

Appendix A

Executive Summary

Alexicon was asked to assist six rural telecommunications companies with an analysis of the costs associated with providing broadband in their high cost rural areas that were not recovered under the USF program. The six companies are: Silver Star Communications, Nex-Tech, EATEL, Smithville Communications, Chickasaw Telephone and Totah Communications.

We examined and analyzed the data from four of these cost companies to determine what broadband costs were unrecovered, due to the limits on the USF program either because of the FCC's regulations or because of the hard budget cap. This analysis applies to legacy companies. In the spirit of determining the shortfall, we opted to report the total amount of unrecovered costs and also the comparison of per-connection costs to a national benchmark.

To determine unrecovered support for ACAM companies, we identified the difference in ACAM support at the uncapped (\$200/location) and capped (\$146/location) amounts. We sampled three random ACAM model based support carriers to determine an average. This produced an initial look at total under-recovered model based support. In addition, ACAM companies will need to calculate their unrecovered costs.

The companies identified above have drafted and support the proposed legislation, the Rural Broadband Advancement Act, which is intended to recover the last mile and middle mile broadband costs which are not recovered today from broadband subscribers or from the USF program.

The included illustrations provide an understanding of the basic architecture and costs elements of rural voice and broadband capable networks. The most common network topologies utilized by rural broadband companies are represented in the two illustrations.

Each network includes last mile and middle mile costs. The last mile captures the routing of network facilities from the demand location up to a Central Office. The middle mile portion captures the transport from a Central Office to the point at which traffic is passed to the internet point of presence.

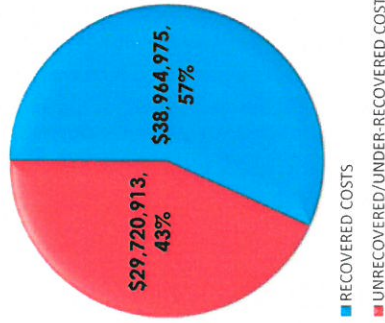
The differences in the network illustrations center around the second mile. An end office network includes second mile costs resulting from facilities between two or more central offices/wire centers. A collapsed network only has one central office, and therefore no second mile costs.

What costs does the Rural Broadband Network Advancement Act seek to recover?

Rate of Return Carriers

Eatel, Smithville, Chickasaw, & Nex-Tech Combined Data

RECOVERED VS UNRECOVERED COSTS



TOTAL COSTS

\$68,685,888

RECOVERED COSTS

\$38,964,975

AVG SUBSCRIBERS

32,038

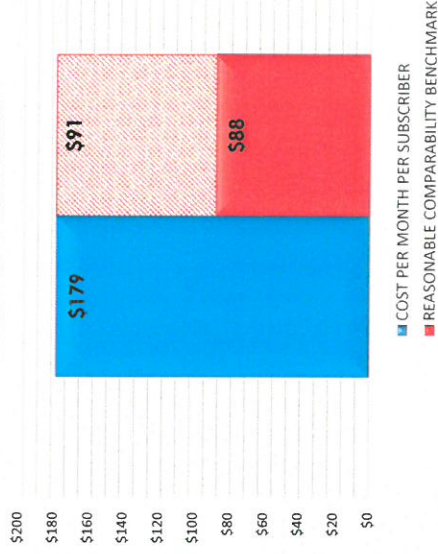
COST PER MONTH PER SUBSCRIBER

\$179

REASONABLE COMPARABILITY BENCHMARK

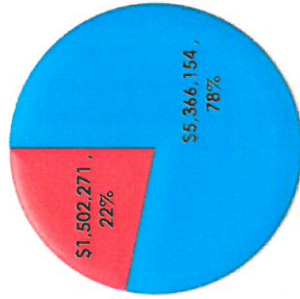
\$88

Cost Per Subscriber



ACAM Model Based Support Carriers

RECOVERED VS UNDER-RECOVERED
MODEL BASED SUPPORT



TOTAL MODEL BASED SUPPORT

\$6,868,425

RECOVERED MODEL BASED SUPPORT

\$5,366,154

UNDER-RECOVERED MODEL BASED SUPPORT

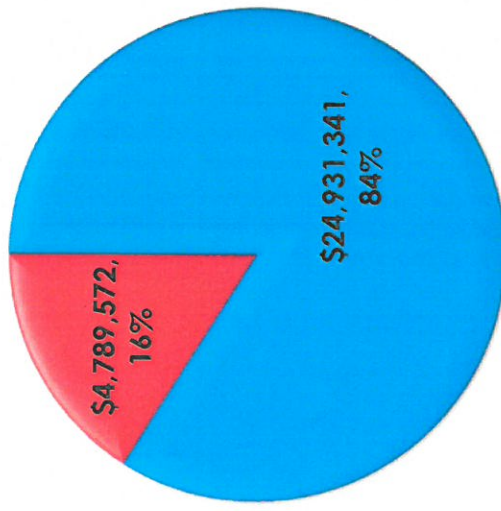
1,502,271

Notes:

Total ROR costs include CAF BLS, DSL, HCLS, and middle mile costs
ROR Unrecovered/Under-recovered costs include costs eligible for USF funding that are not reimbursed, as well as unrecovered middle mile costs.
The RBNAA seeks to recover the difference between total costs and recovered costs, or in the above example \$91/month/subscriber
ACAM results based on the average of three companies, whereas the difference between original \$200/location offer and \$146/location offer results in under-recovered model based support
Companies receiving ACAM support will need to calculate their unrecovered costs

What are the total costs these four companies are trying to recover?

Eatel, Smithville, Chickasaw, & Nex-Tech Combined Data



UNDER-RECOVERED COSTS

\$24,931,341

UNRECOVERED COSTS

\$4,789,572

TOTAL UNRECOVERED/UNDER-RECOVERED COSTS

29,720,913

■ UNDER-RECOVERED COSTS ■ UNRECOVERED COSTS

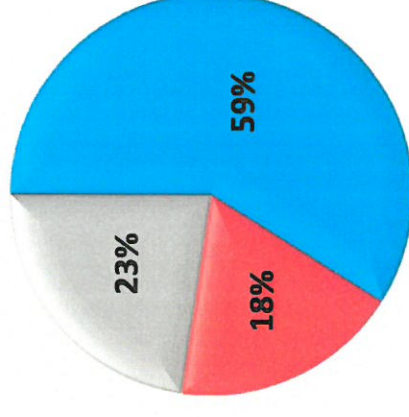
In the above analysis unrecovered costs include total costs associated with the middle mile

What is the financial impact of the arbitrary cap on the High Cost USF Program?

Eatel, Smithville, Chickasaw, & Nex-Tech Combined Data

	Total Regulated Costs	Costs Reimbursed through Federal USF Funding*	Costs Eligible for USF that are not Reimbursed**
Plant Specific Expense	\$ 34,001,101	\$ 21,707,325	\$ 5,540,958
Plant Non-Specific Expense	10,752,517	7,539,914	1,314,451
Depreciation & Amortization	27,449,196	18,650,175	3,890,263
Customer Service Expense	7,809,958	3,013,405	256,149
Corporate Expense	15,595,809	6,014,570	7,477,547
Operating Tax Expense	5,277,556	3,616,871	788,309
Other Expense Items	152,167	88,293	3,813
Federal & State Taxes	7,545,389	3,306,516	673,581
Total Operating Expenses	\$108,583,694	\$63,937,069	\$19,945,073
Rate of Return Recovery	\$27,145,923	\$15,984,267	\$4,986,268
Total	\$135,729,617	\$79,921,337	\$24,931,341

Cost Recovery Analysis



■ Costs Reimbursed through Federal USF Funding*
 ■ Costs Eligible for USF that are not Reimbursed**
 ■ Intrastate Costs***

Notes:

*Includes \$42 benchmark from end users

**Costs Reimbursed through Federal USF Funding" include CAF BLS, CAF ICC, and High Cost Loop Recovery

***Inclusive of broadband-only lines, voice/broadband lines, and voice-only lines.

***Intrastate Costs are not eligible for federal USF Recovery

End Office Network



Middle Mile	Second Mile	Last Mile
<ul style="list-style-type: none"> ■ Transport and transmission of data communications from the central office, cable headend or wireless switching station to an Internet point of presence. ■ WAN/Data center storage costs, access, transit, domain name registration, web hosting, email services, spam filters, colocation fees, and intermediary transport to a carrier hotel costs. ■ Maintenance on the transmission and switching equipment associated with these functions. 	<ul style="list-style-type: none"> ■ Transport and transmission of data communications from the first point of aggregation (such as a remote terminal, wireless tower, or HFC node) to the point of connection with the Middle Mile Transport. ■ Transmission equipment, switching, cable & wire, maintenance, and power 	<ul style="list-style-type: none"> ■ Routing of network facilities from the demand location up to the central office. ■ Transmission equipment, cable & wire, maintenance, and power.

Collapsed Network



Middle Mile	Last Mile
<ul style="list-style-type: none"> ■ Transport and transmission of data communications from the central office, cable headend or wireless switching station to an Internet point of presence. ■ Encompass WAN/Data center storage costs, access, transit, domain name registration, web hosting, email services, spam filters, colocation fees, and intermediary transport to a carrier hotel costs. ■ Maintenance on the transmission and switching equipment associated with these functions. 	<ul style="list-style-type: none"> ■ Routing of network facilities from the demand location up to the central office. ■ Switching and transmission equipment, cable & wire, maintenance, and power.

Under-Recovered Expense Analysis

Using 2017 NECA Forecast Applied to USF Reforms

	Total	Common Line		Interstate
		Voice	Data Only Broadband Loop	
Operating Expense				
Network Support Exp	238,698	0.140551	0.000000	50.79%
GSF Expense	5,336,579	0.173276	0.000000	42.51%
COE Switching Exp	1,303,239	0.000000	0.000000	45.16%
COE Circuit Exp	8,350,378	0.129982	0.000000	54.08%
CWF Exp	8,707,262	0.180147	0.000000	41.30%
Other Property Plan and equipment	387,200	0.141732	0.000000	42.24%
Network Operations Expense	5,810,435	0.147283	0.000000	45.75%
Access Expense - Direct Assign IER	3,269,109	1.000000	0.000000	100.00%
Access Expense - Direct Assign SRA	267,266	0.000000	0.000000	0.00%
Depr. Exp. GSF	1,335,155	0.166880	0.000000	41.37%
Depr Exp. Switching	313,929	0.000000	0.000000	29.53%
Depr Exp. Circuit	6,028,665	0.151121	0.000000	47.95%
Depr Exp. CWF	16,429,350	0.178510	0.000000	41.87%
Amortization of Tangible Assets	-	0.000000	0.000000	0.00%
Amortization of Intangible Assets	-	0.000000	0.000000	0.00%
Marketing	2,078,322	0.109428	0.000000	30.02%
Call completion services.	54,243	0.000000	0.000000	0.00%
Directory Expense - Classified	37,763	0.000000	0.000000	0.00%
Directory Expense - Alpha	68,687	0.000000	0.000000	34.10%
Directory Expense - Other IER	-	0.000000	0.000000	0.00%
End User Service Order Processing	400,872	0.000000	0.000000	0.00%
End/U Presub SvC Order Processing	736,136	0.926243	0.000000	95.34%
End User Payment & Collection	840,363	0.400525	0.000000	40.05%
End User Bill Inquiry	626,928	0.876312	0.000000	87.63%

IXC Service Order Processing	261,347	0.691779	0.000000	72.17%
IXC Payment & Collection	191,356	0.371037	0.000000	38.32%
IXC Bill Inquiry	176,976	0.548531	0.000000	57.02%
Toll Ticket Processing	138,030	0.000000	0.000000	0.00%
Other Billing and Collection	531,816	0.000000	0.000000	0.00%
End User Access Billing	36,035	1.000000	0.000000	100.00%
Carrier Access Billing	401,688	0.000000	0.000000	48.71%
Other Services	-	0.000000	0.000000	0.00%
IER TRS Services	356,014	0.764872	0.000000	86.93%
Executive	1,815,399	0.222503	0.000000	49.12%
G&A	11,399,669	0.243909	0.000000	45.56%
G&A Direct Assign	433,505	0.490266	0.000000	97.44%
Account 7200 - Other Operating Taxes	4,990,000	0.159672	0.000000	42.75%
Account 7245 - Interstate Regulatory Fees	48,391	0.372937	0.000000	100.00%
Account 7300.2 - Special Charges	72,722	0.271958	0.000000	46.17%
Account 7500.3- Interest on Customer Deposits	816	0.122450	0.000000	46.98%
Fed Tax	7,068,042	0.194142	0.000000	38.10%
State Tax	627,635	0.194290	0.000000	38.29%

HCL/SVS Recovery %'s	Total % Rec. before Reform	Corp Cap		NACPL Pro-rata Reduction	Operating Exp Caps	Budget Control	
		Interstate	HCL			HCL Impact	CAF BLS Impact
32.65%	83.44%			-18.11%	0.00%	-14.17%	-8.90%
45.67%	88.18%			-18.11%	0.00%	-14.17%	-8.90%
35.92%	81.08%			-18.11%	0.00%	-14.17%	0.00%
34.01%	88.08%			-18.11%	0.00%	-14.17%	-8.90%
51.54%	92.83%			-18.11%	0.00%	-14.17%	-8.90%
0.00%	42.24%			0.00%	0.00%	0.00%	-8.90%
37.66%	83.41%			-18.11%	0.00%	-14.17%	-8.90%
0.00%	100.00%			0.00%	0.00%	0.00%	-8.90%
0.00%	0.00%			0.00%	0.00%	0.00%	0.00%
0.00%	41.37%			0.00%	0.00%	0.00%	-8.90%
40.76%	70.29%			-18.11%	0.00%	-14.17%	0.00%
38.42%	86.37%			-18.11%	0.00%	-14.17%	-8.90%
49.31%	91.19%			-18.11%	0.00%	-14.17%	-8.90%
0.00%	0.00%			0.00%	0.00%	0.00%	0.00%
0.00%	0.00%			0.00%	0.00%	0.00%	0.00%
0.00%	30.02%			0.00%	0.00%	0.00%	-8.90%
0.00%	0.00%			0.00%	0.00%	0.00%	0.00%
0.00%	0.00%			0.00%	0.00%	0.00%	0.00%
0.00%	34.10%			0.00%	0.00%	0.00%	0.00%
0.00%	0.00%			0.00%	0.00%	0.00%	0.00%
0.00%	0.00%			0.00%	0.00%	0.00%	0.00%
0.00%	95.34%			0.00%	0.00%	0.00%	0.00%
0.00%	40.05%			0.00%	0.00%	0.00%	-8.90%
0.00%	87.63%			0.00%	0.00%	0.00%	-8.90%

0.00%
0.00%
0.00%
0.00%
0.00%
0.00%
0.00%
0.00%
0.00%

72.17%
38.32%
57.02%
0.00%
0.00%
100.00%
48.71%
0.00%
86.93%

37.64%
47.38%
44.25%

86.76%
92.94%
141.69%

42.53%

85.28%

0.00%
0.00%
0.00%

100.00%
46.17%
46.98%

0.00%
0.00%

38.10%
38.29%

0.00%	0.00%	0.00%	0.00%	-8.90%
0.00%	0.00%	0.00%	0.00%	-8.90%
0.00%	0.00%	0.00%	0.00%	-8.90%
0.00%	0.00%	0.00%	0.00%	0.00%
0.00%	0.00%	0.00%	0.00%	0.00%
0.00%	0.00%	0.00%	0.00%	-8.90%
0.00%	0.00%	0.00%	0.00%	0.00%
0.00%	0.00%	0.00%	0.00%	0.00%
0.00%	0.00%	0.00%	0.00%	-8.90%

37.95%	50.47%	-18.11%	0.00%	-14.17%	-8.90%
37.95%	50.47%	-18.11%	0.00%	-14.17%	-8.90%
	50.47%	-18.11%	0.00%	-14.17%	-8.90%

-18.11%	0.00%	-14.17%	-8.90%
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0.00%	0.00%	0.00%	0.00%	-8.90%
0.00%	0.00%	0.00%	0.00%	-8.90%
0.00%	0.00%	0.00%	0.00%	-8.90%

0.00%	0.00%	0.00%	0.00%	-8.90%
0.00%	0.00%	0.00%	0.00%	-8.90%

Total Recovery after Caps	Annual Est % Reduction	Total Regulated Expense	Costs Reimbursed by USF*	Costs Eligible for USF that are not Reimbursed**
72.49%	-10.96%	238,698	173,028	26,150
73.06%	-15.12%	5,336,579	3,899,040	806,677
70.40%	-10.68%	1,303,239	917,527	139,129
76.82%	-11.26%	8,350,378	6,414,780	940,580
75.91%	-16.92%	8,707,262	6,609,907	1,473,254
				-
40.98%	-1.26%	387,200	158,673	4,884
70.90%	-12.50%	5,810,435	4,119,883	726,460
91.10%	-8.90%	3,269,109	2,978,191	290,917
0.00%	0.00%	267,266	-	-
		-		-
39.88%	-1.49%	1,335,155	532,490	19,828
58.18%	-12.11%	313,929	182,641	38,028
73.61%	-12.76%	6,028,665	4,437,735	769,509
74.94%	-16.24%	16,429,350	12,312,663	2,668,882
0.00%	0.00%	-	-	-
0.00%	0.00%	-	-	-
				-
29.05%	-0.97%	2,078,322	603,740	20,239
0.00%	0.00%	54,243	-	-
0.00%	0.00%	37,763	-	-
34.10%	0.00%	68,687	23,423	-
0.00%	0.00%	-	-	-
0.00%	0.00%	400,872	-	-
87.10%	-8.24%	736,136	641,181	60,677
36.49%	-3.56%	840,363	306,634	29,953
79.83%	-7.80%	626,928	500,495	48,890

66.02%	-6.16%
35.02%	-3.30%
52.14%	-4.88%
0.00%	0.00%
0.00%	0.00%
91.10%	-8.90%
48.71%	0.00%
0.00%	0.00%
80.13%	-6.81%

261,347
191,356
176,976
138,030
531,816
36,035
401,688
-
356,014

172,533
67,015
92,277
-
-
32,828
195,679
-
285,264

16,089
6,318
8,639
-
-
3,207
-
-
24,232
-
1,007,928
6,802,251
142,696
-
701,649
-
1,606
1,760
9
-
122,112
10,852
-
-
-

31.24%	-55.52%
33.27%	-59.67%
108.77%	-32.92%

1,815,399
11,399,669
433,505

567,090
3,792,682
471,524

1,007,928
6,802,251
142,696
-
701,649
-
1,606
1,760
9
-
122,112
10,852
-
-
-

71.22%	-14.06%
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4,990,000

3,553,783

701,649
-
1,606
1,760
9
-
122,112
10,852
-
-
-

96.68%	-3.32%
43.75%	-2.42%
45.89%	-1.09%

48,391
72,722
816

46,785
31,816
374

1,606
1,760
9
-
122,112
10,852
-
-
-

36.37%	-1.73%
36.56%	-1.73%

7,068,042
627,635

2,570,779
229,483

122,112
10,852
-
-
-

16,913,401