	510,910.02	407,500.09	-	321,424.66	-	1,239,834.77	6,675,482.99	1,377,744.53
ENGINEERING	-	45,181.23	80,873.17	168,228.13	-	294,282.53	1,877,840.58	308,549.34
DISTRIBUTION	472,472.63	117,915.35	118,073.67	3,045,632.09	-	3,754,093.74	16,324,797.57	3,622,193.28
SERVICE	20,464.20	15,814.76	11,774.38	-	-	48,053.34	408,200.00	51,888.57
METERS & REGULATORS	-	29,404.04	33,731.32	73,932.62	-	137,067.98	707,317.00	128,039.58
GENERAL & ADMINISTRATIVE	418,991.18	659,790.26	918,224.54	1,344,289.68	182,235.93	3,523,531.59	15,047,073.30	3,201,242.12
TOTAL OPERATING EXPENSES	1,422,838.03	1,275,605.73	1,162,677.08	4,953,507.18	182,235.93	8,996,863.95	41,040,711.44	8,689,657.42
OPERATING INCOME (LOSS)	1,126,220.26	831,573.90	(383,623.34)	2,737,053.96	172,511.05	4,483,735.83	16,340,152.92	4,762,815.53
NON-OPERATING REVENUE (EXPENSE)								
INTEREST INCOME ON INVESTMENTS	49,421.10	57,431.94	62,023.93	196,692.56	5,474.53	371,044.06	886,000.00	286,864.01
ENERGY EFFICIENCY RECOVERY	-	-	-	(88,981.06)	-	(88,981.06)	(864,670.49)	(75,976.54)
RECOVERIES AND REBATES	1,745.20	4,107.52	398.46	(517.50)	-	5,733.68	16,200.00	948.46
GAIN/LOSS ON DISPOSAL	-	5,318.25	68.25	3,326.50	-	8,713.00	50,100.00	1,129.50
JOBGING INCOME (LOSS)	6,367.46	10,205.82	4,614.62	52,029.70	8,510.45	81,728.05	452,622.20	170,572.93
INTEREST ON LONG TERM INDEBTEDNESS	(84,912.89)	(85,211.05)	(32,015.64)	(771,954.83)	-	(974,094.41)	(2,006,720.00)	(908,860.57)
NET INCOME (LOSS)	1,098,841.13	823,426.38	(348,533.72)	2,127,649.33	186,496.03	3,887,879.15	14,873,684.63	4,237,493.32
OPERATING TRANSFERS IN(OUT)	(173,439.99)	(235,575.00)	(764,832.51)	(2,555,402.51)	(20,250.00)	(3,749,500.01)	(17,848,000.00)	(3,754,749.94)
NET INCOME AFTER TRANSFERS	925,401.14	587,851.38	(1,113,366.23)	(427,753.18)	166,246.03	138,379.14	(2,974,315.37)	482,743.38
NET ASSETS JULY 1, AS RESTATED	60,426,114.95	43,682,452.98	54,009,307.50	182,963,107.10	9,076,354.03	350,157,336.56		
NET INCOME AFTER TRANSFERS	925,401.14	587,851.38	(1,113,366.23)	(427,753.18)	166,246.03	138,379.14		
FEDERAL GRANT	-	-	-	-	-	-		
CONTRIBUTION IN AID	11,953.00	-	-	-	-	11,953.00		
NET ASSETS SEPTEMBER 2018	61,363,469.09	44,270,304.36	52,895,941.27	182,535,353.92	9,242,600.06	350,307,668.70		
NET ASSETS								
CONTRIBUTED CAPITAL - FIXED ASSETS	3,845,038.01	4,676,282.92	1,340,232.51	13,721,622.53	337,248.59	23,920,424.56		
RESTRICTED FOR INVESTMENT IN FIXED ASSETS	45,217,244.62	25,311,737.99	38,054,672.93	109,005,262.71	7,371,910.37	224,960,828.62		
RESTRICTED FOR PROJECTS IN PROGRESS	5,901,867.50	9,633,531.87	4,182,987.08	17,549,957.90	649,371.50	37,917,715.85		
RESTRICTED FOR ENCUMBRANCES	2,331,156.48	79,666.14	197,576.18	1,109,468.69	5,872.12	3,723,739.61		
RESTRICTED FOR ENERGY EFFICIENCY	-	-	-	-	-	-		
NET PENSION ASSETS	336,418.00	904,839.00	813,783.00	3,153,579.00	87,912.00	5,296,531.00		
DEFERRED OUTFLOWS - PENSION	136,399.00	366,865.00	329,945.00	1,278,610.00	35,644.00	2,147,463.00		
UNRESTRICTED	3,731,744.48	3,664,246.44	8,306,689.57	37,995,463.09	790,285.48	54,488,429.06		
TOTAL NET ASSETS	61,363,469.09	44,270,304.36	52,895,941.27	182,535,353.92	9,242,600.06	350,307,668.70		

**CITY OF DANVILLE
UTILITY FUNDS
COMBINING STATEMENT OF NET ASSETS - UNAUDITED
SEPTEMBER 30, 2018**

	WASTEWATER	WATER	GAS	ELECTRIC	TELECOM	SEPTEMBER 30, 2018
<u>ASSETS</u>						
Equity in pooled Cash and Investments	\$ 10,758,869.12	12,374,445.14	12,374,915.03	48,073,692.84	1,241,651.84	84,823,573.97
Receivables (Net of allowances for Uncollectible):						
Accounts	1,166,229.54	584,646.18	1,314,518.88	19,043,833.03	54,334.27	22,163,561.90
Power/Gas Cost Recovery	-	-	(805,964.28)	8,841,391.53	-	8,035,427.25
Pension Assets	336,418.00	904,839.00	813,783.00	3,153,579.00	87,912.00	5,296,531.00
Inventory of Gas, Materials and Supplies, at Cost	-	403,166.12	546,752.67	1,948,280.96	190,944.76	3,089,144.51
Fixed Assets	97,430,657.05	71,030,391.82	68,287,392.74	294,430,791.93	10,405,942.65	541,585,176.19
Accumulated Depreciation	(44,760,802.78)	(37,484,125.60)	(27,519,250.58)	(127,660,420.02)	(2,696,783.69)	(240,121,382.67)
Deferred Outflows - Pension	136,399.00	366,865.00	329,945.00	1,278,610.00	35,644.00	2,147,463.00
TOTAL ASSETS	\$ 65,067,769.93	48,180,227.66	55,342,092.46	249,109,759.27	9,319,645.83	427,019,495.15
<u>LIABILITIES AND NET ASSETS</u>						
Liabilities						
Accounts Payable	\$ 34,246.48	191,644.20	976,796.58	17,727,161.77	73,021.24	19,002,870.27
Accrued Interest Payable	62,482.72	61,105.31	24,935.13	542,451.85	-	690,975.01
Customer Deposits	-	-	-	3,611,965.28	-	3,611,965.28
Accrued Vacation, Sick Leave & Workers Comp.	-	98,928.48	71,182.76	620,069.56	4,024.53	794,205.33
Deferred Gain / Loss - Refunding Bonds	(142,429.95)	(131,767.79)	(81,627.31)	(1,313,003.02)	-	(1,668,828.07)
Original Issue Premium/Discount (Refunding Bonds)	152,490.65	138,743.05	90,581.74	3,366,211.10	-	3,748,026.54
General Obligation Bonds Payable	3,373,570.83	3,551,270.05	1,364,282.29	41,990,278.59	-	50,279,401.76
Revenue Bonds Payable	223,940.11	-	-	-	-	223,940.11
Long-Term Leases, Notes, and Contracts Payable	-	-	-	29,270.22	-	29,270.22
TOTAL LIABILITIES	\$ 3,704,300.84	3,909,923.30	2,446,151.19	66,574,405.35	77,045.77	76,711,826.45
Net Assets						
Contributed Capital	\$ 3,845,038.01	4,676,282.92	1,340,232.51	13,721,622.53	337,248.59	23,920,424.56
Retained Earnings:						
Restricted for Investment in Fixed Assets	\$ 45,217,244.62	25,311,737.99	38,054,672.93	109,005,262.71	7,371,910.37	224,960,828.62
Restricted for Incomplete Projects	5,901,867.50	9,633,531.87	4,182,987.08	17,549,957.90	649,371.50	37,917,715.85
Restricted for Subsequent Expenses	2,331,156.48	79,666.14	197,576.18	1,109,468.69	5,872.12	3,723,739.61
Net Pension Assets	336,418.00	904,839.00	813,783.00	3,153,579.00	87,912.00	5,296,531.00
Deferred Outflows - Pension	136,399.00	366,865.00	329,945.00	1,278,610.00	35,644.00	2,147,463.00
Unrestricted	3,731,744.48	3,664,246.44	8,306,689.57	37,995,463.09	790,285.48	54,488,429.06
Total Retained Earnings	\$ 57,518,431.08	39,594,021.44	51,555,708.76	168,813,731.39	8,905,351.47	326,387,244.14
TOTAL NET ASSETS	\$ 61,363,469.09	44,270,304.36	52,895,941.27	182,535,353.92	9,242,600.06	350,307,668.70
TOTAL LIABILITIES AND NET ASSETS	\$ 65,067,769.93	48,180,227.66	55,342,092.46	249,109,759.27	9,319,645.83	427,019,495.15

UTILITY FUNDS
STATEMENT OF REVENUES, EXPENSES, AND CHANGES IN FUND NET ASSETS - UNAUDITED
FOR THE PERIOD ENDED SEPTEMBER 30, 2018

WASTEWATER - FINAL						
	ORIGINAL BUDGET 2018-19	ADJUSTMENTS AND CARRYFORWARDS	CURRENT BUDGET 2018-19	SEPTEMBER 2018	PERCENT OF CURRENT BUDGET	SEPTEMBER 2017
OPERATING REVENUE	9,644,240.00		9,644,240.00	2,549,058.29	26.43%	2,421,875.66
COST OF SALES						
PURCHASED SERVICES						
PRODUCTION						
TOTAL COST OF SALES						
GROSS PROFIT						
GROSS PROFIT %						
OPERATING EXPENSES						
TRANSMISSION & TREATMENT	2,984,790.00	63,824.16	3,048,614.16	510,910.02	16.76%	483,366.93
ENGINEERING	-		-	-		-
DISTRIBUTION	2,510,580.00	29,936.07	2,540,516.07	472,472.63	18.60%	474,696.14
SERVICE	133,640.00		133,640.00	20,464.20	15.31%	28,590.22
METERS & REGULATORS	-		-	-		-
BAD DEBT	35,400.00		35,400.00	64.00	0.18%	(900.62)
GENERAL & ADMINISTRATIVE	1,768,050.00		1,768,050.00	418,927.18	23.69%	433,017.99
TOTAL OPERATING EXPENSES	7,432,460.00	93,760.23	7,526,220.23	1,422,838.03	18.91%	1,418,770.66
OPERATING INCOME (LOSS)	2,211,780.00	(93,760.23)	2,118,019.77	1,126,220.26	53.17%	1,003,105.00
NON-OPERATING REVENUE (EXPENSE)						
INTEREST INCOME ON INVESTMENTS	104,000.00		104,000.00	49,421.10	47.52%	33,271.90
RECOVERIES AND REBATES	-		-	1,745.20		768.95
GAIN/LOSS ON DISPOSAL	-		-	-		-
JOBGING INCOME (LOSS)	51,800.00		51,800.00	6,367.46	12.29%	11,763.00
INTEREST ON LONG TERM INDEBTEDNESS	(168,950.00)		(168,950.00)	(84,912.89)	50.26%	(109,036.63)
NET INCOME (LOSS)	2,198,630.00	(93,760.23)	2,104,869.77	1,098,841.13	52.20%	939,872.22
OPERATING TRANSFERS IN (OUT)	(693,760.00)	(3,000,000.00)	(3,693,760.00)	(173,439.99)	4.70%	(173,440.03)
NET INCOME AFTER TRANSFERS	1,504,870.00	(3,093,760.23)	(1,588,890.23)	925,401.14	-58.24%	766,432.19
CONTRIBUTION IN AID	35,000.00		35,000.00	11,953.00	34.15%	
REGULAR CAPITAL MAINTENANCE	(440,860.00)	(4,189.66)	(445,049.66)	(20,781.70)	4.67%	
CAPITAL PROJECTS	(1,350,000.00)	(4,312,562.56)	(5,662,562.56)	(284,963.02)	5.03%	
DEBT SERVICE	(1,038,450.00)		(1,038,450.00)	(141,115.00)	13.59%	
DEPRECIATION	2,083,000.00		2,083,000.00	504,431.19	24.22%	
CONTINGENCY	(100,000.00)		(100,000.00)		0.00%	

UTILITY FUNDS
STATEMENT OF REVENUES, EXPENSES, AND CHANGES IN FUND NET ASSETS - UNAUDITED
FOR THE PERIOD ENDED SEPTEMBER 30, 2018

WATER - FINAL						
	ORIGINAL BUDGET 2018-19	ADJUSTMENTS AND CARRYFORWARDS	CURRENT BUDGET 2018-19	SEPTEMBER 2018	PERCENT OF CURRENT BUDGET	SEPTEMBER 2017
OPERATING REVENUE	8,317,890.00		8,317,890.00	2,107,179.63	25.33%	2,124,853.48
COST OF SALES						
PURCHASED SERVICES						
PRODUCTION						
TOTAL COST OF SALES						
GROSS PROFIT						
GROSS PROFIT %						
OPERATING EXPENSES						
TRANSMISSION & TREATMENT	1,835,210.00	35,205.09	1,870,415.09	407,500.09	21.79%	481,164.99
ENGINEERING	266,240.00	17,581.24	283,821.24	45,181.23	15.92%	55,921.68
DISTRIBUTION	667,110.00	1,462.00	668,572.00	117,915.35	17.64%	153,184.90
SERVICE	144,770.00		144,770.00	15,814.76	10.92%	11,553.60
METERS & REGULATORS	167,020.00		167,020.00	29,404.04	17.61%	23,261.53
BAD DEBT	31,600.00		31,600.00	616.44	1.95%	(554.74)
GENERAL & ADMINISTRATIVE	2,909,650.00	28,406.70	2,938,056.70	659,173.82	22.44%	669,676.03
TOTAL OPERATING EXPENSES	6,021,600.00	82,655.03	6,104,255.03	1,275,605.73	20.90%	1,394,207.99
OPERATING INCOME (LOSS)	2,296,290.00	(82,655.03)	2,213,634.97	831,573.90	37.57%	730,645.49
NON-OPERATING REVENUE (EXPENSE)						
INTEREST INCOME ON INVESTMENTS	126,000.00		126,000.00	57,431.94	45.58%	42,589.74
RECOVERIES AND REBATES	10,000.00		10,000.00	4,107.52		1,794.23
GAIN/LOSS ON DISPOSAL	12,500.00		12,500.00	5,318.25		-
JOBGING INCOME (LOSS)	120,330.00		120,330.00	10,205.82	8.48%	40,322.83
INTEREST ON LONG TERM INDEBTEDNESS	(153,690.00)		(153,690.00)	(85,211.05)	55.44%	(104,683.54)
NET INCOME (LOSS)	2,411,430.00	(82,655.03)	2,328,774.97	823,426.38	35.36%	710,668.75
OPERATING TRANSFERS IN (OUT)	(942,300.00)		(942,300.00)	(235,575.00)	25.00%	(235,575.00)
NET INCOME AFTER TRANSFERS	1,469,130.00	(82,655.03)	1,386,474.97	587,851.38	42.40%	475,093.75
CONTRIBUTION IN AID	-		-	-		
REGULAR CAPITAL MAINTENANCE	(1,008,800.00)	(172,734.10)	(1,181,534.10)	(154,637.51)	13.09%	
CAPITAL PROJECTS	(5,500,000.00)	(3,354,938.70)	(8,854,938.70)	(348,303.42)	3.93%	
DEBT SERVICE	(928,370.00)		(928,370.00)	(123,113.00)	13.26%	
DEPRECIATION	1,680,000.00		1,680,000.00	392,592.42	23.37%	
CONTINGENCY	(100,000.00)		(100,000.00)	-	0.00%	

UTILITY FUNDS
STATEMENT OF REVENUES, EXPENSES, AND CHANGES IN FUND NET ASSETS - UNAUDITED
FOR THE PERIOD ENDED SEPTEMBER 30, 2018

GAS - FINAL						
	ORIGINAL BUDGET 2018-19	ADJUSTMENTS AND CARRYFORWARDS	CURRENT BUDGET 2018-19	SEPTEMBER 2018	PERCENT OF CURRENT BUDGET	SEPTEMBER 2017
OPERATING REVENUE	22,462,280.00		22,462,280.00	3,325,787.49	14.81%	3,438,153.96
COST OF SALES						
PURCHASED SERVICES	13,343,220.00		13,343,220.00	2,546,733.75	19.09%	2,159,971.20
PRODUCTION	-		-	-		-
TOTAL COST OF SALES	13,343,220.00	-	13,343,220.00	2,546,733.75		2,159,971.20
GROSS PROFIT	9,119,060.00	-	9,119,060.00	779,053.74		1,278,182.76
GROSS PROFIT %	40.60%		40.60%	23.42%		37.18%
OPERATING EXPENSES						
TRANSMISSION & TREATMENT	-		-	-		-
ENGINEERING	421,730.00	166,621.02	588,351.02	80,873.17	13.75%	71,428.70
DISTRIBUTION	654,250.00	139.50	654,389.50	118,073.67	18.04%	124,634.80
SERVICE	129,790.00		129,790.00	11,774.38	9.07%	11,744.75
METERS & REGULATORS	190,620.00	67.00	190,687.00	33,731.32	17.69%	30,257.87
BAD DEBT	49,700.00		49,700.00	2,390.27	4.81%	(1,323.28)
GENERAL & ADMINISTRATIVE	3,917,080.00		3,917,080.00	915,834.27	23.38%	901,725.47
TOTAL OPERATING EXPENSES	5,363,170.00	166,827.52	5,529,997.52	1,162,677.08	21.02%	1,138,468.31
OPERATING INCOME (LOSS)	3,755,890.00	(166,827.52)	3,589,062.48	(383,623.34)	-10.69%	139,714.45
NON-OPERATING REVENUE (EXPENSE)						
INTEREST INCOME ON INVESTMENTS	141,000.00		141,000.00	62,023.93	43.99%	44,554.95
RECOVERIES AND REBATES	-		-	398.46		235.28
GAIN/LOSS ON DISPOSAL	7,100.00		7,100.00	68.25		-
JOBGING INCOME (LOSS)	183,790.00	(4,841.99)	178,948.01	4,614.62	2.58%	13,910.96
INTEREST ON LONG TERM INDEBTEDNESS	(58,030.00)		(58,030.00)	(32,015.64)	55.17%	(36,659.66)
NET INCOME (LOSS)	4,029,750.00	(171,669.51)	3,858,080.49	(348,533.72)	-9.03%	161,755.98
OPERATING TRANSFERS IN (OUT)	(3,059,330.00)		(3,059,330.00)	(764,832.51)	25.00%	(764,832.47)
NET INCOME AFTER TRANSFERS	970,420.00	(171,669.51)	798,750.49	(1,113,366.23)	-139.39%	(603,076.49)
CONTRIBUTION IN AID	-		-	-		-
REGULAR CAPITAL MAINTENANCE	(974,810.00)	(221,523.90)	(1,196,333.90)	(96,321.06)	8.05%	
CAPITAL PROJECTS	(1,100,000.00)	(2,001,917.26)	(3,101,917.26)	(118,943.02)	3.83%	
DEBT SERVICE	(234,390.00)		(234,390.00)	(91,103.00)	38.87%	
DEPRECIATION	1,565,000.00		1,565,000.00	398,060.79	25.44%	
CONTINGENCY	(100,000.00)		(100,000.00)	-	0.00%	

UTILITY FUNDS
STATEMENT OF REVENUES, EXPENSES, AND CHANGES IN FUND NET ASSETS - UNAUDITED
FOR THE PERIOD ENDED SEPTEMBER 30, 2018

ELECTRIC - FINAL						
	ORIGINAL BUDGET 2018-19	ADJUSTMENTS AND CARRYFORWARDS	CURRENT BUDGET 2018-19	SEPTEMBER 2018	PERCENT OF CURRENT BUDGET	SEPTEMBER 2017
OPERATING REVENUE	133,009,810.00		133,009,810.00	32,695,344.87	24.58%	33,152,116.71
COST OF SALES						
PURCHASED SERVICES	102,237,000.00		102,237,000.00	24,849,882.80	24.31%	25,752,287.88
PRODUCTION	921,400.00	122,735.64	1,044,135.64	154,900.93		140,212.86
TOTAL COST OF SALES	103,158,400.00	122,735.64	103,281,135.64	25,004,783.73		25,892,500.74
GROSS PROFIT	29,851,410.00	(122,735.64)	29,728,674.36	7,690,561.14		7,259,615.97
GROSS PROFIT %	22.44%		22.35%	23.52%		21.90%
OPERATING EXPENSES						
TRANSMISSION & TREATMENT	1,705,580.00	50,873.74	1,756,453.74	321,424.66	18.30%	413,212.61
ENGINEERING	987,030.00	18,638.32	1,005,668.32	168,228.13	16.73%	181,198.96
DISTRIBUTION	12,446,280.00	15,040.00	12,461,320.00	3,045,632.09	24.44%	2,869,677.44
SERVICE	-		-	-		-
METERS & REGULATORS	349,610.00		349,610.00	73,932.62	21.15%	74,520.18
BAD DEBT	309,500.00		309,500.00	17,310.31	5.59%	(8,747.82)
GENERAL & ADMINISTRATIVE	4,543,160.00	581,346.60	5,124,506.60	1,326,979.37	25.89%	1,022,842.51
TOTAL OPERATING EXPENSES	20,341,160.00	665,898.66	21,007,058.66	4,953,507.18	23.58%	4,552,703.88
OPERATING INCOME (LOSS)	9,510,250.00	(788,634.30)	8,721,615.70	2,737,053.96	31.38%	2,706,912.09
NON-OPERATING REVENUE (EXPENSE)						
INTEREST INCOME ON INVESTMENTS	502,000.00		502,000.00	196,692.56	39.18%	161,882.39
ENERGY EFFICIENCY RECOVERY	-	(864,670.49)	(864,670.49)	(88,981.06)	10.29%	(75,976.54)
RECOVERIES AND REBATES	6,200.00		6,200.00	(517.50)	-8.35%	(1,850.00)
GAIN/LOSS ON DISPOSAL	30,500.00		30,500.00	3,326.50	10.91%	1,129.50
JOBGING INCOME (LOSS)	77,410.00	4,584.19	81,994.19	52,029.70	63.46%	98,248.80
INTEREST ON LONG TERM INDEBTEDNESS	(1,626,050.00)		(1,626,050.00)	(771,954.83)	47.47%	(658,480.74)
NET INCOME (LOSS)	8,500,310.00	(1,648,720.60)	6,851,589.40	2,127,649.33	31.05%	2,231,865.50
OPERATING TRANSFERS IN (OUT)	(10,071,610.00)		(10,071,610.00)	(2,555,402.51)	25.37%	(2,505,402.47)
NET INCOME AFTER TRANSFERS	(1,571,300.00)	(1,648,720.60)	(3,220,020.60)	(427,753.18)	13.28%	(273,536.97)
CONTRIBUTION IN AID	-		-	-		-
FEDERAL AID - CAPITAL PROJECTS	-		-	-		-
REGULAR CAPITAL MAINTENANCE	(3,482,900.00)	(381,322.15)	(3,864,222.15)	(414,861.39)	10.74%	
CAPITAL PROJECTS	(1,000,000.00)	(14,504,619.66)	(15,504,619.66)	(2,253,316.43)	14.53%	
DEBT SERVICE	(2,686,600.00)		(2,686,600.00)	(1,385,340.39)	51.56%	
DEPRECIATION	8,635,000.00		8,635,000.00	2,039,880.36	23.62%	
CONTINGENCY	(500,000.00)		(500,000.00)	-	0.00%	

UTILITY FUNDS
STATEMENT OF REVENUES, EXPENSES, AND CHANGES IN FUND NET ASSETS - UNAUDITED
FOR THE PERIOD ENDED SEPTEMBER 30, 2018

TELECOMMUNICATIONS - FINAL						
	ORIGINAL BUDGET 2018-19	ADJUSTMENTS AND CARRYFORWARDS	CURRENT BUDGET 2018-19	SEPTEMBER 2018	PERCENT OF CURRENT BUDGET	SEPTEMBER 2017
OPERATING REVENUE	634,600.00		634,600.00	368,877.73	58.13%	372,924.71
COST OF SALES						
PURCHASED SERVICES	63,600.00		63,600.00	14,130.75	22.22%	4,979.63
PRODUCTION	-		-	-		-
TOTAL COST OF SALES	63,600.00	-	63,600.00	14,130.75		4,979.63
GROSS PROFIT	571,000.00	-	571,000.00	354,746.98		367,945.08
GROSS PROFIT %	89.98%		89.98%	96.17%		98.66%
OPERATING EXPENSES						
TRANSMISSION & TREATMENT	-		-	-		-
ENGINEERING	-		-	-		-
DISTRIBUTION	-		-	-		-
SERVICE	-		-	-		-
METERS & REGULATORS	-		-	-		-
BAD DEBT	-		-	-		-
GENERAL & ADMINISTRATIVE	873,180.00		873,180.00	182,235.93	20.87%	185,506.58
TOTAL OPERATING EXPENSES	873,180.00	-	873,180.00	182,235.93	20.87%	185,506.58
OPERATING INCOME (LOSS)	(302,180.00)	-	(302,180.00)	172,511.05	-57.09%	182,438.50
NON-OPERATING REVENUE (EXPENSE)						
INTEREST INCOME ON INVESTMENTS	13,000.00		13,000.00	5,474.53	42.11%	4,565.03
RECOVERIES AND REBATES	-		-	-		-
GAIN/LOSS ON DISPOSAL	-		-	-		-
JOBGING INCOME (LOSS)	19,550.00		19,550.00	8,510.45	43.53%	6,327.34
INTEREST ON LONG TERM INDEBTEDNESS	-		-	-		-
NET INCOME (LOSS)	(269,630.00)	-	(269,630.00)	186,496.03	-69.17%	193,330.87
OPERATING TRANSFERS IN (OUT)	(81,000.00)		(81,000.00)	(20,250.00)	25.00%	(75,499.97)
NET INCOME AFTER TRANSFERS	(350,630.00)	-	(350,630.00)	166,246.03	-47.41%	117,830.90
CONTRIBUTION IN AID	-	-	-	-	0.00%	
REGULAR CAPITAL MAINTENANCE	(105,000.00)	(10,000.00)	(115,000.00)	(40,413.48)	35.14%	
CAPITAL PROJECTS	(600,000.00)	(30,750.00)	(630,750.00)	(355,965.02)	56.44%	
DEPRECIATION	459,200.00	-	459,200.00	98,179.11	21.38%	
CONTINGENCY	-	-	-	-		



Commission Item Number: DUC181203 - 2
Utility Commission Meeting: December 3, 2018
Item: II. C. 2019 Biennial Rate Study

2019 Biennial Rate Study

Jacob Thomas from GDS Associates will be in attendance to discuss their review of the City's electric, gas, water and wastewater rate requirements for fiscal years 2020 and 2021. Jason Grey will present the findings from Wide Open Network's review of the Telecommunication fund and charges to nDanville customers. Additional information will be emailed and handed out at the meeting.

**DANVILLE UTILITIES - WASTEWATER
SUMMARY OF FINANCIAL TARGETS**

Line No.	Item	FY20	FY21
SUMMARY OF FINANCIAL TARGETS PRIOR TO RECOMMENDED RATE CHANGE			
1	<i>Recommended Target Rate of Return on Rate Base</i>	4.94%	4.94%
2	Projected Rate of Return on Rate Base	4.02%	3.49%
3	<i>Recommended Minimum Debt Service Coverage</i>	1.50	1.50
4	Projected DSC	4.76	7.44
5	<i>Financial Policy Minimum Unrestricted Cash Balance</i>	\$1,018,257	\$1,049,088
6	<i>Recommended Minimum Unrestricted Cash Balance</i>	\$4,578,031	\$4,632,436
7	Cash Balance at End of Fiscal Year	\$6,969,348	\$7,927,020

SUMMARY OF FINANCIAL TARGETS AFTER TO RECOMMENDED RATE CHANGE			
8	Recommended % Change in Base Rate Revenue	-4.8%	-4.8%
9	Recommended Additional Revenue	(\$437,246)	(\$437,246)
10	<i>Recommended Target Rate of Return on Rate Base</i>	4.94%	4.94%
11	Projected Rate of Return on Rate Base	3.24%	2.71%
12	<i>Recommended Minimum Debt Service Coverage</i>	1.50	1.50
13	Projected DSC	4.24	6.58
14	<i>Financial Policy Minimum Unrestricted Cash Balance</i>	\$1,018,257	\$1,049,088
15	<i>Recommended Minimum Unrestricted Cash Balance</i>	\$4,578,031	\$4,632,436
16	Cash Balance at End of Fiscal Year	\$6,532,102	\$7,489,774

KEY:



Green cells meet or exceed the targeted financial metric



Red cells are below the targeted financial metric

**DANVILLE UTILITIES - WASTEWATER
SUMMARY OF PROPOSED RATE CHANGES**

Line No.	Rate Item	Present Rates	Proposed Rates	Change	% Change
(a)	(b)	(c)	(d)	(e)	(f)
	<u>Customer Charge by Meter Size:</u>				
1	5/8"	\$14.00	\$14.00	\$0.00	0.0%
2	1"	\$34.75	\$34.75	\$0.00	0.0%
3	1 1/2"	\$70.50	\$70.50	\$0.00	0.0%
4	2"	\$113.00	\$113.00	\$0.00	0.0%
5	3"	\$229.00	\$229.00	\$0.00	0.0%
6	4"	\$362.00	\$362.00	\$0.00	0.0%
7	6"	\$720.00	\$720.00	\$0.00	0.0%
8	8"	\$1,160.00	\$1,160.00	\$0.00	0.0%
9					
10	Consumption Charge per 100 Cubic Feet	\$2.58	\$2.38	-\$0.20	-7.8%

**DANVILLE UTILITIES - WASTEWATER
OPERATING STATEMENT ON A CASH BASIS**

Line No.	Item	FY19 Budget	FY20 Estimate	FY21 Estimate
REVENUES				
1	Base Rate Revenue - Current Rates	\$9,159,085	\$9,159,085	\$9,159,085
2	Base Rate Revenue Increase/(Decrease)	\$0	(\$437,246)	(\$437,246)
3	Subtotal - Base Rate Revenue	\$9,159,085	\$8,721,839	\$8,721,839
4	Other Revenue	\$1,161,110	\$1,194,908	\$1,230,395
5	Total Revenue	\$10,320,195	\$9,916,747	\$9,952,235
EXPENSES				
6	Treatment Plants	\$2,984,790	\$3,134,030	\$3,290,731
7	Public Works	\$1,689,840	\$1,774,332	\$1,863,049
8	Capital Expenses	\$540,860	\$540,860	\$540,860
9	Admin & Support plus Interest on Bonds	\$843,780	\$832,143	\$831,494
10	Debt Service	\$1,038,450	\$727,271	\$424,669
11	Depreciation	\$2,083,000	\$2,122,423	\$2,162,883
12	Transfers to General Fund	\$693,760	\$693,760	\$693,760
13	Total Expenditures	\$9,874,480	\$9,824,819	\$9,807,446
14	Add - Depreciation	\$2,083,000	\$2,122,423	\$2,162,883
15	Revenue In Excess of Operating Expenses	\$2,528,715	\$2,214,351	\$2,307,672
16	Capital Projects	\$1,350,000	\$1,350,000	\$1,350,000
17	Revenues Over/(Under) Expenses	\$1,178,715	\$864,351	\$957,672
UNRESTRICTED CASH BALANCE SUMMARY				
18	Unrestricted Cash Balance - Beginning of FY	\$4,489,036	\$5,667,751	\$6,532,102
19	Net Change in Cash	\$1,178,715	\$864,351	\$957,672
20	Unrestricted Cash Balance - End of FY	\$5,667,751	\$6,532,102	\$7,489,774

DANVILLE UTILITIES - WASTEWATER
Estimate of Rate of Return with Portion of General Fund Transfer
Recognized as Return on Equity

Line No.	Item	Present Rates FY 2020	Pro Forma FY 2020	Present Rates FY 2021	Pro Forma FY 2021
1	Total Transfer to General Fund	\$693,760	\$693,760	\$693,760	\$693,760
2	Total Revenue	\$10,353,993	\$9,916,747	\$10,389,480	\$9,952,235
3	Percent	6.7%	7.0%	6.7%	7.0%
4	Franchise Fee Rate	4.50%	4.50%	4.50%	4.50%
5	Portion of Transfer that is Franchise Fee	\$465,930	\$446,254	\$467,527	\$447,851
6	Portion of Transfer that is Return on Equity	\$227,830	\$247,506	\$226,233	\$245,909
7	Net Income: Utility Basis	\$1,797,305	\$1,360,059	\$1,547,563	\$1,110,317
8	Add Back: Interest Expense	\$121,800	\$121,800	\$85,634	\$85,634
9	Add Back: Return on Equity Portion of Transfer	\$227,830	\$247,506	\$226,233	\$245,909
10	Income for Rate of Return	\$2,146,935	\$1,729,365	\$1,859,430	\$1,441,860
11	Net Rate Base	\$53,415,610	\$53,415,610	\$53,224,483	\$53,224,483
12	Rate of Return on Rate Base	4.02%	3.24%	3.49%	2.71%

DANVILLE UTILITIES - WASTEWATER
OPERATING STATEMENT ON A UTILITY BASIS - FISCAL YEAR 2020

Line No.	Item	Present Rates FY20	Pro Forma Adjustment	Pro Forma FY20	% Increase
Operating Revenue					
1	Base Rate Revenue	\$9,159,085	(\$437,246)	\$8,721,839	-4.8%
2	Other Revenue	\$1,194,908	\$0	\$1,194,908	
3	Total Revenue	\$10,353,993	(\$437,246)	\$9,916,747	
Operating Expenses					
4	Cost of Treatment	\$3,134,030	\$0	\$3,134,030	
5	Public Works	\$1,774,332	\$0	\$1,774,332	
6	Administrative & Support Services	\$710,343	\$0	\$710,343	
7	Subtotal	\$2,484,675	\$0	\$2,484,675	
8	Depreciation	\$2,122,423	\$0	\$2,122,423	
9	Operating Transfers	\$693,760	\$0	\$693,760	
10	Interest on Bonds	\$121,800	\$0	\$121,800	
11	Other Deductions	\$0	\$0	\$0	
12	Subtotal	\$2,937,983	\$0	\$2,937,983	
13	Total Expenses	\$8,556,688	\$0	\$8,556,688	
14	Net Income	\$1,797,305	(\$437,246)	\$1,360,059	
15	Net Rate Base	\$53,415,610	\$0	\$53,415,610	
16	Rate of Return on Rate Base	4.02%		3.24%	
DEBT SERVICE COVERAGE					
17	Net Income	\$1,797,305	\$0	\$1,360,059	
18	Add: Depreciation	\$2,122,423	\$0	\$2,122,423	
19	Add: Interest	\$121,800	\$0	\$121,800	
20	Cash Available for Debt Service	\$4,041,528	\$0	\$3,604,282	
21	Total Debt Service	\$849,071	\$0	\$849,071	
22	Debt Service Coverage Ratio	4.76		4.24	
CASH ANALYSIS					
23	Unrestricted Cash - Beginning Balance	\$5,667,751		\$5,667,751	
24	Net Income	\$1,797,305		\$1,360,059	
25	Add: Depreciation	\$2,122,423		\$2,122,423	
26	Add: Interest	\$121,800		\$121,800	
27	Total Cash from Net Income Before Debt Service	\$4,041,528		\$3,604,282	
Uses of Cash:					
28	Debt Service	\$849,071		\$849,071	
29	RCM Capital Expenses	\$540,860		\$540,860	
30	Capital Improvements - Utility Fund	\$1,350,000		\$1,350,000	
31	Energy Efficiency	\$0		\$0	
32	Total Uses of Cash	\$2,739,931		\$2,739,931	
33	Unrestricted Cash - Ending Balance	\$6,969,348		\$6,532,102	
34	Minimum Cash Requirement per Ordinance	\$1,018,257		\$1,018,257	
35	Recommended Minimum Cash	\$4,578,031		\$4,578,031	

DANVILLE UTILITIES - WASTEWATER
OPERATING STATEMENT ON A UTILITY BASIS - FISCAL YEAR 2021

Line No.	Item	Present Rates FY21	Pro Forma Adjustment	Pro Forma FY21	% Increase
Operating Revenue					
1	Base Rate Revenue	\$9,159,085	(\$437,246)	\$8,721,839	-4.8%
2	Other Revenue	\$1,230,395	\$0	\$1,230,395	
3	Total Revenue	\$10,389,480	(\$437,246)	\$9,952,235	
Operating Expenses					
4	Cost of Treatment	\$3,290,731	\$0	\$3,290,731	
5	Public Works	\$1,863,049	\$0	\$1,863,049	
6	Administrative & Support Services	\$745,860	\$0	\$745,860	
7	Subtotal	\$2,608,909	\$0	\$2,608,909	
8	Depreciation	\$2,162,883	\$0	\$2,162,883	
9	Operating Transfers	\$693,760	\$0	\$693,760	
10	Interest on Bonds	\$85,634	\$0	\$85,634	
11	Other Deductions	\$0	\$0	\$0	
12	Subtotal	\$2,942,278	\$0	\$2,942,278	
13	Total Expenses	\$8,841,917	\$0	\$8,841,917	
14	Net Income	\$1,547,563	(\$437,246)	\$1,110,317	
15	Net Rate Base	\$53,224,483	\$0	\$53,224,483	
16	Rate of Return on Rate Base	3.49%		2.71%	
DEBT SERVICE COVERAGE					
17	Net Income	\$1,547,563	\$0	\$1,110,317	
18	Add: Depreciation	\$2,162,883	\$0	\$2,162,883	
19	Add: Interest	\$85,634	\$0	\$85,634	
20	Cash Available for Debt Service	\$3,796,081	\$0	\$3,358,835	
21	Total Debt Service	\$510,303	\$0	\$510,303	
22	Debt Service Coverage Ratio	7.44		6.58	
CASH ANALYSIS					
23	Unrestricted Cash - Beginning Balance	\$6,532,102		\$6,532,102	
24	Net Income	\$1,547,563		\$1,110,317	
25	Add: Depreciation	\$2,162,883		\$2,162,883	
26	Add: Interest	\$85,634		\$85,634	
27	Total Cash from Net Income Before Debt Service	\$3,796,081		\$3,358,835	
Uses of Cash:					
28	Debt Service	\$510,303		\$510,303	
29	RCM Capital Expenses	\$540,860		\$540,860	
30	Capital Improvements - Utility Fund	\$1,350,000		\$1,350,000	
31	Energy Efficiency	\$0		\$0	
32	Total Uses of Cash	\$2,401,163		\$2,401,163	
33	Unrestricted Cash - Ending Balance	\$7,927,020		\$7,489,774	
34	Minimum Cash Requirement per Ordinance	\$1,049,088		\$1,049,088	
35	Recommended Minimum Cash	\$4,632,436		\$4,632,436	

Unit Cost Summary

Danville Utilities - Wastewater

Fiscal Year 2020

Line No.	Description	Total System	Residential	Commercial	Industrial	Municipal	Goodyear
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)
1	Customer Costs	\$2,830,936	\$2,462,530	\$349,455	\$5,216	\$13,561	\$174
2	No. of Customers	16,283	14,164	2,010	30	78	1
3	\$/Customer/Mo.	\$14.49	\$14.49	\$14.49	\$14.49	\$14.49	\$14.49
4	Demand & Commodity Costs	\$5,725,752	\$2,053,468	\$1,820,496	\$1,354,272	\$79,660	\$417,856
5	Cubic Feet Water	2,186,214	824,975	776,838	422,147	32,003	130,252
6	\$/CFW	\$2.62	\$2.49	\$2.34	\$3.21	\$2.49	\$3.21
7	Investment	\$102,290,749	\$37,494,609	\$34,139,893	\$22,316,154	\$1,454,517	\$6,885,575
8	Number of Customers		14,164	2,010	30	78	1
9	Investment/Customer		\$2,647	\$16,985	\$743,872	\$18,648	\$6,885,575
Average Usage							
10	CFW/Customer/Month		5	32	1,173	34	10,854

CITY OF DANVILLE

2018 Rate Study Water Utility

Prepared for:



DRAFT REPORT

November 16, 2018

Prepared by:



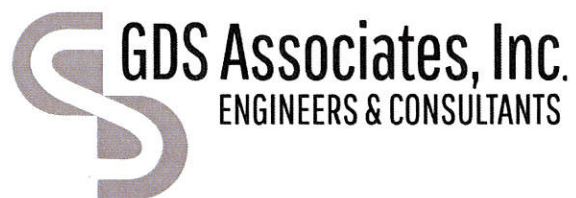
WATER 2018 RATE STUDY

Prepared for:



DRAFT November 16, 2018

Prepared By:



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LIST OF ACRONYMS

COSS	Cost of Service Study
DSC	Debt Service Coverage
FEMA	Federal Emergency Management Agency
FY	Fiscal Year
ROR	Rate of Return
WACC	Weighted Average Cost of Capital

1 INTRODUCTION

The City of Danville ("City" or "Danville") established its Financial Policies approved by Resolution #2011-11.08. As part of those policies, the Danville Utility Commission ("Commission") directs a biennial utility cost-of-service and rate study to evaluate revenue requirements and rates for the Gas, Electric, Wastewater, and Water utilities. Danville retained GDS Associates, Inc. ("GDS") to perform the 2018 Rate Study and work with Danville Utilities ("Danville") staff to evaluate revenue requirements and design revised rates if necessary for Fiscal Year ("FY") 2020 and FY 2021. This Report presents the 2018 Rate Study for the Water Utility.

2 UTILITY REVENUE REQUIREMENTS

To determine the sufficiency of present rates, revenues under present rates and operating and capital expenses are projected for FY20 and FY21. Rates should produce revenues that support the continued operations to provide reliable, safe, environmentally responsible, and high quality service and sustain infrastructure requirements to accommodate economic development. Several key financial metrics are evaluated to analyze whether rates need to be adjusted:

- **DEBT SERVICE COVERAGE ("DSC")** - The City's bond covenants include requirements that income each year is sufficient to pay interest and principal payments on outstanding debt. The DSC ratio measures the utility's ability to pay debt after operating expenses, and bonds require a utility to maintain a certain minimum DSC. A DSC ratio that is below or near the minimum level required by bond covenants is an indicator that revenue is insufficient.
- **CASH BALANCE** – cash balances should be carefully monitored to ensure the utility is able to cover operating and capital expenses. The City's Financial Policies provides a minimum cash level threshold for each utility. Furthermore, a strong but not excessive cash position will provide for greater credit rating from credit rating agencies. Insufficient cash projections are indicators that a rate increase may be necessary.
- **TARGET RATE OF RETURN ("ROR") ON RATE BASE** – the rate of return is a measure of how well current customers are paying for their fair share of the use of utility plant. A target ROR is established by evaluating the capital structure of the utility and determining the cost to raise capital. ROR establishes the operating income target on a utility (non-cash) basis.
- **CAPITAL PLANNING** – Capital plans can greatly influence the need for additional or less capital in the future. Therefore, the capital improvement plans for each utility provide further guidance with respect to rate setting objectives.

The projected financial statements are based on information provided by Danville and the best information known at this time. The projections are intended for the rate study only and are useful for determining expected revenue requirements. Actual financial performance could differ from these projections.

Given the projected financial information for FY20 and FY21, GDS is recommending a rate increase for the Water Utility at this time. Two financial indicators drive the recommendation to raise the Water revenues: the ROR is below the target level without a rate increase and there are significant expected capital improvements expected for the next twenty years. As described in the Wastewater 2018 Rate Study report, GDS is recommended a decrease to the Wastewater rates such that customer bills will be unchanged if they take both water and wastewater service.

Table 1 shows a comparison of the major financial targets evaluated in the Rate Study and the expected performance for the Water Utility. DSC and cash balances were meeting targets prior to a recommended rate increase and remain strong with a change in rates. The ROR under present rates falls just below the targeted return, but exceeds the targeted return level after a recommended 5.5% increase in overall revenues..

The remainder of the Report will provide further details on the analysis of DSC, cash, and ROR. Finally, this report will discuss the key assumptions made in developing the financial projections presented herein.

Table 1: Summary of Financial Projections

Line No.	Item	FY20	FY21
SUMMARY OF FINANCIAL TARGETS PRIOR TO RECOMMENDED RATE CHANGE			
1	<i>Recommended Target Rate of Return on Rate Base</i>	5.09%	5.09%
2	Projected Rate of Return on Rate Base	4.76%	4.46%
3	<i>Recommended Minimum Debt Service Coverage</i>	1.5	1.5
4	Projected DSC	3.20	5.24
5	<i>Financial Policy Minimum Unrestricted Cash Balance</i>	\$1,670,442	\$1,700,397
6	<i>Recommended Minimum Unrestricted Cash Balance</i>	\$5,266,262	\$5,313,198
7	Cash Balance at End of Fiscal Year	\$9,617,344	\$9,762,262
SUMMARY OF FINANCIAL TARGETS AFTER TO RECOMMENDED RATE CHANGE			
8	Recommended % Change in Base Rate Revenue	5.5%	5.5%
9	Recommended Additional Revenue	\$449,471	\$449,471
10	<i>Recommended Target Rate of Return on Rate Base</i>	5.09%	5.09%
11	Projected Rate of Return on Rate Base	5.85%	5.57%
12	<i>Recommended Minimum Debt Service Coverage</i>	1.5	1.5
13	Projected DSC	3.67	6.06
14	<i>Financial Policy Minimum Unrestricted Cash Balance</i>	\$1,670,442	\$1,700,397
15	<i>Recommended Minimum Unrestricted Cash Balance</i>	\$5,266,262	\$5,313,198
16	Cash Balance at End of Fiscal Year	\$10,066,815	\$10,211,733
KEY:  Green cells meet or exceed the targeted financial metric  Red cells are below the targeted financial metric			

3 PROJECTED OPERATING STATEMENTS

Without a rate increase, the Water Utility is projected to provide negative net income on a cash basis for FY20 and FY21. However, the rate increase provides for positive cash margins. As shown in Table 2, revenues after the rate adjustment are expected to be sufficient to cover all operating expenses and ongoing capital expenses and capital projects totaling \$2.1 million across both FY20 and FY21. Details on the assumptions made in developing the projected operating statements in Table 2 are provided later in this report.

Table 2: Projected Operating Statements - Cash Basis

Line No.	Item	FY19 Budget	FY20 Estimate	FY21 Estimate
REVENUES				
1	Base Rate Revenue - Current Rates	\$8,201,449	\$8,201,449	\$8,201,449
2	Base Rate Revenue Increase/(Decrease)	\$0	\$449,471	\$449,471
3	Subtotal - Base Rate Revenue	\$8,201,449	\$8,650,920	\$8,650,920
4	Other Revenue	\$4,888,941	\$405,797	\$423,496
5	Total Revenue	\$13,090,390	\$9,056,717	\$9,074,416
EXPENSES				
6	Treatment - Main	\$348,930	\$366,377	\$384,695
7	Laboratory	\$95,280	\$100,044	\$105,046
8	Operations	\$1,389,574	\$1,417,366	\$1,445,713
9	Engineering	\$266,240	\$279,552	\$293,530
10	Distribution	\$594,680	\$624,414	\$655,635
11	Service	\$217,200	\$221,544	\$225,975
12	Meters & Regulators	\$167,020	\$175,371	\$184,140
13	Capital Expenses	\$1,108,800	\$1,108,800	\$1,108,800
14	Admin & Support plus Interest on Bonds	\$1,590,406	\$1,576,902	\$1,564,685
15	Debt Service	\$928,370	\$821,291	\$469,507
16	Depreciation	\$1,680,000	\$1,701,384	\$1,724,907
17	Transfers to General Fund	\$942,300	\$942,300	\$942,300
18	Total Expenditures	\$9,328,800	\$9,335,345	\$9,104,933
19	Add - Deprecion	\$1,680,000	\$1,701,384	\$1,724,907
20	Revenue In Excess of Operating Expenses	\$5,441,590	\$1,422,756	\$1,694,390
21	Capital Projects	\$5,500,000	\$1,000,000	\$1,100,000
22	Revenues Over/(Under) Expenses	(\$58,410)	\$422,756	\$594,390
UNRESTRICTED CASH BALANCE SUMMARY				
23	Unrestricted Cash Balance - Beginning of FY	\$9,702,469	\$9,644,059	\$10,066,815
24	Net Change in Cash	(\$58,410)	\$422,756	\$594,390
25	Unrestricted Cash Balance - End of FY	\$9,644,059	\$10,066,815	\$10,661,204

4 DEBT SERVICE COVERAGE

The DSC ratio is a measure of the ability of the Utility to pay current debt obligations from the cash flow produced in a given year. The ratio states net operating income in an operating year on a cash basis as a multiple of debt obligations due within that year. Bond covenants require a utility to maintain a minimum target DSC ratio, typically 1.25. Utilities often establish a minimum DSC target that includes some cushion above the minimum requirements from the bond covenants to help mitigate against weather impacts on sales or other uncertainties and to obtain stronger bond ratings from rating agencies. GDS has established a 1.50 DSC target for the 2018 Rate Study. As shown below, the Water Utility is expected to produce DSC well in excess of the targeted minimum.

Table 3: DSC Ratio for FY20

DEBT SERVICE COVERAGE				
1	Net Income	\$1,201,992	\$449,471	\$1,651,463
2	Add: Depreciation	\$1,701,384	\$0	\$1,701,384
3	Add: Interest	\$126,239	\$0	\$126,239
4	Cash Available for Debt Service	\$3,029,615	\$449,471	\$3,479,086
5	Total Debt Service	\$947,530	\$0	\$947,530
6	Debt Service Coverage Ratio	3.20		3.67

Table 4: DSC Ratio for FY21

DEBT SERVICE COVERAGE				
1	Net Income	\$1,098,319	\$449,471	\$1,547,790
2	Add: Depreciation	\$1,724,907	\$0	\$1,724,907
3	Add: Interest	\$85,008	\$0	\$85,008
4	Cash Available for Debt Service	\$2,908,234	\$449,471	\$3,357,705
5	Total Debt Service	\$554,516	\$0	\$554,516
6	Debt Service Coverage Ratio	5.24		6.06

5 CASH RESERVE TARGETS

A minimum level of unrestricted cash reserves is necessary to ensure the utility can fund replacement of assets without incurring significant debt and can absorb some of the costs associated with extraordinary events without necessitating a rate increase. A strong cash position is a key component of a good bond rating as well, so maintaining cash reserves helps lower the cost of future debt. If cash is expected to fall below the minimum, action is required to restore the balance. Options include a rate increase, issuing additional bonds to help pay for capital improvements and ordinary replacements, or reducing operating or capital expenses.

The cash target has been computed by GDS using two methods. The first method is that defined by the City's Financial Policies. The second is an approach that evaluates separate factors that all contribute to a cash minimum reserve designed to cover some portion of working capital, likely need for replacement of historical assets, future capital improvements, and debt service. The second approach establishes a recommended cash balance minimum that is higher than the City Financial Policies method.

The City's Financial Policies requires that each utility should maintain an unrestricted cash balance minimum calculated as follows:

The Water, Wastewater, Gas, Electric, and Telecommunications Funds shall maintain unrestricted fund balances equal to at least 90 days of average operating and maintenance expenses, inclusive of transfers to the General Fund, plus 90 days of the next fiscal year's debt service payments.

GDS' recommended approach is similar to the approach recommended by Utility Financial Solutions in the prior rate study. The approach evaluates four separate factors to establish a cash reserve sufficient to cover unexpected costs in each of those factors.

- **Working Capital** - Assigns some cash reserve to account for the timing differences between when expenses are incurred and revenues are collected.
- **Replacement of Existing Assets** - The existing infrastructure may require ordinary replacement over time, or extreme weather events (tornados, flooding, ice storms) may require replacement of plant prior to the end of its useful life. A portion of the cash reserve should be established to account for such possibilities, making cash available quickly to restore service instead of debt-financing or awaiting FEMA reimbursement, which can take years at times. This portion of the cash reserve is expressed as a percentage of the current plant in service, and depends on how old the plant is.
- **Capital Improvement** - The average one-year capital improvement plan should be held in reserves. This helps assure timely replacement of construction assets and makes cash available so that the full capital improvement plan does not have to be debt financed.
- **Annual Debt Service** - Since debt service payments are not incurred uniformly throughout the year, it is beneficial to hold a years' worth of debt service in reserve to help fund debt service payment without consideration of the timing of incoming cash flows through operating income on a month-to-month basis.

Table 5 shows the computations for establishing the cash reserve targets under both methodologies. The Water Utility is projected to have sufficient cash in excess of both targets in FY20 and FY21, as shown in Table 1.

Table 5: Computation of Cash Reserve Minimums

Line No.	Item	FY18	FY19	FY20	FY21
CITY POLICY APPROACH					
1	Total Expenditures	\$9,481,830	\$9,328,800	\$9,335,345	\$9,104,933
	Less:				
2	Cost of Treatment - Main	\$352,310	\$348,930	\$366,377	\$384,695
3	Depreciation	\$1,656,000	\$1,680,000	\$1,701,384	\$1,724,907
4	Debt Service	\$889,100	\$928,370	\$821,291	\$469,507
5	Interest Expense	\$214,160	\$168,186	\$126,239	\$85,008
6	Jobbing & Inventory Obsolescence	\$0	\$0	\$0	\$0
7	Contingency	\$100,000	\$100,000	\$100,000	\$100,000
8	Energy Efficiency Program	\$0	\$0	\$0	\$0
9	Subtotal - Adjustments	\$3,211,570	\$3,225,486	\$3,115,290	\$2,764,118
10	Total Operating Expenses for Minimum	\$6,270,260	\$6,103,314	\$6,220,055	\$6,340,815
11	90 Days of Qualifying Expenses	\$1,546,092	\$1,504,927	\$1,533,712	\$1,563,489
12	Plus: 90 Days of Next FY Debt Service	\$270,379	\$233,637	\$136,730	\$136,908
13	TOTAL MINIMUM CASH RESERVE TARGET	\$1,816,471	\$1,738,564	\$1,670,442	\$1,700,397
MINIMUM CASH RESERVE DETAIL COMPUTATION APPROACH					
14	O&M Expenses Excluding Deprecation	\$5,540,490	\$5,443,444	\$5,577,631	\$5,716,711
15	45 Days of O&M	\$683,074	\$671,110	\$687,653	\$704,800
16	Cost of Treatment - Monthly Average Bill	\$29,359	\$29,078	\$30,531	\$32,058
17	45 Days of Supply Cost	\$44,039	\$43,616	\$45,797	\$48,087
18	Historical Fixed Assets	\$73,061,976	\$78,561,976	\$79,561,976	\$80,661,976
19	Accumulated Depreciation	\$37,483,399	\$39,163,399	\$40,864,784	\$42,589,691
20	Percent of Plant Depreciated	51.3%	49.9%	51.4%	52.8%
21	Fixed Assets Factor	3%	3%	3%	3%
22	Historical Assets Cash Requirement	\$1,826,549	\$1,964,049	\$1,989,049	\$2,016,549
23	Five-Year Capital Improvements	\$8,100,000	\$8,100,000	\$8,100,000	\$8,100,000
24	Cash Reserve Allocation	20%	20%	20%	20%
25	Future Capital Improvements Reserve	\$1,620,000	\$1,620,000	\$1,620,000	\$1,620,000
26	Average Annual Debt Service	\$923,762	\$923,762	\$923,762	\$923,762
27	TOTAL MINIMUM CASH RESERVE TARGET	\$5,097,424	\$5,222,537	\$5,266,262	\$5,313,198

6 RATE OF RETURN

The ROR is a measure of the utility's net income earned on the assets deployed to provide safe and reliable utility service. The ROR is computed using net income on a utility basis as opposed to a cash basis. In the utility basis, depreciation and interest on debt are including as operating expenses but not principal payments. To compute the net income for ROR, the utility-basis net income is adjusted in two ways. First, interest expense is added back to net income, as ROR as computed using income before debt service is paid. Second, a portion of transfers to general fund are added back to net income. The general fund transfer is viewed by the Danville Utility Commission as serving two functions: providing a return to the City as equity holders and as a franchise fee for granting the right of the utility to serve its citizens. GDS separates the two components by assuming a 4.5% franchise fee to represent that portion of general fund transfers (based on typical franchise fees paid to neighboring cities by Investor Owned Electric Utilities). The remaining transfer amount is then added back to net income for purposes of computing ROR as the return on equity portion of transfers.

The adjusted utility basis net income is then divided by the rate base to compute the ROR. The rate base is the value of the assets deployed by the utility to provide service and includes the net book value of plant in service plus working capital. The ROR is a measure of whether the utility's current ratepayers are paying a fair share of the costs of plant in service and not deferring the costs to future ratepayers. The target rate of return is based on the current weighted average cost of capital ("WACC") which represents the utility's costs to raise capital for funding of assets. The WACC is a weighted average of the current interest on bonds (the cost of debt) and the cost of equity. The cost of equity is driven by expected growth in plant in the future.

The Water Utility will produce positive ROR in FY20 and FY21, but they will not quite reach the target ROR under present rates. With the recommended rate increase, water rates will produce returns in excess of the WACC, but not significantly so. This is a reasonable outcome for a rate increase.

Table 6: Net Income and Rate of Return on Utility Basis

Line No.	Item	Present Rates FY 2020	Pro Forma FY 2020	Present Rates FY 2021	Pro Forma FY 2021
1	Total Transfer to General Fund	\$942,300	\$942,300	\$942,300	\$942,300
2	Total Revenue	\$8,607,246	\$9,056,717	\$8,624,945	\$9,074,416
3	Percent	10.9%	10.4%	10.9%	10.4%
4	Franchise Fee Rate	4.50%	4.50%	4.50%	4.50%
5	Portion of Transfer that is Franchise Fee	\$387,326	\$407,552	\$388,123	\$408,349
6	Portion of Transfer that is Return on Equity	\$554,974	\$534,748	\$554,177	\$533,951
7	Net Income: Utility Basis	\$1,201,992	\$1,651,463	\$1,098,319	\$1,547,790
8	Add Back: Interest Expense	\$126,239	\$126,239	\$85,008	\$85,008
9	Add Back: Return on Equity Portion of Transfer	\$554,974	\$534,748	\$554,177	\$533,951
10	Income for Rate of Return	\$1,883,204	\$2,312,449	\$1,737,504	\$2,166,749
11	Net Rate Base	\$39,533,728	\$39,533,728	\$38,926,720	\$38,926,720
12	Rate of Return on Rate Base	4.76%	5.85%	4.46%	5.57%

7 RATE RECOMMENDATIONS

7.1 GENERAL RATE REVISION

In order to ensure no bill impact on customers with both water and wastewater service due to shifting revenue from the wastewater to water fund, GDS recommends an adjustment only to the consumption-based variable charge for service. As shown below, we recommend a \$0.20 per 100 cubic feet increase in the water consumption charge. As will be shown in the Wastewater Utility 2018 Rate Study report, GDS recommends an offsetting \$0.20 decrease to the wastewater consumption charge.

Table 7: Recommended Rate Revision Effective FY 2020

Line No.	Rate Item	Present Rates	Proposed Rates	Change	% Change
(a)	(b)	(c)	(d)	(e)	(f)
	<u>Customer Charge by Meter Size:</u>				
1	5/8"	\$8.85	\$8.85	\$0.00	0.0%
2	1"	\$22.13	\$22.13	\$0.00	0.0%
3	1 1/2"	\$44.25	\$44.25	\$0.00	0.0%
4	2"	\$70.80	\$70.80	\$0.00	0.0%
5	3"	\$141.60	\$141.60	\$0.00	0.0%
6	4"	\$221.25	\$221.25	\$0.00	0.0%
7	6"	\$442.50	\$442.50	\$0.00	0.0%
8	8"	\$708.00	\$708.00	\$0.00	0.0%
9					
	<u>Consumption Charge</u>				
10	per 100 Cubic Feet	\$2.40	\$2.60	\$0.20	8.3%

7.2 GOODYEAR CAPITAL IMPROVEMENT RATE RIDE

To assure appropriate cash is available to contribute toward capital requirements specific to the Goodyear facility, Danville Utilities has requested GDS design a rate rider that would be applied to the Goodyear account billing in order to accumulate capital specific to Goodyear improvement projects. For the design, the expectation is that \$80,000 in specific capital needs will be needed in the next two years. To identify possible ongoing capital needs, we developed a levelized cost analysis assuming the following as potential ongoing repairs and replacements at the site:

Pump Repair	\$15,000 every 5 years
Pump Replacement	\$30,000 every 25 years
Alum Feeder Replacement	\$ 2,000 every 5 years
Lab Equipment	\$ 5,000 every 10 years
Major Clarifier Repair	\$90,000 every 25 years
Minor Clarifier Repair	\$ 5,000 every 5 years

A levelized cost of these repairs results in the need to accumulate \$15,000 per year to cover the cost of such repairs when necessary.

Given these assumptions and evaluating seven years of historical water consumption for the site, the following recommended rate rider would be necessary to accumulate the appropriate capital contributions over time to smooth out the impacts of capital improvements:

Year 1 and 2:	\$0.255 per CCF
Year 3 and Beyond:	\$0.070 per CCF

8 KEY INPUTS AND ASSUMPTIONS

This section will summarize the key inputs into the analysis and describe the assumptions made to develop the projected operating statements for FY20 and FY21. The projected financial statements are based on information provided by Danville and the best information known at this time. The projections are intended for the rate study only and are useful for determining expected revenue requirements. Actual financial performance could differ from these projections.

8.1 REVENUES

- FY20 and FY21 base rate revenues under present rates are projected to remain constant at the Budgeted amount for FY19.
- Other revenues, including miscellaneous revenues and revenues from use of money and property, are projected to increase by 5.00% per year from the FY19 Budgeted amount.
- The resultant total revenue is projected to decline in FY20 and increase by 0.21% in FY21, producing total revenue just over \$8.6 million in each year.

8.2 OPERATING EXPENSES

- Treatment costs are projected to grow by 5.00% each year from the FY19 Budget. Treatment expenses will reach \$385,000 by FY21 under that assumed growth rate.
- Other operating expenses¹ are projected based on recent historical trends. They are projected to grow by 2.8% per year from the Budget values for FY19.
- Operating transfers to the General Fund are held constant at the FY19 Budget. This assumption was provided to GDS by Danville's Finance Department.
- Interest and debt service expenses are based on debt service schedules provided by Danville.

8.3 CAPITAL EXPENSES

- Ongoing capital expenses (regular replacements) are projected to remain at the same level as the FY19 Budget. This assumption results in capital expenses of just over \$940,000 per year in FY20 and FY21.
- \$1.00 million in capital projects is projected to be funded by revenue in FY20. \$1.10 million in capital projects is projected to be funded by revenue in FY21. These assumptions were provided to GDS by Danville.

¹ Laboratory, Operations, Engineering, Distribution, Service, Meters & Regulators, and Administrative and Support Services.

Water 2018 Rate Study

Prepared for:

Danville Utilities

Prepared By:



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Marietta, Georgia 30067
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CITY OF DANVILLE

2018 Rate Study

Gas Utility

Prepared for:



DRAFT REPORT

November 16, 2018

Prepared by:



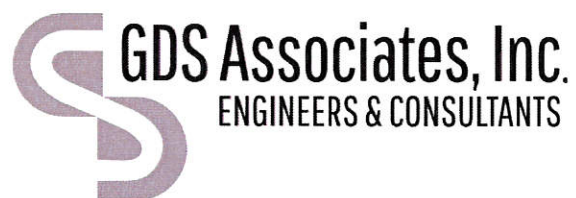
GAS 2018 RATE STUDY

Prepared for:



DRAFT November 19, 2018

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2 UTILITY REVENUE REQUIREMENTS

To determine the sufficiency of present rates, revenues under present rates and operating and capital expenses are projected for FY20 and FY21. Rates should produce revenues that support the continued operations to provide reliable, safe, environmentally responsible, and high quality service and sustain infrastructure requirements to accommodate economic development. Several key financial metrics are evaluated to analyze whether rates need to be adjusted:

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- **CASH BALANCE** – cash balances should be carefully monitored to ensure the utility is able to cover operating and capital expenses. The City's Financial Policies provides a minimum cash level threshold for each utility. Furthermore, a strong but not excessive cash position will provide for greater credit rating from credit rating agencies. Insufficient cash projections are indicators that a rate increase may be necessary.
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The projected financial statements are based on information provided by Danville and the best information known at this time. The projections are intended for the rate study only and are useful for determining expected revenue requirements. Actual financial performance could differ from these projections.

Given the projected financial information for FY20 and FY21, GDS is recommending an overall 9.6% rate reduction for the Gas Utility effective in FY20, resulting in an \$875,000 reduction in revenue. GDS projects that base rate revenues are sufficient to cover operating costs and that supply costs and PGA revenues are expected to decline in the next two years. As a result, present rate revenues produce stronger than targeted financial performance and there is sufficient cash in the fund balance to meet capital improvement needs and still support a rate decrease. The details of the recommended rates to achieve the overall rate decrease are provided later in this report.

Table 1 shows a comparison of the major financial targets evaluated in the Rate Study and the expected performance for the Gas Utility. DSC and cash balances remain strong even after the rate reduction, far exceeding targeted levels. The ROR earned is positive and exceeds the recommended ROR target under present rates. The revised rates are designed to generate the targeted ROR in FY20. With lower supply costs expected in FY20 and FY21, the Gas fund should be able to meet capital improvement needs while maintaining a strong financial position overall.

The remainder of the Report will provide further details on the analysis of DSC, cash, and ROR. Finally, this report will discuss the key assumptions made in developing the financial projections presented herein.

Table 1: Summary of Financial Projections

Line No.	Item	FY20	FY21
SUMMARY OF FINANCIAL TARGETS PRIOR TO RECOMMENDED RATE CHANGE			
1	Recommended Target Rate of Return on Rate Base	5.60%	5.60%
2	Projected Rate of Return on Rate Base	7.54%	7.28%
3	Recommended Minimum Debt Service Coverage	1.50	1.50
4	Projected DSC	21.55	31.86
5	Financial Policy Minimum Unrestricted Cash Balance	\$2,025,251	\$2,073,796
6	Recommended Minimum Unrestricted Cash Balance	\$5,544,672	\$5,562,388
7	Cash Balance at End of Fiscal Year	\$11,339,191	\$10,845,506
SUMMARY OF FINANCIAL TARGETS AFTER TO RECOMMENDED RATE CHANGE			
9	Recommended % Change in Base Rate Revenue	-9.6%	-9.6%
10	Recommended Additional Revenue	(\$874,928)	(\$874,928)
11	Recommended Target Rate of Return on Rate Base	5.60%	5.60%
12	Projected Rate of Return on Rate Base	5.61%	5.35%
14	Recommended Minimum Debt Service Coverage	1.50	1.50
15	Projected DSC	18.35	27.05
16	Financial Policy Minimum Unrestricted Cash Balance	\$2,025,251	\$2,073,796
17	Recommended Minimum Unrestricted Cash Balance	\$5,544,672	\$5,562,388
18	Cash Balance at End of Fiscal Year	\$10,464,263	\$9,970,578
KEY:  Green cells meet or exceed the targeted financial metric  Red cells are below the targeted financial metric			

3 PROJECTED OPERATING STATEMENTS

The current Gas Fund cash balance is well in excess of the current targets, so the expectation is that capital improvements in FY20 and FY21 will be funded from the fund balance as opposed to in-year rate revenues. As shown in Table 2, the fund balance will contribute approximately \$490,000 toward capital improvements in each year of the projection. Details on the assumptions made in developing the projected operating statements in Table 2 are provided later in this report.

Table 2: Projected Operating Statements - Cash Basis

Line No.	Item	FY19 Budget	FY20 Estimate	FY21 Estimate
REVENUES				
1	Base Rate Revenue - Current Rates	\$22,398,087	\$22,072,504	\$21,854,872
2	Base Rate Revenue Increase/(Decrease)	\$0	(\$874,928)	(\$874,928)
3	Subtotal - Base Rate Revenue	\$22,398,087	\$21,197,576	\$20,979,944
4	Other Revenue	\$585,533	\$611,600	\$638,970
5	Total Revenue	\$22,983,620	\$21,809,176	\$21,618,914
EXPENSES				
6	Source of Supply	\$13,343,220	\$12,794,664	\$12,502,712
7	Engineering	\$421,730	\$453,360	\$487,362
8	Distribution	\$539,310	\$593,241	\$652,565
9	Service	\$244,730	\$256,967	\$269,815
10	Meters & Regulators	\$190,620	\$204,917	\$220,285
11	Gas Control	\$480,110	\$504,116	\$529,321
12	Capital Expenses	\$1,074,810	\$1,074,810	\$1,074,810
13	Admin & Support	\$1,936,403	\$1,984,813	\$2,034,434
14	Debt Service	\$296,767	\$273,420	\$181,965
15	Depreciation	\$1,565,000	\$1,597,990	\$1,630,979
16	Transfers to General Fund	\$3,059,330	\$3,059,330	\$3,059,330
17	Total Expenditures	\$23,152,030	\$22,797,627	\$22,643,578
18	Add - Depreciation	\$1,565,000	\$1,597,990	\$1,630,979
19	Revenue In Excess of Operating Expenses	\$1,396,590	\$609,539	\$606,315
20	Capital Projects	\$1,100,000	\$1,100,000	\$1,100,000
21	Revenues Over/(Under) Expenses	\$296,590	(\$490,461)	(\$493,685)
UNRESTRICTED CASH BALANCE SUMMARY				
22	Unrestricted Cash Balance - Beginning of FY	\$10,658,134	\$10,954,724	\$10,464,263
23	Net Change in Cash	\$296,590	(\$490,461)	(\$493,685)
24	Unrestricted Cash Balance - End of FY	\$10,954,724	\$10,464,263	\$9,970,578

4 DEBT SERVICE COVERAGE

The DSC ratio is a measure of the ability of the Utility to pay current debt obligations from the cash flow produced in a given year. The ratio states net operating income in an operating year on a cash basis as a multiple of debt obligations due within that year. Bond covenants require a utility to maintain a minimum target DSC ratio, typically 1.25. Utilities often establish a minimum DSC target that includes some cushion above the minimum requirements from the bond covenants to help mitigate against weather impacts on sales or other uncertainties and to obtain stronger bond ratings from rating agencies. GDS has established a 1.50 DSC target for the 2018 Rate Study. As shown below, the Gas Utility is expected to produce DSC well in excess of the targeted minimum.

Table 3: DSC Ratio for FY20

Line No.	Item	Present Rates FY20	Pro Forma Adjustment	Pro Forma FY20
DEBT SERVICE COVERAGE				
1	Net Income	\$1,182,675	(\$874,928)	\$307,747
2	Add: Depreciation	\$1,597,990	\$0	\$1,597,990
3	Add: Interest	\$52,033	\$0	\$52,033
4	Add: Operating Transfers	\$3,059,330	\$0	\$3,059,330
5	Cash Available for Debt Service	\$5,892,027	\$0	\$5,017,099
6	Total Debt Service	\$273,420	\$0	\$273,420
7	Debt Service Coverage Ratio	21.55		18.35

Table 4: DSC Ratio for FY21

Line No.	Item	Present Rates FY21	Pro Forma Adjustment	Pro Forma FY21
DEBT SERVICE COVERAGE				
1	Net Income	\$1,065,571	(\$874,928)	\$190,643
2	Add: Depreciation	\$1,630,979	\$0	\$1,630,979
3	Add: Interest	\$41,468	\$0	\$41,468
4	Add: Operating Transfers	\$3,059,330	\$0	\$3,059,330
5	Cash Available for Debt Service	\$5,797,349	\$0	\$4,922,421
6	Total Debt Service	\$181,965	\$0	\$181,965
7	Debt Service Coverage Ratio	31.86		27.05

5 CASH RESERVE TARGETS

A minimum level of unrestricted cash reserves is necessary to ensure the utility can fund replacement of assets without incurring significant debt and can absorb some of the costs associated with extraordinary events without necessitating a rate increase. A strong cash position is a key component of a good bond rating as well, so maintaining cash reserves helps lower the cost of future debt. If cash is expected to fall below the minimum, action is required to restore the balance. Options include a rate increase, issuing additional bonds to help pay for capital improvements and ordinary replacements, or reducing operating or capital expenses.

The cash target has been computed by GDS using two methods. The first method is that defined by the City's Financial Policies. The second is an approach that evaluates separate factors that all contribute to a cash minimum reserve designed to cover some portion of working capital, likely need for replacement of historical assets, future capital improvements, and debt service. The second approach establishes a recommended cash balance minimum that is higher than the City Financial Policies method.

The City's Financial Policies requires that each utility should maintain an unrestricted cash balance minimum calculated as follows:

The Water, Wastewater, Gas, Electric, and Telecommunications Funds shall maintain unrestricted fund balances equal to at least 90 days of average operating and maintenance expenses, inclusive of transfers to the General Fund, plus 90 days of the next fiscal year's debt service payments.

GDS' recommended approach is similar to the approach recommended by Utility Financial Solutions in the prior rate study. The approach evaluates four separate factors to establish a cash reserve sufficient to cover unexpected costs in each of those factors.

- **Working Capital** - Assigns some cash reserve to account for the timing differences between when expenses are incurred and revenues are collected.
- **Replacement of Existing Assets** – The existing infrastructure may require ordinary replacement over time, or extreme weather events (tornados, flooding, ice storms) may require replacement of plant prior to the end of its useful life. A portion of the cash reserve should be established to account for such possibilities, making cash available quickly to restore service instead of debt-financing or awaiting FEMA reimbursement, which can take years at times. This portion of the cash reserve is expressed as a percentage of the current plant in service, and depends on how old the plant is.
- **Capital Improvement** – The average one-year capital improvement plan should be held in reserves. This helps assure timely replacement of construction assets and makes cash available so that the full capital improvement plan does not have to be debt financed.
- **Annual Debt Service** – Since debt service payments are not incurred uniformly throughout the year, it is beneficial to hold a years' worth of debt service in reserve to help fund debt service payment without consideration of the timing of incoming cash flows through operating income on a month-to-month basis.

Table 5 shows the computations for establishing the cash reserve targets under both methodologies. The Gas Utility is projected to have sufficient cash in excess of both targets in FY20 and FY21, as shown in Table 1.

Table 5: Computation of Cash Reserve Minimums

Line No.	Item	FY18	FY19	FY20	FY21
CITY POLICY APPROACH					
1	Total Expenditures	\$25,620,090	\$23,152,030	\$22,797,627	\$22,643,578
	Less:				
2	Cost of Supply	\$15,190,560	\$13,343,220	\$12,794,664	\$12,502,712
3	Depreciation	\$1,605,000	\$1,565,000	\$1,597,990	\$1,630,979
4	Debt Service	\$225,660	\$234,390	\$221,388	\$140,497
5	Interest Expense	\$68,470	\$62,377	\$52,033	\$41,468
6	Jobbing & Inventory Obsolescence	\$0	\$0	\$0	\$0
7	Contingency	\$100,000	\$100,000	\$100,000	\$100,000
8	Energy Efficiency Program	\$0	\$0	\$0	\$0
9	Subtotal - Adjustments	\$17,189,690	\$15,304,987	\$14,766,074	\$14,415,656
10	Total Operating Expenses for Minimum	\$8,430,400	\$7,847,043	\$8,031,553	\$8,227,922
11	90 Days of Qualifying Expenses	\$2,078,729	\$1,934,887	\$1,980,383	\$2,028,803
12	Plus: 90 Days of Next FY Debt Service	\$73,174	\$67,419	\$44,868	\$44,993
13	TOTAL MINIMUM CASH RESERVE TARGET	\$2,151,903	\$2,002,306	\$2,025,251	\$2,073,796
MINIMUM CASH RESERVE DETAIL COMPUTATION APPROACH					
14	O&M Expenses Excluding Deprecation	\$7,122,230	\$6,872,233	\$7,056,743	\$7,253,112
15	<i>45 Days of O&M</i>	<i>\$878,083</i>	<i>\$847,262</i>	<i>\$870,009</i>	<i>\$894,219</i>
16	Cost of Supply - Monthly Average Bill	\$1,265,880	\$1,111,935	\$1,066,222	\$1,041,893
17	<i>45 Days of Supply Cost</i>	<i>\$1,898,820</i>	<i>\$1,667,903</i>	<i>\$1,599,333</i>	<i>\$1,562,839</i>
18	Historical Fixed Assets	\$68,858,493	\$71,158,493	\$72,658,493	\$74,158,493
19	Accumulated Depreciation	\$27,580,381	\$29,145,381	\$30,743,370	\$32,374,350
20	Percent of Plant Depreciated	40.1%	41.0%	42.3%	43.7%
21	Fixed Assets Factor	2%	2%	2%	2%
22	<i>Historical Assets Cash Requirement</i>	<i>\$1,377,170</i>	<i>\$1,423,170</i>	<i>\$1,453,170</i>	<i>\$1,483,170</i>
23	Five-Year Capital Improvements	\$6,800,000	\$6,800,000	\$6,800,000	\$6,800,000
24	Cash Reserve Allocation	20%	20%	20%	20%
25	<i>Future Capital Improvements Reserve</i>	<i>\$1,360,000</i>	<i>\$1,360,000</i>	<i>\$1,360,000</i>	<i>\$1,360,000</i>
26	<i>Average Annual Debt Service</i>	<i>\$262,160</i>	<i>\$262,160</i>	<i>\$262,160</i>	<i>\$262,160</i>
27	TOTAL MINIMUM CASH RESERVE TARGET	\$5,776,233	\$5,560,494	\$5,544,672	\$5,562,388

6 RATE OF RETURN

The ROR is a measure of the utility's net income earned on the assets deployed to provide safe and reliable utility service. The ROR is computed using net income on a utility basis as opposed to a cash basis. In the utility basis, depreciation and interest on debt are including as operating expenses but not principal payments. To compute the net income for ROR, the utility-basis net income is adjusted in two ways. First, interest expense is added back to net income, as ROR as computed using income before debt service is paid. Second, a portion of transfers to general fund are added back to net income. The general fund transfer is viewed by the Danville Utility Commission as serving two functions: providing a return to the City as equity holders and as a franchise fee for granting the right of the utility to serve its citizens. GDS separates the two components by assuming a 4.5% franchise fee to represent that portion of general fund transfers (based on typical franchise fees paid to neighboring cities by Investor Owned Electric Utilities). The remaining transfer amount is then added back to net income for purposes of computing ROR as the return on equity portion of transfers.

The adjusted utility basis net income is then divided by the rate base to compute the ROR. The rate base is the value of the assets deployed by the utility to provide service and includes the net book value of plant in service plus working capital. The ROR is a measure of whether the utility's current ratepayers are paying a fair share of the costs of plant in service and not deferring the costs to future ratepayers. The target rate of return is based on the current weighted average cost of capital ("WACC") which represents the utility's costs to raise capital for funding of assets. The WACC is a weighted average of the current interest on bonds (the cost of debt) and the cost of equity. The cost of equity is driven by expected growth in plant in the future.

The Gas Utility will produce positive ROR in FY20 and FY21, exceeding the target ROR under present rates and approximating the targeted ROR under the proposed rate revisions.

Table 6: Net Income and Rate of Return on Utility Basis

Line No.	Item	Present Rates FY 2020	Pro Forma FY 2020	Present Rates FY 2021	Pro Forma FY 2021
1	Total Transfer to General Fund	\$3,059,330	\$3,059,330	\$3,059,330	\$3,059,330
2	Total Revenue	\$22,684,104	\$21,809,176	\$22,493,842	\$21,618,914
3	Percent	13.5%	14.0%	13.6%	14.2%
4	PILOT Rate	4.50%	4.50%	4.50%	4.50%
5	Portion of Transfer that is Franchise Fee	\$1,020,785	\$981,413	\$1,012,223	\$972,851
6	Portion of Transfer that is Return on Equity	\$2,038,545	\$2,077,917	\$2,047,107	\$2,086,479
7	Net Income: Utility Basis	\$1,182,675	\$307,747	\$1,065,571	\$190,643
8	Add Back: Interest Expense	\$52,033	\$52,033	\$41,468	\$41,468
9	Add Back: Return on Equity Portion of Transfer	\$2,038,545	\$2,077,917	\$2,047,107	\$2,086,479
10	Income for Rate of Return	\$3,273,252	\$2,437,696	\$3,154,146	\$2,318,590
11	Net Rate Base	\$43,433,763	\$43,433,763	\$43,314,995	\$43,314,995
12	Rate of Return on Rate Base	7.54%	5.61%	7.28%	5.35%

7 RATE DESIGN

GDS has prepared recommended revised rates to achieve the overall 9.6% revenue reduction. GDS evaluated relative performance of the present rates to determine the rate reduction recommendation for each class. We designed proposed rates using three guiding philosophies:

- 1) Every rate class should enjoy some rate reduction;
- 2) Classes currently earning a higher rate of return should enjoy a relatively larger rate reduction;
- 3) No class should receive a reduction in excess of 1.2 times the overall rate reduction (meaning no class should see greater than a $1.2 \times 9.6\% = 11.5\%$ reduction).

A cost of service model updated to reflect FY20 operating information indicates that industrial gas customers tend to earn higher rates of return than the overall system average, with the industrial firm gas rate earning the highest margins. The commercial and industrial transportation classes earn lower than the system average rate of return.

Figures 1 and 2 below show rates of return by class under present and GDS' proposed rates. The relative rate of return shown in Figure 2 is a ratio of the class rate of return divided by the total system rate of return. Therefore, a relative rate of return of 1.0 means the class earns the same return as the system. Table 7 shows specific recommended rate reductions by class and the class-level impact on revenues.

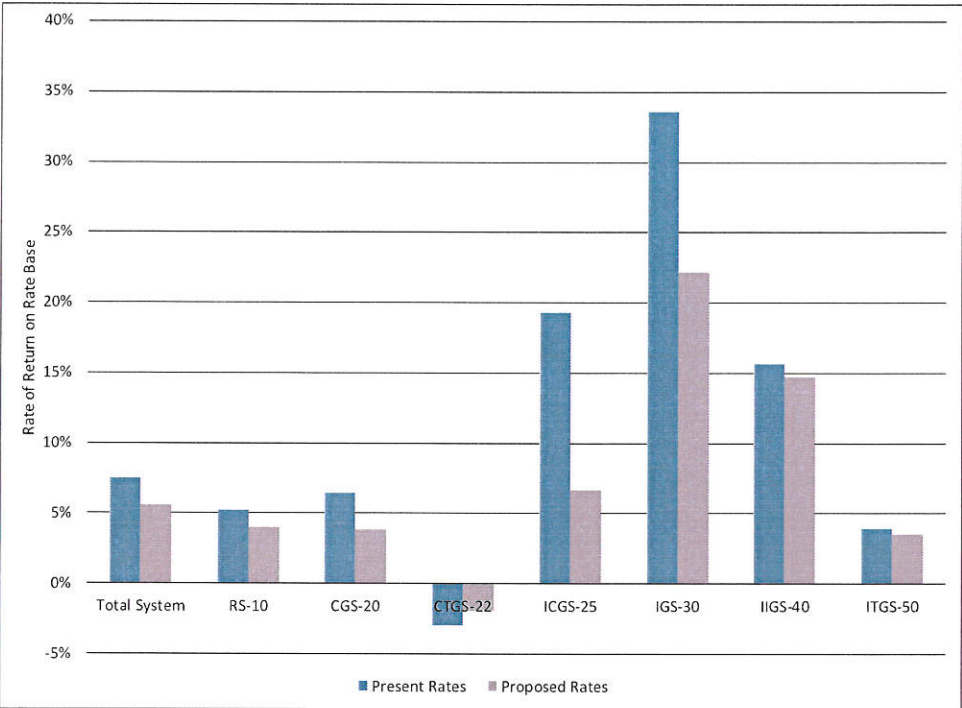


Figure 1: Rates of Return Earned by Class Under Present and Proposed Rates

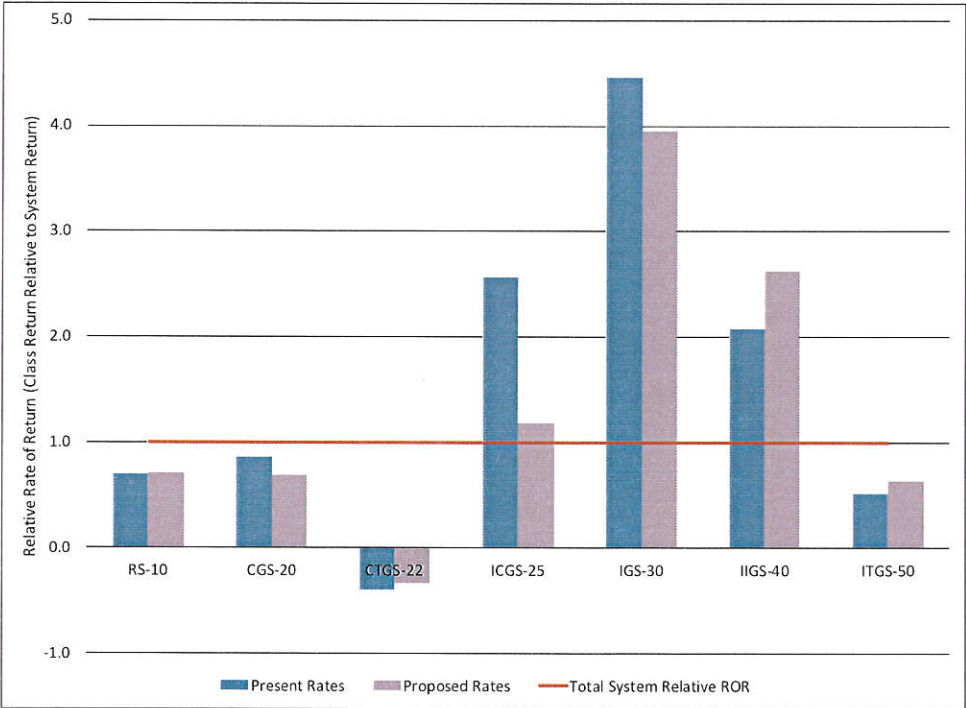


Figure 2: Relative Rate of Return by Class Under Present and Proposed Rates

Table 7: Proposed Rates and Class-Level Impacts of Proposed Rate Changes

Residential Gas Service - Schedule R5 (Rate Code = 10)								
Rate Component	Present Rates			Proposed Rates			Rate Reduction	
	Rate Charge	Billing Units	Revenues FY20	Rate Charge	Billing Units	Revenues FY20	Revenue	Percent
Customer Charge	\$11.15	159,231	\$1,775,426	\$11.15	159,231	\$1,775,426	\$0	0.0%
Gas Charge	\$0.3350	6,821,880	\$2,285,330	\$0.2750	6,821,880	\$1,876,017	(\$409,313)	-17.9%
PGA	\$0.5520	6,821,880	\$3,765,378	\$0.5520	6,821,880	\$3,765,378	\$0	0.0%
Total			\$7,826,133			\$7,416,820	(\$409,313)	-5.2%

Firm Commercial Gas Service - Schedule CGS (Rate Code = 20)								
Rate Component	Present Rates			Proposed Rates			Rate Reduction	
	Rate Charge	Billing Units	Revenues FY20	Rate Charge	Billing Units	Revenues FY20	Revenue	Percent
Customer Charge	\$22.30	18,766	\$418,482	\$22.30	18,766	\$418,482	\$0	0.0%
Gas Charges:								
First 5,000 Therms	\$0.3350	3,709,278	\$1,242,608	\$0.2750	3,709,278	\$1,020,051	(\$222,557)	-17.9%
Over 5,000 Therms	\$0.3050	238,032	\$72,600	\$0.2450	238,032	\$58,318	(\$14,282)	-19.7%
Total Gas Charges		3,947,310	\$1,315,208		3,947,310	\$1,078,369	(\$236,839)	-18.0%
PGA	\$0.5218	3,947,310	\$2,059,742	\$0.5218	3,947,310	\$2,059,742	\$0	0.0%
Total			\$3,793,432			\$3,556,593	(\$236,839)	-6.2%

Commercial Transportation Gas Service - Schedule CTGS (Rate Code = 22)								
Rate Component	Present Rates			Proposed Rates			Rate Reduction	
	Rate Charge	Billing Units	Revenues FY20	Rate Charge	Billing Units	Revenues FY20	Revenue	Percent
Customer Charge	\$35.00	96	\$3,360	\$35.00	96	\$3,360	\$0	0.0%
Gas Charges:								
First 500 Therms	\$0.2800	43,286	\$12,120	\$0.2750	43,286	\$11,904	(\$216)	-1.8%
Over 500 Therms	\$0.2500	19,937	\$4,984	\$0.2450	19,937	\$4,885	(\$100)	-2.0%
Total Gas Charges		63,223	\$17,104		63,223	\$16,788	(\$316)	-1.8%
PGA	\$0.0000	63,223	\$0	\$0.0000	63,223	\$0	\$0	0.0%
Total			\$20,464			\$20,148	(\$316)	-1.5%

Interruptible Commercial Gas Service - Schedule ICGS (Rate Code = 25)								
Rate Component	Present Rates			Proposed Rates			Rate Reduction	
	Rate Charge	Billing Units	Revenues FY20	Rate Charge	Billing Units	Revenues FY20	Revenue	Percent
Customer Charge	\$375.00	12	\$4,500	\$375.00	12	\$4,500	\$0	0.0%
Gas Charges:								
Summer (Apr - Oct)								
First 15,000 Therms	\$0.19025	105,000	\$19,976	\$0.15025	105,000	\$15,776	(\$4,200)	-21.0%
Over 15,000 Therms	\$0.14350	334,050	\$47,936	\$0.10350	334,050	\$34,574	(\$13,362)	-27.9%
Winter (Nov - Mar)								
First 15,000 Therms	\$0.19525	75,000	\$14,644	\$0.15525	75,000	\$11,644	(\$3,000)	-20.5%
Over 15,000 Therms	\$0.14850	366,530	\$54,430	\$0.10850	366,530	\$39,769	(\$14,661)	-26.9%
Total Gas Charges		880,580	\$136,986		880,580	\$101,763	(\$35,223)	-25.7%
PGA	\$0.3482	880,580	\$306,599	\$0.3482	880,580	\$306,599	\$0	0.0%
Total			\$448,084			\$412,861	(\$35,223)	-7.9%

Firm Industrial Gas Service - Schedule IGS (Rate Code = 30)								
Rate Component	Present Rates			Proposed Rates			Rate Reduction	
	Rate Charge	Billing Units	Revenues FY20	Rate Charge	Billing Units	Revenues FY20	Revenue	Percent
Customer Charge	\$106.00	256	\$27,136	\$106.00	256	\$27,136	\$0	0.0%
Gas Charge								
First 5,000 Therms	\$0.33500	520,650	\$174,418	\$0.24000	520,650	\$124,956	(\$49,462)	-28.4%
Next 95,000 Therms	\$0.30500	716,200	\$218,441	\$0.21000	716,200	\$150,402	(\$68,039)	-31.1%
Over 100,000 Therms	\$0.21375	0	\$0	\$0.11875	0	\$0	\$0	0.0%
Total Gas Charges		1,236,850	\$392,859		1,236,850	\$275,358	(\$117,501)	-29.9%
PGA	\$0.54089	1,236,850	\$669,001	\$0.54089	1,236,850	\$669,001	\$0	0.0%
Total			\$1,088,996			\$971,495	(\$117,501)	-10.8%

Interruptible Industrial Gas Service - Schedule IIGS (Rate Code = 40 and 45)								
Rate Component	Present Rates			Proposed Rates			Rate Reduction	
	Rate Charge	Billing Units	Revenues FY20	Rate Charge	Billing Units	Revenues FY20	Revenue	Percent
Customer Charge	\$475.00	71	\$33,725	\$475.00	71	\$33,725	\$0	0.0%
Distribution Charge (th)	\$0.15000	1,807,550	\$271,133	\$0.11500	1,807,550	\$207,868	(\$63,264)	-23.3%
Hedge Option:								
First 400,000 th	\$0.15000	8,372,460	\$1,255,869	\$0.15000	8,372,460	\$1,255,869	\$0	0.0%
Over 400,000 th	\$0.07500	6,274,900	\$470,618	\$0.07500	6,274,900	\$470,618	\$0	0.0%
Contract Rate Adjustment			(\$216,238)			(\$216,238)	\$0	0.0%
PGA Revenue	\$0.34591	1,835,206	\$634,822	\$0.34591	1,835,206	\$634,822	\$0	0.0%
Goodyear + Blue Ridge Recovery			\$4,531,874			\$4,531,874	\$0	0.0%
Total			\$6,981,803			\$6,918,538	(\$63,264)	-0.9%

Industrial Transportation Gas Service - Schedule ITGS (Rate Code = 50)								
Rate Component	Present Rates			Proposed Rates			Rate Reduction	
	Rate Charge	Billing Units	Revenues FY20	Rate Charge	Billing Units	Revenues FY20	Revenue	Percent
Customer Charge	\$375.00	104	\$39,000	\$375.00	104	\$39,000	\$0	0.0%
Distribution Charge (th)	\$0.15000	2,494,080	\$374,112	\$0.14500	2,494,080	\$361,642	(\$12,470)	-3.3%
PGA	\$0.00000	2,494,080	\$0	\$0.00000	2,494,080	\$0	\$0	0.0%
Total			\$413,112			\$400,642	(\$12,470)	-3.0%

8 KEY INPUTS AND ASSUMPTIONS

This section will summarize the key inputs into the analysis and describe the assumptions made to develop the projected operating statements for FY20 and FY21. The projected financial statements are based on information provided by Danville and the best information known at this time. The projections are intended for the rate study only and are useful for determining expected revenue requirements. Actual financial performance could differ from these projections.

8.1 REVENUES

- FY20 and FY21 base rate revenues are computed using gas sales from Danville's current Purchased Gas Adjustment ("PGA") model and applying the FY20 base rate revenues per therm to those sales units.
- PGA revenues are computed using the projected PGA factors from Danville's current PGA model. With costs of gas expected to decline, PGA revenues are declining during the projection period, declining from \$8.5 million in FY19 to \$8.3 million in FY21.
- Other revenues, including miscellaneous revenues and revenues from use of money and property, are projected to increase by 5.00% per year from the FY19 Budgeted amount.
- The resultant total revenue is projected to decline by 0.55% in FY20 and by 0.33% in FY21, producing total revenue just under \$23 million by FY21.

8.2 OPERATING EXPENSES

- Supply costs are projected to decline by 4.11% in FY20 and by 2.28% in FY21. These projections are from Danville Utilities. Supply expenses will decline from \$13.3 million in the FY19 Budget to \$12.5 million by FY21.
- Other operating expenses¹ are projected based on recent historical trends. They are projected to grow by 4.84% from the FY19 Budget to FY20 and by another 4.94% in FY21.
- Operating transfers to the General Fund are held constant at the FY18 Budget. This assumption was provided to GDS by Danville's Finance Department.
- Interest and debt service expenses are based on debt service schedules provided by Danville.

8.3 CAPITAL EXPENSES

- Ongoing capital expenses (regular replacements) are projected to remain the same as the FY19 Budget. This assumption results in capital expenses of just under \$1.1 million in FY20 and FY21.
- \$1.10 million in capital projects is projected to be funded by the Gas Fund balance in FY20. \$1.10 million in capital projects is projected to be funded by the Gas Fund balance in FY21 as well. These assumptions were provided to GDS by Danville.

¹ Engineering, Distribution, Meters and Regulators, Customer Service, Gas Control and Administrative and Support Services.

Gas 2018 Rate Study

Prepared for:

Danville Utilities

Prepared By:



GDS Associates, Inc.
ENGINEERS & CONSULTANTS

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Unit Cost Summary

Danville Utilities - Gas

Fiscal Year 2020

Line No.	Description	Total System	Residential RS-10	Firm Commercial CGS-20	Commercial Transportation CTGS-22	Interruptible Commercial ICGS-25	Firm Industrial IGS-30	Interruptible Industrial IIGS-40	Industrial Transportation ITGS-50
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
1	Customer Costs	\$2,528,057	\$1,614,590	\$633,499	\$14,504	\$16,420	\$39,407	\$148,915	\$60,722
2	No. of Customers	14,878	13,269	1,564	8	1	21	6	9
3	\$/Customer/Mo.	\$14.16	\$10.14	\$33.75	\$151.08	\$1,368.37	\$156.38	\$2,068.26	\$562.24
4	Demand & Commodity Costs	\$18,361,772	\$6,168,374	\$3,275,512	\$5,520	\$483,773	\$1,037,717	\$7,048,128	\$342,749
5	Therms	31,898,833	6,821,880	3,947,310	63,223	880,580	1,236,850	16,454,910	2,494,080
6	\$/Therm	\$0.5756	\$0.9042	\$0.8298	\$0.0873	\$0.5494	\$0.8390	\$0.4283	\$0.1374
7	Investment	\$72,658,493	\$41,072,883	\$18,009,295	\$297,060	\$845,908	\$1,951,422	\$7,700,753	\$2,781,173
8	Number of Customers		13,269	1,564	8	1	21	6	9
9	Investment/Customer		\$3,095	\$11,515	\$37,132	\$845,908	\$92,925	\$1,283,459	\$309,019
Average Usage									
10	Therms/Customer/Month		43	210	659	73,382	4,908	228,540	23,093

CITY OF DANVILLE

2018 Rate Study Electric Utility

Prepared for:



DRAFT REPORT

November 19, 2018

Prepared by:



ELECTRIC 2018 RATE STUDY

Prepared for:



DRAFT November 19, 2018

Prepared By:



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LIST OF ACRONYMS

COSS	Cost of Service Study
DSC	Debt Service Coverage
FEMA	Federal Emergency Management Agency
FY	Fiscal Year
PCA	Power Cost Adjustment
ROR	Rate of Return
WACC	Weighted Average Cost of Capital

1 INTRODUCTION

The City of Danville ("City" or "Danville") established its Financial Policies approved by Resolution #2011-11.08. As part of those policies, the Danville Utility Commission ("Commission") directs a biennial utility cost-of-service and rate study to evaluate revenue requirements and rates for the Gas, Electric, Wastewater, and Water utilities. Danville retained GDS Associates, Inc. ("GDS") to perform the 2018 Rate Study and work with Danville Utilities ("Danville") staff to evaluate revenue requirements and design revised rates if necessary for Fiscal Year ("FY") 2020 and FY 2021. This Report presents the 2018 Rate Study for the Electric Utility.

2 UTILITY REVENUE REQUIREMENTS

To determine the sufficiency of present rates, revenues under present rates and operating and capital expenses are projected for FY20 and FY21. Rates should produce revenues that support the continued operations to provide reliable, safe, environmentally responsible, and high quality service and sustain infrastructure requirements to accommodate economic development. Several key financial metrics are evaluated to analyze whether rates need to be adjusted:

- **DEBT SERVICE COVERAGE ("DSC")** - The City's bond covenants include requirements that income each year is sufficient to pay interest and principal payments on outstanding debt. The DSC ratio measures the utility's ability to pay debt after operating expenses, and bonds require a utility to maintain a certain minimum DSC. A DSC ratio that is below or near the minimum level required by bond covenants is an indicator that revenue is insufficient.
- **CASH BALANCE** – cash balances should be carefully monitored to ensure the utility is able to cover operating and capital expenses. The City's Financial Policies provides a minimum cash level threshold for each utility. Furthermore, a strong but not excessive cash position will provide for greater credit rating from credit rating agencies. Insufficient cash projections are indicators that a rate increase may be necessary.
- **TARGET RATE OF RETURN ("ROR") ON RATE BASE** – the rate of return is a measure of how well current customers are paying for their fair share of the use of utility plant. A target ROR is established by evaluating the capital structure of the utility and determining the cost to raise capital. ROR establishes the operating income target on a utility (non-cash) basis.

The projected financial statements are based on information provided by Danville and the best information known at this time. The projections are intended for the rate study only and are useful for determining expected revenue requirements. Actual financial performance could differ from these projections.

Given the projected financial information for FY20 and FY21, GDS is recommending no change in base rates for the Electric Utility. The financial metrics shown in Table 1 below are based on rates that include a PCA factor of \$0.02 per kWh for all months in FY20 and FY21. Although power costs are expected to decrease during this time, the PCA will remain up until such time as the under-recovered power costs balance from prior years has been fully recovered. After that time, the PCA factor can likely be lowered as the projected financial metrics show strong performance. Although no overall rate increase or decrease is recommended by GDS, several rate design issues were still evaluated as a part of this study. Those issues and GDS' recommendations for them are described more fully in Section 7 of this report.

The remainder of the Report will provide further details on the analysis of DSC, cash, and ROR. Finally, this report will discuss the key assumptions made in developing the financial projections presented herein.

Table 1: Summary of Financial Projections

Line No.	Item	FY20	FY21
SUMMARY OF FINANCIAL TARGETS PRIOR TO RECOMMENDED RATE CHANGE			
1	Recommended Target Rate of Return on Rate Base	4.98%	4.98%
2	Projected Rate of Return on Rate Base	4.30%	7.52%
3	Recommended Minimum Debt Service Coverage	1.50	1.50
4	Projected DSC	2.43	3.66
5	Financial Policy Minimum Unrestricted Cash Balance	\$14,870,843	\$15,032,543
6	Recommended Minimum Unrestricted Cash Balance	\$27,938,124	\$27,266,987
7	Cash Balance at End of Fiscal Year	\$41,500,004	\$48,739,023
SUMMARY OF FINANCIAL TARGETS AFTER TO RECOMMENDED RATE CHANGE			
8	Recommended % Change in Base Rate Revenue	0.0%	0.0%
9	Recommended Additional Revenue	\$0	\$0
10	Recommended Target Rate of Return on Rate Base	4.98%	4.98%
11	Projected Rate of Return on Rate Base	4.30%	7.52%
12	Recommended Minimum Debt Service Coverage	1.50	1.50
13	Projected DSC	2.43	3.66
14	Financial Policy Minimum Unrestricted Cash Balance	\$14,870,843	\$15,032,543
15	Recommended Minimum Unrestricted Cash Balance	\$27,938,124	\$27,266,987
16	Cash Balance at End of Fiscal Year	\$41,500,004	\$48,739,023

3 PROJECTED OPERATING STATEMENTS

Without a base rate increase and with PCA revenues remaining constant, the Electric Utility is projected to provide positive net income on a cash basis for FY20 and FY21. As shown in Table 2, revenues are expected to be sufficient to cover all operating expenses and ongoing capital expenses and capital projects totaling \$4.98 million in FY20. In FY21, revenues are projected to be sufficient to cover all operating expenses and capital expenses totaling \$4.98 million as well. Details on the assumptions made in developing the projected operating statements in Table 2 are provided later in this report.

Table 2: Projected Operating Statements - Cash Basis

Line No.	Item	FY19 Budget	FY20 Estimate	FY21 Estimate
REVENUES				
1	Rate Revenue - Current Rates	\$130,319,802	\$127,208,611	\$128,539,177
2	Rate Revenue Increase/(Decrease)	\$0	\$0	\$0
3	Subtotal - Base Rate Revenue	\$130,319,802	\$127,208,611	\$128,539,177
4	Other Revenue	\$4,731,378	\$4,921,680	\$5,120,109
5	Total Revenue	\$135,051,180	\$132,130,291	\$133,659,287
EXPENSES				
6	Source of Supply	\$102,237,000	\$96,066,996	\$92,066,996
7	Administration Services plus Interest on Bonds	\$5,629,310	\$5,600,534	\$5,565,580
8	Engineering	\$987,030	\$1,036,382	\$1,088,201
9	Distribution	\$4,564,280	\$4,645,566	\$4,728,477
10	Meters & Regulators	\$349,610	\$367,091	\$385,445
11	Hydro-Electric Plant	\$921,400	\$949,042	\$977,513
12	Transmissions and Substations	\$1,705,580	\$1,739,692	\$1,774,485
13	Generators	\$22,000	\$22,000	\$22,000
14	Customer Services	\$1,439,660	\$1,511,643	\$1,587,225
15	Debt Service	\$3,186,600	\$3,301,654	\$3,219,835
16	Capital Expenses	\$3,982,900	\$3,982,900	\$3,982,900
17	Depreciation	\$8,635,000	\$8,803,169	\$8,962,487
18	Transfers to General Fund	\$10,021,610	\$10,021,610	\$10,021,610
19	Total Expenditures	\$143,681,980	\$138,048,277	\$134,382,755
20	Add - Depreciation	\$8,635,000	\$8,803,169	\$8,962,487
21	Revenue In Excess of Operating Expenses	\$4,200	\$2,885,183	\$8,239,019
22	Capital Projects - Funded by Revenues	\$500,000	\$500,000	\$500,000
23	Revenues Over/(Under) Expenses	(\$495,800)	\$2,385,183	\$7,739,019
UNRESTRICTED CASH BALANCE SUMMARY				
24	Unrestricted Cash Balance - Beginning of FY	\$40,110,621	\$39,614,821	\$41,500,004
25	Plus: Net Change in Cash	(\$495,800)	\$2,385,183	\$7,739,019
26	Minus: Capital Projects Funded by Fund Balance	\$0	(\$500,000)	(\$500,000)
27	Unrestricted Cash Balance - End of FY	\$39,614,821	\$41,500,004	\$48,739,023

4 DEBT SERVICE COVERAGE

The DSC ratio is a measure of the ability of the Utility to pay current debt obligations from the cash flow produced in a given year. The ratio states net operating income in an operating year on a cash basis as a multiple of debt obligations due within that year. Bond covenants require a utility to maintain a minimum target DSC ratio, typically 1.25. Utilities often establish a minimum DSC target that includes some cushion above the minimum requirements from the bond covenants to help mitigate against weather impacts on sales or other uncertainties and to obtain stronger bond ratings from rating agencies. GDS has established a 1.50 DSC target for the 2018 Rate Study. As shown below, the Electric Utility is expected to produce DSC in excess of the targeted minimum.

Table 3: DSC Ratio for FY20

Line No.	Item	Present Rates FY20	Pro Forma Adjustment	Pro Forma FY20
DEBT SERVICE COVERAGE				
1	Net Income	\$1,366,568		\$1,366,568
2	Add: Depreciation	\$8,803,169		\$8,803,169
3	Add: Interest	\$1,495,438		\$1,495,438
4	Cash Available for Debt Service	\$11,665,174		\$11,665,174
5	Total Debt Service	\$4,797,091		\$4,797,091
6	Debt Service Coverage Ratio	2.43		2.43

Table 4: DSC Ratio for FY21

Line No.	Item	Present Rates FY21	Pro Forma Adjustment	Pro Forma FY21
DEBT SERVICE COVERAGE				
1	Net Income	\$6,479,267		\$6,479,267
2	Add: Depreciation	\$8,962,487		\$8,962,487
3	Add: Interest	\$1,378,382		\$1,378,382
4	Cash Available for Debt Service	\$16,820,136		\$16,820,136
5	Total Debt Service	\$4,598,217		\$4,598,217
6	Debt Service Coverage Ratio	3.66		3.66

5 CASH RESERVE TARGETS

A minimum level of unrestricted cash reserves is necessary to ensure the utility can fund replacement of assets without incurring significant debt and can absorb some of the costs associated with extraordinary events without necessitating a rate increase. A strong cash position is a key component of a good bond rating as well, so maintaining cash reserves helps lower the cost of future debt. If cash is expected to fall below the minimum, action is required to restore the balance. Options include a rate increase, issuing additional bonds to help pay for capital improvements and ordinary replacements, or reducing operating or capital expenses.

The cash target has been computed by GDS using two methods. The first method is that defined by the City's Financial Policies. The second is an approach that evaluates separate factors that all contribute to a cash minimum reserve designed to cover some portion of working capital, likely need for replacement of historical assets, future capital improvements, and debt service. The second approach establishes a recommended cash balance minimum that is higher than the City Financial Policies method.

The City's Financial Policies requires that each utility should maintain an unrestricted cash balance minimum calculated as follows:

The Water, Wastewater, Gas, Electric, and Telecommunications Funds shall maintain unrestricted fund balances equal to at least 90 days of average operating and maintenance expenses, inclusive of transfers to the General Fund, plus 90 days of the next fiscal year's debt service payments.

The City has since extended the number of days of cash on-hand for the Electric Fund to 180 days.

GDS' recommended approach is similar to the approach recommended by Utility Financial Solutions in the prior rate study. The approach evaluates four separate factors to establish a cash reserve sufficient to cover unexpected costs in each of those factors.

- **Working Capital** - Assigns some cash reserve to account for the timing differences between when expenses are incurred and revenues are collected. Working capital also includes enough cash to cover 45 days of the highest monthly power cost.
- **Replacement of Existing Assets** – The existing infrastructure may require ordinary replacement over time, or extreme weather events (tornados, flooding, ice storms) may require replacement of plant prior to the end of its useful life. A portion of the cash reserve should be established to account for such possibilities, making cash available quickly to restore service instead of debt-financing or awaiting FEMA reimbursement, which can take years at times. This portion of the cash reserve is expressed as a percentage of the current plant in service, and depends on how old the plant is.
- **Capital Improvement** – The average one-year capital improvement plan should be held in reserves. This helps assure timely replacement of construction assets and makes cash available so that the full capital improvement plan does not have to be debt financed.
- **Annual Debt Service** – Since debt service payments are not incurred uniformly throughout the year, it is beneficial to hold a years' worth of debt service in reserve to help fund debt service payment without consideration of the timing of incoming cash flows through operating income on a month-to-month basis.

Table 5 shows the computations for establishing the cash reserve targets under both methodologies. The Electric Utility is projected to have sufficient cash in excess of both targets in FY20 and FY21, as shown in Table 1.

Table 5: Computation of Cash Reserve Minimums

Line No.	Item	FY18	FY19	FY20	FY21
CITY POLICY APPROACH					
1	Total Expenditures	\$140,623,604	\$143,681,980	\$138,048,277	\$134,382,755
	Less:				
2	Purchased Power	\$100,701,904	\$102,237,000	\$96,066,996	\$92,066,996
3	Depreciation	\$8,680,000	\$8,635,000	\$8,803,169	\$8,962,487
4	Debt Service	\$2,606,080	\$3,186,600	\$3,301,654	\$3,219,835
5	Interest Expense	\$1,254,080	\$1,604,706	\$1,495,438	\$1,378,382
6	Jobbing & Inventory Obsolescence	\$151,800	\$150,000	\$150,000	\$150,000
7	Contingency	\$500,000	\$500,000	\$500,000	\$500,000
8	Energy Efficiency Program	\$0	\$0	\$0	\$0
9	Subtotal - Adjustments	\$113,893,864	\$116,313,306	\$110,317,256	\$106,277,700
10	Total Operating Expenses for Minimum	\$26,729,740	\$27,368,674	\$27,731,020	\$28,105,054
11	180 Days of Qualifying Expenses	\$13,364,870	\$13,684,337	\$13,865,510	\$14,052,527
12	Plus: 90 Days of Next FY Debt Service	\$1,052,584	\$1,054,186	\$1,005,333	\$980,016
13	TOTAL MINIMUM CASH RESERVE TARGET	\$14,417,454	\$14,738,523	\$14,870,843	\$15,032,543
MINIMUM CASH RESERVE DETAIL COMPUTATION APPROACH					
14	O&M Expenses Excluding Deprecation	\$23,145,600	\$24,035,774	\$24,398,120	\$24,772,154
15	45 Days of O&M	\$2,853,567	\$2,963,315	\$3,007,987	\$3,054,101
16	Average Monthly Power Bill	\$7,658,512	\$8,391,825	\$8,519,750	\$8,005,583
17	45 Days of Purchased Power Cost	\$11,487,768	\$12,587,738	\$12,779,625	\$12,008,375
18	Historical Fixed Assets	\$286,678,988	\$292,678,988	\$298,378,988	\$303,778,988
19	Accumulated Depreciation	\$128,047,978	\$136,682,978	\$145,486,147	\$154,448,634
20	Percent of Plant Depreciated	44.7%	46.7%	48.8%	50.8%
21	Fixed Assets Factor	1%	1%	1%	1%
22	Historical Assets Cash Requirement	\$2,866,790	\$2,926,790	\$2,983,790	\$3,037,790
23	Five-Year Capital Improvements	\$25,100,000	\$25,100,000	\$25,100,000	\$25,100,000
24	Cash Reserve Allocation	20%	20%	20%	20%
25	Future Capital Improvements Reserve	\$5,020,000	\$5,020,000	\$5,020,000	\$5,020,000
26	Average Annual Debt Service	\$4,146,721	\$4,146,721	\$4,146,721	\$4,146,721
27	TOTAL MINIMUM CASH RESERVE TARGET	\$26,374,846	\$27,644,564	\$27,938,124	\$27,266,987

6 RATE OF RETURN

The ROR is a measure of the utility's net income earned on the assets deployed to provide safe and reliable utility service. The ROR is computed using net income on a utility basis as opposed to a cash basis. In the utility basis, depreciation and interest on debt are including as operating expenses but not principal payments. To compute the net income for ROR, the utility-basis net income is adjusted in two ways. First, interest expense is added back to net income, as ROR as computed using income before debt service is paid. Second, a portion of transfers to general fund are added back to net income. The general fund transfer is viewed by the Danville Utility Commission as serving two functions: providing a return to the City as equity holders and as a franchise fee for granting the right of the utility to serve its citizens. GDS separates the two components by assuming a 4.5% franchise fee to represent that portion of general fund transfers (based on typical franchise fees paid to neighboring cities by Investor Owned Electric Utilities). The remaining transfer amount is then added back to net income for purposes of computing ROR as the return on equity portion of transfers.

The adjusted utility basis net income is then divided by the rate base to compute the ROR. The rate base is the value of the assets deployed by the utility to provide service and includes the net book value of plant in service plus working capital. The ROR is a measure of whether the utility's current ratepayers are paying a fair share of the costs of plant in service and not deferring the costs to future ratepayers. The target rate of return is based on the current weighted average cost of capital ("WACC") which represents the utility's costs to raise capital for funding of assets. The WACC is a weighted average of the current interest on bonds (the cost of debt) and the cost of equity. The cost of equity is driven by expected growth in plant in the future.

The Electric Utility will produce positive ROR in FY20 and FY21, and assuming no change in PCA factors, will produce ROR in excess of the targeted level.

Table 6: Net Income and Rate of Return on Utility Basis

Line No.	Item	Present Rates FY 2020	Pro Forma FY 2020	Present Rates FY 2021	Pro Forma FY 2021
1	Total Transfer to General Fund	\$10,021,610	\$10,021,610	\$10,021,610	\$10,021,610
2	Total Revenue	\$132,130,291	\$132,130,291	\$133,659,287	\$133,659,287
3	Percent	7.6%	7.6%	7.5%	7.5%
4	PILOT Rate	4.50%	4.50%	4.50%	4.50%
5	Portion of Transfer that is Franchise Fee	\$5,945,863	\$5,945,863	\$6,014,668	\$6,014,668
6	Portion of Transfer that is Return on Equity	\$4,075,747	\$4,075,747	\$4,006,942	\$4,006,942
7	Net Income: Utility Basis	\$1,366,568	\$1,366,568	\$6,479,267	\$6,479,267
8	Add Back: Interest Expense	\$1,495,438	\$1,495,438	\$1,378,382	\$1,378,382
9	Add Back: Return on Equity Portion of Transfer	\$4,075,747	\$4,075,747	\$4,006,942	\$4,006,942
10	Income for Rate of Return	\$6,937,752	\$6,937,752	\$11,864,592	\$11,864,592
11	Net Rate Base	\$161,448,787	\$161,448,787	\$157,768,030	\$157,768,030
12	Rate of Return on Rate Base	4.3%	4.3%	7.5%	7.5%

7 RATE DESIGN ISSUES

Although no general rate revision has been recommended by GDS, we evaluated several specific rate design issues at the request of Danville Utilities as a part of the Electric Rate Study in 2018. As a result, and as described further below, GDS is making a recommended revision to the Worship Sanctuary Service (“WSS”) rate and recommending a revised set of LED lighting rates for Street Lighting and Outdoor Lighting.

7.1 WORSHIP SANCTUARY SERVICE RATE DESIGN

The current WSS rate is a simple two-part rate consisting of a fixed monthly customer charge and a charge for energy consumption. The WSS rate is composed of customers that tend to have lower than system average load factor, but with peak demands typically occurring during hours that are not coincident with system peaks that drive power supply and transmission costs. For instance, a church that holds services on Sunday mornings and Wednesday evenings will tend to peak during those times of the day, whereas system peaks more likely occur during working hours of weekdays. Although these customers do not contribute significantly to demand-related power costs, they do still contribute to distribution system demand-related costs. Therefore, GDS is recommending moving the WSS rate onto a three-part rate that include a demand charge component as well.

GDS has designed a three-part rate design that is designed to be revenue neutral overall. However, introducing a demand charge will still cause bills for individual customers to fluctuate from what they currently pay. Customers with load factors lower than the class average will experience increases on their bills due to the changing rate structure while those customers with higher than average load factors will see bill decreases. To help alleviate rate shock, GDS proposes a three-year transition plan for the WSS rate, slowly increasing the demand and customer charges to reach cost-of-service by three years. In this way, customer impacts will be experienced more gradually, and customers will have time to figure out whether they can manage their demands and consumption patterns in response to the new demand charge.

The design is based on a cost of service study performed by GDS in 2018 that provides customer-related, demand-related, and energy-related costs for the WSS class. Our design is to charge a demand charge that recovers all distribution system demand-related costs in the first year and transitioning to recovering 95% of all demand-related costs (distribution system and power supply) by FY22. Likewise, the customer charge is transitioned to achieve cost of service by FY22. The energy charge correspondingly decreases each year to ensure revenue neutrality for the class as a whole.

Note that this transition plan extends beyond the two-year planning horizon for the current Rate Study. We recommend that the first two years of the transition plan be adopted now and that the 2020 Rate Study will evaluate whether the planned transition will still appropriately recover cost to serve those customers, but the three year plan has been prepared here to demonstrate the expectation to achieve forecasted cost to serve over a three year period to help gradually transition customers to a three-part rate.

Table 7 on the next page summarizes GDS’ proposed transition plan for the WSS rate design. The table also shows general bill impact comparisons of the plan for customers using 10-50 kW and across load factor ranges.

Table 7: Recommended WSS Rate Design Transition Plan and Rate Comparisons

Objective: To introduce a demand charge into the WSS rate, but maintain class revenues:	
- Price signal to better reflect fixed cost causation	
- Gradual transition plan to reduce rate shock and allow customers to adjust to demand rate	

Cost of Service:	Customer-Related Costs	\$41.07	per customer per month
	Demand-Related Power Costs	\$6.82	per NCP demand
	Demand-Related Distribution Costs	\$2.62	per NCP demand
	Total Demand-Related Costs	\$9.44	
	Energy & Revenue Related Costs	\$0.05556	per kWh sold

Recommended Rate Transition Plan:					
	Current	FY20	FY21	FY22	Notes
Customer Charge	\$24.00	\$29.50	\$35.00	\$40.00	Transition to COS over three years
Demand Charge	\$0.00	\$2.60	\$5.75	\$9.00	Recover distribution fixed costs in FY20, transition to 95% of COS
Energy Charge	\$0.1210	\$0.1070	\$0.0910	\$0.0740	

General Bill Rate Comparisons:												
Demand	Energy	Load Factor	Current Rates	FY20 Rates	FY21 Rates	FY22 Rates	Year Over Year % Change			% Change Over Current Rates		
							FY20	FY21	FY22	FY20	FY21	FY22
10	1,000	13.7%	\$145.00	\$162.50	\$183.50	\$204.00	12.1%	12.9%	11.2%	12.1%	26.6%	40.7%
10	2,000	27.4%	\$266.00	\$269.50	\$274.50	\$278.00	1.3%	1.9%	1.3%	1.3%	3.2%	4.5%
10	3,000	41.1%	\$387.00	\$376.50	\$365.50	\$352.00	-2.7%	-2.9%	-3.7%	-2.7%	-5.6%	-9.0%
10	4,000	54.8%	\$508.00	\$483.50	\$456.50	\$426.00	-4.8%	-5.6%	-6.7%	-4.8%	-10.1%	-16.1%
10	5,000	68.5%	\$629.00	\$590.50	\$547.50	\$500.00	-6.1%	-7.3%	-8.7%	-6.1%	-13.0%	-20.5%
10	6,000	82.2%	\$750.00	\$697.50	\$638.50	\$574.00	-7.0%	-8.5%	-10.1%	-7.0%	-14.9%	-23.5%
20	2,000	13.7%	\$266.00	\$295.50	\$332.00	\$368.00	11.1%	12.4%	10.8%	11.1%	24.8%	38.3%
20	4,000	27.4%	\$508.00	\$509.50	\$514.00	\$516.00	0.3%	0.9%	0.4%	0.3%	1.2%	1.6%
20	6,000	41.1%	\$750.00	\$723.50	\$696.00	\$664.00	-3.5%	-3.8%	-4.6%	-3.5%	-7.2%	-11.5%
20	8,000	54.8%	\$992.00	\$937.50	\$878.00	\$812.00	-5.5%	-6.3%	-7.5%	-5.5%	-11.5%	-18.1%
20	10,000	68.5%	\$1,234.00	\$1,151.50	\$1,060.00	\$960.00	-6.7%	-7.9%	-9.4%	-6.7%	-14.1%	-22.2%
20	12,000	82.2%	\$1,476.00	\$1,365.50	\$1,242.00	\$1,108.00	-7.5%	-9.0%	-10.8%	-7.5%	-15.9%	-24.9%
30	3,000	13.7%	\$387.00	\$428.50	\$480.50	\$532.00	10.7%	12.1%	10.7%	10.7%	24.2%	37.5%
30	6,000	27.4%	\$750.00	\$749.50	\$753.50	\$754.00	-0.1%	0.5%	0.1%	-0.1%	0.5%	0.5%
30	9,000	41.1%	\$1,113.00	\$1,070.50	\$1,026.50	\$976.00	-3.8%	-4.1%	-4.9%	-3.8%	-7.8%	-12.3%
30	12,000	54.8%	\$1,476.00	\$1,391.50	\$1,299.50	\$1,198.00	-5.7%	-6.6%	-7.8%	-5.7%	-12.0%	-18.8%
30	15,000	68.5%	\$1,839.00	\$1,712.50	\$1,572.50	\$1,420.00	-6.9%	-8.2%	-9.7%	-6.9%	-14.5%	-22.8%
30	18,000	82.2%	\$2,202.00	\$2,033.50	\$1,845.50	\$1,642.00	-7.7%	-9.2%	-11.0%	-7.7%	-16.2%	-25.4%
40	4,000	13.7%	\$508.00	\$561.50	\$629.00	\$696.00	10.5%	12.0%	10.7%	10.5%	23.8%	37.0%
40	8,000	27.4%	\$992.00	\$989.50	\$993.00	\$992.00	-0.3%	0.4%	-0.1%	-0.3%	0.1%	0.0%
40	12,000	41.1%	\$1,476.00	\$1,417.50	\$1,357.00	\$1,288.00	-4.0%	-4.3%	-5.1%	-4.0%	-8.1%	-12.7%
40	16,000	54.8%	\$1,960.00	\$1,845.50	\$1,721.00	\$1,584.00	-5.8%	-6.7%	-8.0%	-5.8%	-12.2%	-19.2%
40	20,000	68.5%	\$2,444.00	\$2,273.50	\$2,085.00	\$1,880.00	-7.0%	-8.3%	-9.8%	-7.0%	-14.7%	-23.1%
40	24,000	82.2%	\$2,928.00	\$2,701.50	\$2,449.00	\$2,176.00	-7.7%	-9.3%	-11.1%	-7.7%	-16.4%	-25.7%
50	5,000	13.7%	\$629.00	\$694.50	\$777.50	\$860.00	10.4%	12.0%	10.6%	10.4%	23.6%	36.7%
50	10,000	27.4%	\$1,234.00	\$1,229.50	\$1,232.50	\$1,230.00	-0.4%	0.2%	-0.2%	-0.4%	-0.1%	-0.3%
50	15,000	41.1%	\$1,839.00	\$1,764.50	\$1,687.50	\$1,600.00	-4.1%	-4.4%	-5.2%	-4.1%	-8.2%	-13.0%
50	20,000	54.8%	\$2,444.00	\$2,299.50	\$2,142.50	\$1,970.00	-5.9%	-6.8%	-8.1%	-5.9%	-12.3%	-19.4%
50	25,000	68.5%	\$3,049.00	\$2,834.50	\$2,597.50	\$2,340.00	-7.0%	-8.4%	-9.9%	-7.0%	-14.8%	-23.3%
50	30,000	82.2%	\$3,654.00	\$3,369.50	\$3,052.50	\$2,710.00	-7.8%	-9.4%	-11.2%	-7.8%	-16.5%	-25.8%
75	7,500	13.7%	\$931.50	\$1,027.00	\$1,148.75	\$1,270.00	10.3%	11.9%	10.6%	10.3%	23.3%	36.3%
75	15,000	27.4%	\$1,839.00	\$1,829.50	\$1,831.25	\$1,825.00	-0.5%	0.1%	-0.3%	-0.5%	-0.4%	-0.8%
75	22,500	41.1%	\$2,746.50	\$2,632.00	\$2,513.75	\$2,380.00	-4.2%	-4.5%	-5.3%	-4.2%	-8.5%	-13.3%
75	30,000	54.8%	\$3,654.00	\$3,434.50	\$3,196.25	\$2,935.00	-6.0%	-6.9%	-8.2%	-6.0%	-12.5%	-19.7%
75	37,500	68.5%	\$4,561.50	\$4,237.00	\$3,878.75	\$3,490.00	-7.1%	-8.5%	-10.0%	-7.1%	-15.0%	-23.5%
75	45,000	82.2%	\$5,469.00	\$5,039.50	\$4,561.25	\$4,045.00	-7.9%	-9.5%	-11.3%	-7.9%	-16.6%	-26.0%

Note: bill comparisons are for base rate revenues only and exclude PCA, taxes, and other adjustments

7.2 LED LIGHTING RATE UPDATE

In the 2016 Rate Study, GDS and Danville Utilities performed a full lighting cost of service study and updated the street lighting rates. As part of that analysis, we generated an LED lighting rate for street lights. As part of the 2018 Rate Study, Danville Utilities requested that GDS update the rate computation to reflect recent work order information and to create an LED rate for Outdoor Lighting customers as well.

7.2.1 Lighting Rate Recommendation

In the lighting study conducted in 2016, LED street lighting rates were evaluated based on system costs. In this lighting study, GDS has evaluated the LED outdoor and street lighting rates based on cost of service results specific to the lighting rate class and recent LED purchase orders. The LED lighting rates have not been incorporated into rate schedules; therefore, the proposed LED rates have not been compared to present HPS equivalent rates. LED lights have been evaluated for the purpose of replacing 100W and 250W high pressure sodium lamps currently in effect under the Outdoor and Street Lighting rates, and generally reflect lower rates.

Table 8: Proposed LED Rates

OUTDOOR LIGHTING					
Line	LED Description	HPS Replacement Description	Current HPS Rate	Proposed LED Rate	Difference
1	53W LED Existing	100W HPS Existing (Rate L09)	\$9.75	\$8.40	(\$1.35)
5	53W LED Overhead Wood	100W HPS Overhead Wood (Rate L13)	\$14.00	\$12.20	(\$1.80)
2	73W LED Existing	150W HPS Existing		\$9.20	
6	73W Overhead Wood	150W HPS Overhead Wood		\$13.00	
3	106W LED Existing	250W HPS Existing (Rate L10)	\$14.20	\$10.40	(\$3.80)
7	106W Overhead Wood	250W HPS Overhead Wood (L14)	\$18.45	\$14.20	(\$4.25)
4	161W LED Existing	250W HPS Existing (Rate L10)	\$14.20	\$11.75	(\$2.45)
8	161W Overhead Wood	250W HPS Overhead Wood (L14)	\$18.45	\$15.55	(\$2.90)

STREET LIGHTING						
Line	LED Description	HPS Replacement Description	Current HPS Rate	Proposed LED Rate	Difference	Prior LED Rate
1	53W LED Existing	100W HPS Mast Existing (Rate S59)	\$9.75	\$8.40	(\$1.35)	\$7.75
2	53W LED Overhead Wood	100W HPS Mast Overhead Wood (Rate S60)	\$15.80	\$13.75	(\$2.05)	\$13.80
3	53W LED Underground Wood	100W HPS Mast Underground Wood (Rate S61)	\$17.50	\$15.25	(\$2.25)	\$15.50
4	53W LED Underground Aluminum	100W HPS Mast Underground Aluminum (Rate S62)	\$22.55	\$19.70	(\$2.85)	\$20.55
5	73W LED Existing	150W HPS Existing		\$9.20		
6	73W Overhead Wood	150W HPS Overhead Wood		\$14.55		
7	73W Underground Wood	150W HPS Underground Wood		\$16.05		
8	73W Underground Aluminum	150W HPS Underground Aluminum		\$20.50		
9	106W LED Existing	250W HPS Mast Existing (Rate S65)	\$14.20	\$10.40	(\$3.80)	\$10.60
10	106W Overhead Wood	250W HPS Mast Overhead Wood (Rate S66)	\$20.25	\$15.75	(\$4.50)	\$16.65
11	106W Underground Wood	250W HPS Mast Underground Wood (Rate S67)	\$21.95	\$17.25	(\$4.70)	\$18.35
12	106W Underground Aluminum	250W HPS Mast Underground Aluminum (Rate S68)	\$27.00	\$21.70	(\$5.30)	\$23.40
13	161W LED Existing	250W HPS Mast Existing (Rate S65)	\$14.20	\$11.75	(\$2.45)	
14	161W Overhead Wood	250W HPS Mast Overhead Wood (Rate S66)	\$20.25	\$17.10	(\$3.15)	
15	161W Underground Wood	250W HPS Mast Underground Wood (Rate S67)	\$21.95	\$18.60	(\$3.35)	
16	161W Underground Aluminum	250W HPS Mast Underground Aluminum (Rate S68)	\$27.00	\$23.05	(\$3.95)	

7.2.2 Methodology

Monthly costs were computed independently for fixtures, poles, and hardware. Each lighting rate was assigned costs of fixture, pole, and/or hardware dependent on the parameters of that particular equivalent HPS rate. For example, the rate for an Outdoor Lighting overhead service for the 100W HPS equivalent LED fixture with a wood pole would be the sum of the costs associated with a 53W LED fixture, a wood pole, and aluminum conductor. Fixture costs consider energy and demand costs as allocated in the cost of service model, installation costs, replacement costs, and an allocated share of operating expenses and margins. Only installation costs and operating costs are applicable to pole and hardware rates. More details are provided below on the specific assumptions in each component of fixture, pole,

and hardware rates. Labor and overhead rates have not been updated for this analysis and assume the same rates as established in the 2016 study.

FIXTURE INSTALLATION COSTS

- The lifetime of all LED lamps and drivers is assumed to be 25 years.
- The lifetime of a photocell is 10 years.
- All fixtures require a line crew for 2 hours for installation. The rate for a line crew is \$121.29 per hour for labor and \$37.40 per hour for transportation.
- A 28% labor overhead factor is applied to the hourly labor rate. Labor overhead is \$33.96 per hour.
- A 15% materials overhead factor is applied to the cost of a new fixture.
- The total installation cost is the sum of the fixture cost, labor, transportation, labor overhead, and materials overhead.

POLE INSTALLATION COSTS

- The lifetime of all poles is 25 years.
- All poles require a line crew for installation. The rate for a line crew is \$121.29 per hour for labor and \$37.40 per hour for transportation.
- A 28% labor overhead factor is applied to the hourly labor rate. Labor overhead is \$33.96 per hour.
- A 15% materials overhead factor is applied to the cost of a new pole.
- The total installation cost is the sum of the new pole cost, labor, transportation, labor overhead, and materials overhead.

HARDWARE INSTALLATION COSTS

- The life of all conductors, conduit, and other hardware is 25 years.
- Labor, labor overhead, and transportation costs are not included in the total hardware installation cost because hardware is typically installed at the same time as a pole.
- A 15% materials overhead factor is applied to the cost of a new hardware.
- The total installation cost is the sum of the new hardware cost and materials overhead.
- Rates with existing poles do not include conductor, conduit, or other hardware costs.
- Overhead service requires aluminum conductor only. Underground service requires both aluminum conductor and aluminum conduit.

REPLACEMENT COSTS

- Photocells require replacement two times during the lifetime of a fixture.
- LED lamps, drivers, poles, and hardware do not require replacement because their lifetime is equivalent to that of a fixture.
- Each replacement trip requires 0.5 hours of a service crew. The rate for a service crew is \$58.24 per hour for labor and \$15.20 per hour for transportation.
- A 28% labor overhead factor is applied to the hourly labor rate. Labor overhead is \$16.31 per hour.
- A 15% materials overhead factor is applied to the replacement cost of a photocell.
- The total replacement cost is the sum of the replacement cost, labor, transportation, labor overhead, and materials overhead. The total replacement cost is then multiplied by 2 for photocells. The sum of these three products is divided over 300 months (25 years) to produce the replacement cost that is included in the monthly fixture rate.

ENERGY COSTS

- All LED lamps have a driver factor of 1%. The driver factor is applied to the lamp wattage to come up with the total wattage amount.
- Monthly kilowatt hours are calculated using the assumption that lights are on for 11 hours per day and a loss factor consistent with the cost of service study.
- The energy and demand cost per lamp is calculated using monthly kWh and uses the allocated energy cost of \$0.05556 per kWh and allocated purchased power demand cost of \$0.02019 per kWh from the cost of service study.

OPERATING EXPENSES

- All operating expenses and utility plant are reflective of the allocated cost of service results for the lighting rate class.
- Operating expenses applicable to the fixture rates are transmission and hydro O&M, consumer accounting, administration & general, depreciation, interest, and general fund contributions. Distribution O&M applicable to the lighting rate is assumed to be recovered in the replacement costs discussed above. A margin level consistent with the cost of service rate of return for the lighting class is included in the rates.
- The only operating expenses applicable to the pole and hardware rates are depreciation, interest, and general fund contributions. A margin level consistent with the cost of service rate of return for the lighting class is included in the rates.

The lighting classes' contribution to operating expenses is calculated by dividing the above costs by the total utility plant for the lighting class, as allocated in the cost of service study. This percentage is then applied to the sum of total installation cost.

7.3 DEMAND LEVEL DEFINING DIFFERENCE BETWEEN SMALL AND MEDIUM GENERAL SERVICE

Another rate design issue that Danville Utilities requested GDS evaluate is the 25 kW level currently used to establish whether a general service customer is on the small or medium general service rate schedule. The determination of that breakpoint is typically a function of the facilities required to establish service. The typical transformer to serve residential and the smallest general service accounts is usually 25 kVA in size. Although a 25 kVA transformer can handle loads in excess of 25 kW, too many hours in excess can burn out the transformer. Therefore, it is good practice to install larger and therefore more expensive transformers on loads that are 25 kW or higher. This naturally leads to a cost basis to separate general service customers at somewhere in the range of 20 kW to 25 kW. These engineering practices and cost differentials are still typical today, so GDS does not conclude that it would be worth the effort to adjust the breakpoint and evaluate how the change may impact customers close to the limit. As another check on the reasonableness of the 25 kW limit, GDS examined Appalachian Power's Virginia rate tariff. They currently define a 25 kW limit as the limit to differentiate between small general service and medium general service as well.

8 KEY INPUTS AND ASSUMPTIONS

This section will summarize the key inputs into the analysis and describe the assumptions made to develop the projected operating statements for FY20 and FY21. The projected financial statements are based on information provided by Danville and the best information known at this time. The projections are intended for the rate study only and are useful for determining expected revenue requirements. Actual financial performance could differ from these projections.

8.1 REVENUES

- Current base rate revenues are based on consumption from FY17 (the test year). kWh sales in the test year are lower than sales expected in the FY19 Budget, so FY20 and FY21 revenues are slightly lower than the Budgeted amount.
- PCA revenues are computed using the current PCA factor plan.
- Other revenues, including miscellaneous revenues and revenues from use of money and property, are projected to increase by 3.00% per year from the FY19 Budgeted amount.
- The resultant total revenue is projected to decrease by 1.12% in FY20 (compared to the FY19 Budget) and increase by 0.10% in FY21, producing total revenue just over \$133 million by FY21.

8.2 OPERATING EXPENSES

- Purchased power costs in FY20 are provided by GDS and reflect a detailed assessment of power costs. For FY21 power costs, GDS evaluated the current AMP budget for that year and felt costs were likely too low, not reflecting transmission-related cost increases as seen in GDS' update for FY20. GDS conservatively estimated the FY21 budget by reducing the FY20 budget slightly to reflect the expiration of the Morgan Stanley block purchase being replaced by solar projects and market energy. This assumption is a rough estimate of power costs for the purposes of this rate review only and should not be construed as a detailed analysis of power costs in FY21.
- Other operating expenses¹ are projected based on recent historical trends. The costs begin with the FY19 Budget and are projected to grow by 2.56% in FY20 and by 2.57% in FY21.
- Operating transfers to the General Fund are held constant at the FY19 Budget. This assumption was provided to GDS by Danville's Finance Department.
- Interest and debt service expenses are based on debt service schedules provided by Danville.

8.3 CAPITAL EXPENSES

- Ongoing capital expenses (regular replacements) are projected to remain at the FY19 Budget amount of just under \$4.00 million per year.
- \$1.00 million in capital projects are projected for FY20 and FY21. \$500,000 of the amount can be funded by revenues with the rest coming from the Electric Fund balance. These assumptions were provided to GDS by Danville Utilities.

¹ Transmission & Substations, Engineering, Distribution, Meters, Generators, Customer Service, and Administrative and Support Services.

Electric 2018 Rate Study

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Danville Utilities

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Unit Cost Summary

Danville Utilities - Electric

Fiscal Year 2020

Line No.	Item	Total System	Residential RS	Worship WSS	Small General SGS	Sec Med Gen MGS-1	Pri Med Gen MGS-2	Pri Med Gen MGS-3	Sec Lg Gen LGS-1	Pri Lg Gen LGS-2	Pri Lg Gen LGS-3	High LF HLF	Lighting
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)
1	Present Revenue	\$133,532,018	\$73,603,818	\$1,193,046	\$8,118,960	\$27,007,102	\$14,082	\$1,067,633	\$2,678,157	\$1,914,152	\$5,668,743	\$9,423,859	\$2,842,467
2	Customer Costs	\$19,187,473	\$11,085,989	\$105,118	\$1,715,964	\$3,790,181	\$4,484	\$145,823	\$283,755	\$238,998	\$701,459	\$189,743	\$925,959
3	No. of Customers	48,115	37,055	130	3,993	846	2	12	7	5	14	8	6,043
4	\$/Customer/Mo.	\$33.23	\$24.93	\$67.38	\$35.81	\$373.34	\$186.85	\$1,012.66	\$3,378.04	\$3,983.29	\$4,175.35	\$1,976.49	\$12.77
5	Demand Costs - Power Cost	\$37,329,487	\$21,965,420	\$402,080	\$1,604,476	\$6,687,340	\$2,227	\$250,235	\$690,071	\$499,087	\$1,369,966	\$3,598,418	\$260,165
6	kWh Sales	970,185,646	477,587,073	7,958,372	51,178,449	189,669,403	43,955	7,632,000	21,766,500	14,100,000	44,772,000	140,544,000	14,933,894
7	kW NCP Demand	310,351	195,571	5,856	11,633	51,638	28	3,262	4,991	4,116	9,725	19,709	3,823
8	\$/kW (Power Cost)	\$10.02	\$9.36	\$5.72	\$11.49	\$10.79	\$6.66	\$6.39	\$11.52	\$10.10	\$11.74	\$15.22	\$5.67
9	\$/kWh (Power Cost)	\$0.03848	\$0.04599	\$0.05052	\$0.03135	\$0.03526	\$0.05067	\$0.03279	\$0.03170	\$0.03540	\$0.03060	\$0.02560	\$0.01742
10	Demand Costs - System Cost	\$12,863,275	\$8,238,181	\$181,244	\$634,648	\$1,850,854	\$947	\$104,715	\$182,704	\$141,501	\$359,789	\$838,233	\$330,458
11	kWh Sales	970,185,646	477,587,073	7,958,372	51,178,449	189,669,403	43,955	7,632,000	21,766,500	14,100,000	44,772,000	140,544,000	14,933,894
12	kW NCP Demand	310,351	195,571	5,856	11,633	51,638	28	3,262	4,991	4,116	9,725	19,709	3,823
13	\$/kW (System Cost)	\$3.45	\$3.51	\$2.58	\$4.55	\$2.99	\$2.83	\$2.68	\$3.05	\$2.86	\$3.08	\$3.54	\$7.20
14	\$/kWh (System Cost)	\$0.01326	\$0.01725	\$0.02277	\$0.01240	\$0.00976	\$0.02154	\$0.01372	\$0.00839	\$0.01004	\$0.00804	\$0.00596	\$0.02213
15	Energy Costs	\$53,771,159	\$26,555,416	\$442,512	\$2,845,691	\$10,546,244	\$2,407	\$417,939	\$1,210,289	\$772,135	\$2,451,775	\$7,696,377	\$830,374
16	kWh Sales	970,185,646	477,587,073	7,958,372	51,178,449	189,669,403	43,955	7,632,000	21,766,500	14,100,000	44,772,000	140,544,000	14,933,894
17	\$/kWh	\$0.05542	\$0.05560	\$0.05560	\$0.05560	\$0.05560	\$0.05476	\$0.05476	\$0.05560	\$0.05476	\$0.05476	\$0.05476	\$0.05560

nDanville Rate Study

Overview

nDanville is the City-owned high performance fiber optic network that is managed by the Danville Utilities department. At the start of the effort, the nDanville network achieved widespread recognition as a ground-breaking utility service, and the network has been widely cited as a case study of success for a municipal open access network.

As an open access network, nDanville provides wholesale network transport services to private sector providers, who in turn sell Internet connectivity and other services to businesses and residents who are connected to the network. The City does not sell any retail services and does not compete with the private sector for business and residential services.

The initial fiber deployment was focused on business and economic development, with fiber placed in five business parks and downtown Danville, including the Tobacco Warehouse District. The availability of open access fiber with competitive service offerings from private sector providers has been a key factor in the ability of the City to attract and retain a vibrant mix of commercial, industrial, and retail businesses on Main Street and in the Tobacco Warehouse District.

nDanville's rates have remained the same since the start of the network service more than ten years ago. At that time, nDanville's rates were highly competitive with the services and pricing from incumbent providers in the Danville area.

Since then, there has been a steady decrease in the cost of Internet-based services, including local transport—the primary service offering from the City-owned utility. Some of the changes in the market for broadband services include:

- Substantial decreases in the cost of Layer 2 transport (the primary nDanville service offering).
- Substantial increases in the amount of Layer 2 bandwidth offered.
- Substantial increases in the amount of bandwidth (both Layer 2 and/or Internet bandwidth) requested by both public and private sector enterprise businesses and institutions.
- Substantial increases in the amount of bandwidth (both Layer 2 and/or Internet bandwidth) requested by small and medium businesses.
- Dramatic increases in the bandwidth expectations of residential users.
- Sharp decreases in the number of households purchasing a package of cable or satellite TV channels.
- Sharp increases in the number of households getting all news, sports, and entertainment programming from their Internet connection, using OTT (Over The Top) services like Netflix, Hulu, Amazon Prime, Apple TV and many other streaming video services.

These changes suggest that rate adjustments are needed by nDanville to retain existing customers, but rate changes should also assist with the expansion of the nDanville network to more homes and businesses in the City. These changes should include:

- Fewer bandwidth offerings on the low end.
- Fewer bandwidth offerings overall, to align better with service offerings from other muni networks and to simplify nDanville's marketing to its wholesale customers.
- Reduced rates for most services, to better reflect the current market expectations.

nDanville Rate Study

- Elimination of the revenue percentage fees used in the residential market, to be replaced with circuit-based pricing. This will assist with attracting more residential service providers and will give residential ISPs more flexibility in marketing and promotional pricing.
- Offering “Gigabit” residential wholesale circuits, which will give nDanville and its private sector ISP a powerful marketing tool and will better align the network with what is now typical in many other municipal and private sector networks.

Rate Review Process

Because nDanville is a municipal network, we collected the rate sheets from six other fiber networks owned by municipalities or community nonprofits. These included:

Rockbridge Area Network Authority — RANA is a Virginia network jointly owned by Rockbridge County and the cities of Lexington and Buena Vista. In operation since 2013, the network comprises more than sixty miles of fiber and has several hundred business and residential customers. RANA uses Calix network equipment, as does nDanville. It is an open access network.

The Wired Road Broadband Authority — The Wired Road has been in operation for more than a decade and is jointly owned by the City of Galax and Carroll and Grayson counties. The project has approximately forty miles of fiber, includes some fiber to the home, and also has twenty wireless broadband access points for rural broadband in Carroll and Grayson counties. The fiber network is available in several business parks, Hillsville, and Galax, and fiber to the home in Grant, Virginia. It is an open access network.

Nelson County Broadband Authority — NCBA has been in operation for more than five years and is a fiber network with network equipment similar to nDanville (Calix). The network has nearly six hundred customers. It is an open access network. There are two residential ISPs and several other service providers buying transport for their own use and/or for larger commercial or institutional customers.

Roanoke Broadband Authority — The Roanoke fiber network has sixty miles of middle mile fiber operating on the open access business model. Several private sector service providers purchase circuits for their business and institutional customers.

Bozeman Fiber — The Bozeman, Montana fiber network comprises 25 miles of fiber constructed in 2016 within the City of Bozeman, and passes numerous business and commercial areas, including the Main Street portion of the city. It is owned by a community nonprofit and operates on an open access basis with five private sector service providers.

AccessEagan — This open access network is owned by the City of Eagan, Minnesota and has seventeen miles of fiber that passes key business areas of the city. It is in its eighth year of operation and has three service providers.

nDanville Rate Study

Residential Service

Not all networks had specific “residential” service. Those that did were offering GPON rather than Active Ethernet. GPON is what is offered by nDanville in its residential neighborhoods, and is entirely adequate for most residential uses, including many work from home or business from home uses.

Residential transport service is usually provisioned from the service provider’s port in the data center to a single customer location. Traffic is un-tagged at the customer. Circuit is typically asymmetric and priority is set at Best Effort across the core network. Most of the networks observe a maximum 64:1 split.

The two networks that offer a “residential” service charge a flat rate per circuit fee. nDanville currently assesses a 20% revenue share of the provider’s retail price.

Residential Service							
Service	nDanville Current Price List	Rockbridge Area Network Authority	Wired Road Broadband Authority	Nelson County Broadband Authority	Roanoke Broadband Authority	Bozeman Fiber	City of Eagan
25/5 GPON	20% revenue share of retail price charged by ISP			\$25			
50/10 GPON				\$50			
100/10 GPON						\$45	
1000/50 GPON				\$75			

nDanville Rate Study

Symmetric Business Class Service

Every network offers what can be classified as “business class” service, distinguished by the widespread use of Active Ethernet circuits, but one network (Nelson Broadband Authority) offers business GPON services. It is worth noting that some of these services are used to provide service to residential customers on other networks. All of nDanville’s current circuit offerings are symmetric. nDanville is the only network that offered any circuits below 10 Meg, and three of the networks start their ActiveE services at 25 Meg. nDanville prices are much higher than most of the other networks (ranging from 2x higher to 4x higher).

These services are usually provisioned as transport service from the carrier or provider’s port in the data center to a single customer location. Traffic is untagged at the customer. Circuits may be symmetric or asymmetric and the ActiveE circuit priority is typically set higher than Business PON for better performance across the core network. An example of this is a package of Internet access for a business which views dedicated and symmetric bandwidth a requirement with regular use of videoconferencing, heavy cloud-based service use, and large file uploads.

Symmetric Ethernet Circuits							
Service	nDanville Current Price List	Rockbridge Area Network Authority	Wired Road Broadband Authority	Nelson County Broadband Authority	Roanoke Broadband Authority	Bozeman Fiber	City of Eagan
1/1 Meg	\$50						
2/2 Meg	\$100						
5/5 Meg	\$200						
10/10 Meg	\$300				\$350		\$190
20/20 Meg					\$450		
25/25 Meg	\$400	\$72	\$92				
25/25 Meg GPON				\$60			
50/50 Meg	\$750	\$195	\$195		\$600		\$400
50/50 Meg GPON				\$150			
100/100 Meg	\$1250	\$385	\$385		\$900		\$450
100/100 Meg GPON				\$300			
200 Meg					\$1100		\$550
250/250 Meg	\$1500		\$875	\$450		\$375	
300/300 Meg					\$1500		
400/400 Meg					\$1800		
500 Meg	\$1800			\$850	\$2200	\$425	\$785
750 Meg	\$2150						
1000/1000 Meg (Gig)	\$2500	\$1000		\$1000	\$4100		\$835
10 Gig/10 Gig	\$5000						

nDanville Rate Study

Asymmetric Business Service

Some of the networks offer asymmetric ActiveE services and/or asymmetric GPON services targeted for small and medium size business customers. The asymmetric services use less core network bandwidth and give ISPs some less expensive service options (i.e. less expensive than symmetric services).

These transport services are typically provisioned from the carrier or provider's port in the data center to a single customer location. Traffic is untagged at the customer. Circuit is typically asymmetric and the priority is set higher than Residential for better performance across the core network. An example of this is a package of Internet access for a business with regular use of videoconferencing, heavy cloud-based service use, and large file uploads. A maximum 16:1 split on this service tier is typical.

nDanville currently offers no services in this class.

Asymmetric Ethernet Circuits							
Service	nDanville Current Price List	Rockbridge Area Network Authority	Wired Road Broadband Authority	Nelson County Broadband Authority	Roanoke Broadband Authority	Bozeman Fiber	City of Eagan
10/1			\$19				
25/5 Meg		\$26	\$26				
50/10 Meg		\$48	\$48				
100/20 Meg							
1000/50 Meg GPON						\$95	
1000/100 Meg GPON						\$180	
500/250 Meg GPON						\$325	

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Wide Area LAN Service

Wide Area LAN services are higher quality circuits that typically provide guaranteed bandwidth end to end across the network. These are premium circuits that provide higher levels of performance and are targeted at larger enterprise and institutional customers. These are usually sold in pairs.

These are provisioned as a transport service between the carrier or provider's port in the colo as well as between multiple customer locations (fee applies for each end-point outside of provider's network interconnection). Passed traffic can be tagged or untagged as well as supporting Q-in-Q. The circuit is symmetric and the bandwidth is dedicated via soft reservation across the core network. An example of this would be a transparent LAN service to link two customer locations. Two connections (circuits) may be needed (e.g. to connect two locations of the same enterprise together).

nDanville does not offer any wide area LAN circuits at this time due to lack of interest. This may be a service that could be offered in the future.

Wide Area LAN Ethernet Circuits (QinQ support, highest priority)							
Service	nDanville Current Price List	Rockbridge Area Network Authority	Wired Road Broadband Authority	Nelson County Broadband Authority	Roanoke Broadband Authority	Bozeman Fiber	City of Eagan
25/25 Meg		\$195	\$195				
50/50 Meg		\$385	\$385				
100/100 Meg		\$750	\$750	\$400			
250/250 Meg			\$987			\$325	
500/500 Meg		\$987		\$640		\$550	
1 Gig/1 Gig		\$1250	\$1250	\$830		\$785	

Recommendations

Circuit Offerings

nDanville should reduce the number of ActiveE circuit offerings to simplify its price list.

The 1 Meg, 2 Meg, 5 Meg, and 10 Meg offerings should be dropped entirely.

Wholesale circuit prices should sharply reduced to enable nDanville providers to compete more effectively against the incumbents. Lower prices should also make it easier for nDanville to regain some K12 school business.

The one time start up fee for business customers should be a single, modest charge for any circuit up to and including 1 Gig circuits (the drop installation cost and the ONT is the same for all circuits up to 1 Gig), and should be no more than \$100. Large startup fees make it more difficult for nDanville providers to bring more customers onto the network, which impacts nDanville revenue. A 10Gig circuit should have a start up fee that captures more, but not necessarily all, of the higher cost of 10Gig optics.

Circuit Types

nDanville should consider offering a couple of asymmetric GPON based business circuits to give nDanville providers more pricing flexibility for small and medium sized business customers. Two circuits (1000/50 and 1000/100) should be adequate. Before making this change, nDanville should discuss this with current providers and gather additional feedback on provider interest for this approach.

Residential Offerings

The current approach of assessing a revenue share of the ISP retail offerings has two complications:

- It makes it more difficult for ISPs to offer discounts, sign up incentives, and other marketing incentives that are commonly used by other telecom businesses because the revenue share percentage makes developing a business case more complicated.
- The revenue share approach also places an extra accounting and auditing burden on nDanville because the network must rely on revenue reports from the service providers to collect the revenue share.

As an alternative, nDanville should begin an evaluation of flat rate circuit pricing. Discussion with service providers would be the first step.

- As an example, two residential GPON circuits could be offered: 1000/10 and 1000/50. This would enable nDanville and its service providers to begin marketing Gigabit service offerings to the 2000+ homes passed by nDanville fiber. The cable companies are moving rapidly, via DOCSIS 3.x protocols, to offer “Gigabit” service, and nDanville and its providers should seize the high ground in Danville and offer Gig residential service now.
- The 1000/10 wholesale cost could be \$26/month, and the 1000/50 wholesale cost could be \$37/month. As noted above, discussion with providers will be needed before making any changes.

This should make it much easier to increase the take rate for those homes already passed by nDanville fiber.

nDanville Rate Study

CPE Fee

nDanville has not changed its monthly CPE fee since the network began service. The monthly fee, billed directly to the customer on their electric bill, provides a stable base fee that is independent of the particular service that a customer purchases from a provider. This fee not only provides revenue stability, but also enables nDanville to keep circuit rates lower for providers. This fee should be increased to \$12/month.

Cost Calculation for monthly CPE fee (cost of connecting a new customer);

Component	Cost
300' of drop cable	\$87.10
Fiber ONT (Calix model 812G)	\$150.00
Tap box	\$26.74
Fiber patch cable (typical 50')	\$27.02
Installation labor	\$135.00
Total	\$425.86
Three year amortization of expense (per month)	\$11.83

Recommended monthly fee: \$12.00

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Sample "New" nDanville Rate Chart

The new pricing should have a positive impact on take rate, and should help bring more customers on the network more quickly.

Business service revenue will have a temporary revenue decrease, but will give current providers more competitive pricing that should bring more customers on the network, which will increase revenue over time.

Perhaps the most important potential impact of the pricing is that it will help nDanville attract more providers to the network. The current pricing is not competitive and has probably been a dis-incentive to attracting new providers to the network.

2019 nDanville Pricing (Proposed)		
Service	nDanville Proposed Price List	One Time Connection Fee
Asymmetric Circuits		
10/1 Meg GPON	\$25	\$100
100/10 Meg GPON	\$65	\$100
1000/50 Meg GPON	\$95	\$100
1000/100 Meg GPON	\$135	\$100
Symmetric Circuits		
25/25 Meg ActiveE	\$76	\$200
50/50 Meg ActiveE	\$155	\$200
100/100 Meg ActiveE	\$225	\$200
250/250 Meg ActiveE	\$475	\$200
500 Meg/500 Meg ActiveE	\$765	\$200
1000/1000 Meg (Gig) ActiveE	\$925	\$200
10 Gig/10 Gig ActiveE	\$2250	\$750
Revenue Share Option		
20% of retail service offering	n/a	\$100
Monthly CPE Fee	\$12	