VantagePoint
An Employee Owned Company

January 5, 2016

Marlene H. Dortch
Secretary
Federal Communications Commission
445 12th Street, SW
Washington, DC 20554

Re: Connect America Fund, WC Docket No. 10-90

On July 13, 2015 Vantage Point Solutions filed an FCC ex parte letter examining the accuracy of the Alternative Connect America Model (A-CAM).[1] The Vantage Point analysis compared results of the A-CAM "cost to serve" module to actual engineering data from 144 wire-center-wide fiber-to-the-premises (FTTP) projects in more than a dozen states. In almost a third of cases, the A-CAM capital expenditure (capex) results for a wire center differed by more than 30% from the engineering data for that wire center. The mean deviation was 28%.

Since that time, the Wireline Competition Bureau (WCB) has updated the model three times with improved data inputs. The model improvements include:

Report 2.0, A-CAM Version 1.1

- Released August 31, 2015[2]
- Updated Form 477 data

Report 3.0, A-CAM Version 2.0

- Released October 8, 2015[3]
- Updated study area boundaries
- Updated Node0 (central office) locations
- Revised regional cost adjustments

[1] See filing at http://apps.fcc.gov/ecfs/document/view?id=60001114873.
[2] See Public Notice at https://apps.fcc.gov/edocs_public/attachmatch/DA-15-980A1.pdf.
[3] See Public Notice at https://apps.fcc.gov/edocs_public/attachmatch/DA-15-1154A1.pdf.

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Report 4.0, A-CAM Version 2.1

- Released December 17, 2015[4]
- Company-specific plant mix factors
- Updated Form 477 data

Vantage Point Solutions appreciates the efforts made by the WCB to improve the accuracy of the model. To assess what impact the model revisions had on the A-CAM's ability to properly estimate the costs of FTTP deployment, Vantage Point refreshed its analysis, comparing the engineering data for the 144 wire centers to the updated results of the A-CAM 2.1 "cost to serve" module.

1. The updates had a small, but positive, impact on model accuracy

Vantage Point's original analysis found the model tended to underestimate deployment costs. On average A-CAM 1.0 estimates were 13% lower than engineering data for the same wire centers. The improvements brought A-CAM 2.1 results slightly closer to the engineering data, lowering the deviation to 12%.

Under another metric the model's accuracy increased somewhat more. Because the model underestimates costs for some wire centers and overestimates costs for others, averaging those results understates the deviation between the model estimates and engineering data (negative and positive deviations offset each other). As a result, the previous Vantage Point analysis looked to the absolute value of the model's deviation, which showed the A-CAM 1.0 "cost to serve" module missed the engineering data on a wire-center-by-wire center basis by an average of 28%.

The improvements made to A-CAM 2.1 reduced that average deviation to 24%. They also reduced the standard deviation of the A-CAM's variance from the engineering data from 28% to 23%. This suggests a tighter data set, one with fewer outliers impacting results.

Model Version	Mean Model	Mean Engineering Data	Absolute Mean A-CAM Deviation ($)	Deviation % Standard Deviation	Absolute Mean A-CAM Deviation (%)
A-CAM 1.0	$4,844,025	$5,587,377	$1,843,759	28%	28%
A-CAM 2.1	$4,890,912	$5,587,377	$1,660,941	23%	24%

Table 1. Results of A-CAM 1.0 and A-CAM 2.0 Comparison to 144 FTTP Wire Centers

[4] See Public Notice at http://transition.fcc.gov/Daily_Releases/Daily_Business/2015/db1217/DA-15-1431A1.pdf.

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Figure 1 below shows the distribution of deviation for both A-CAM 1.0 (orange dotted line) and A-CAM 2.1 (blue area). A-CAM 2.1 features more instances where model estimates were accurate[5] (56 wire centers) than did A-CAM 1.0 (51 wire centers), although the improvement was modest.

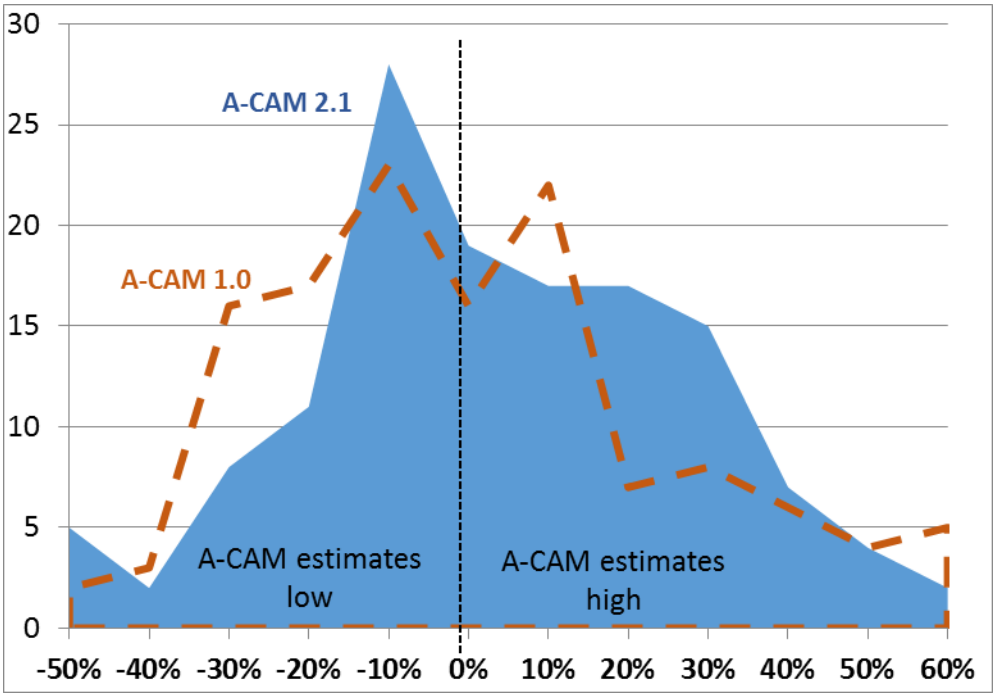

Figure 1. Distribution of A-CAM Deviations from Engineering Data

2. Major deviations are reduced, but accuracy is still a concern under A-CAM 2.1

One concern raised by the July 13 Vantage Point ex parte was that A-CAM 1.0 missed the engineering data by more than 30% in almost a third of wire centers. Frequent deviations of that size called into question the accuracy of the model. A-CAM 2.1 performs somewhat better by this measure, reducing the frequency of major deviations from 32% to 28%.

[5] "Accurate" results are the A-CAM estimates deviating from engineering data by less than 10%.

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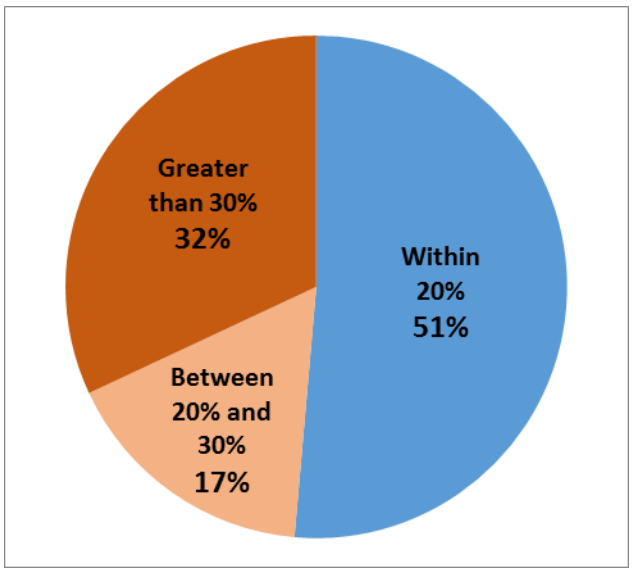

Figure 2. Frequency of A-CAM 1.0 Deviation

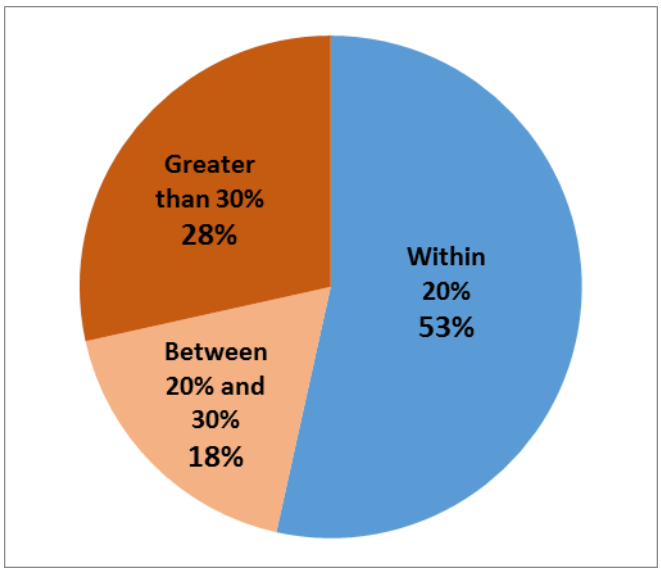

Figure 3. Frequency of A-CAM 2.1 Deviation

This improvement is welcome, but the results still raise serious questions about whether a model deviating from real world data this consistently should be used to set support amounts, even on a voluntary basis. Given that high-cost funds are a fixed budget, model errors have an impact not only on model adapters, but on all companies sharing from the Universal Service Fund.

3. Changes in model performance are inconsistent and unexplained

Figure 4 shows the model deviation from each wire center's engineering data for both A-CAM 1.0 (orange) and A-CAM 2.1 (gray), if the results are ordered separately. As one would expect, the improved model accuracy manifests itself via the gray line pushing closer to the "0% deviation" x axis.

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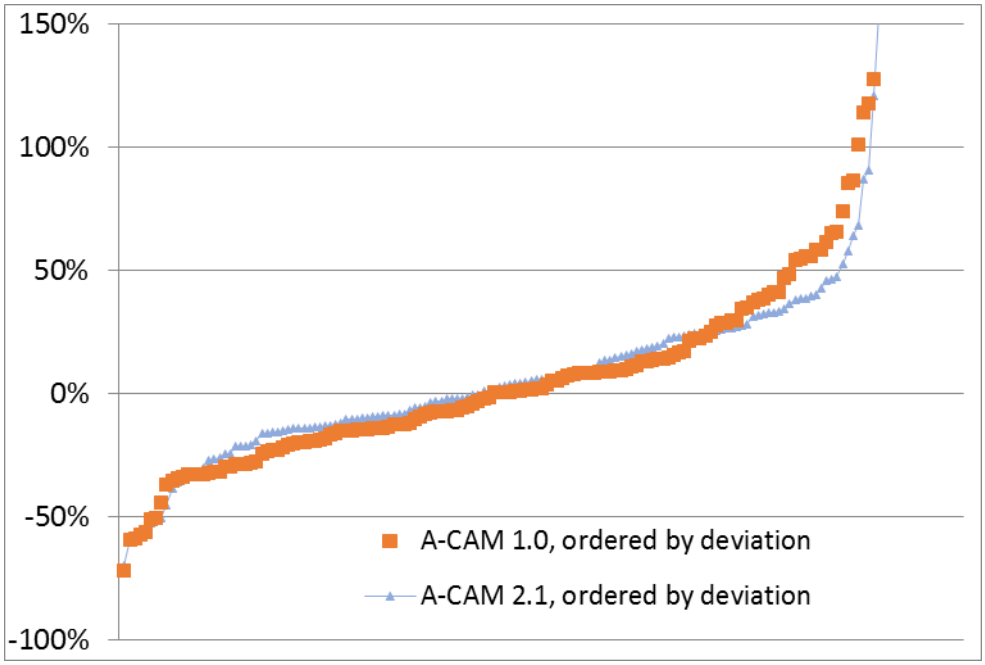

Figure 4. A-CAM Deviation by Wire Center, Ordered Independently

Figure 4 suggests model improvements impacted wire centers similarly. That was not the case. Figure 5 orders the A-CAM 2.1 results in the same sequence as the A-CAM 1.0 results, allowing the impact of the model improvements to be evaluated for each wire center.

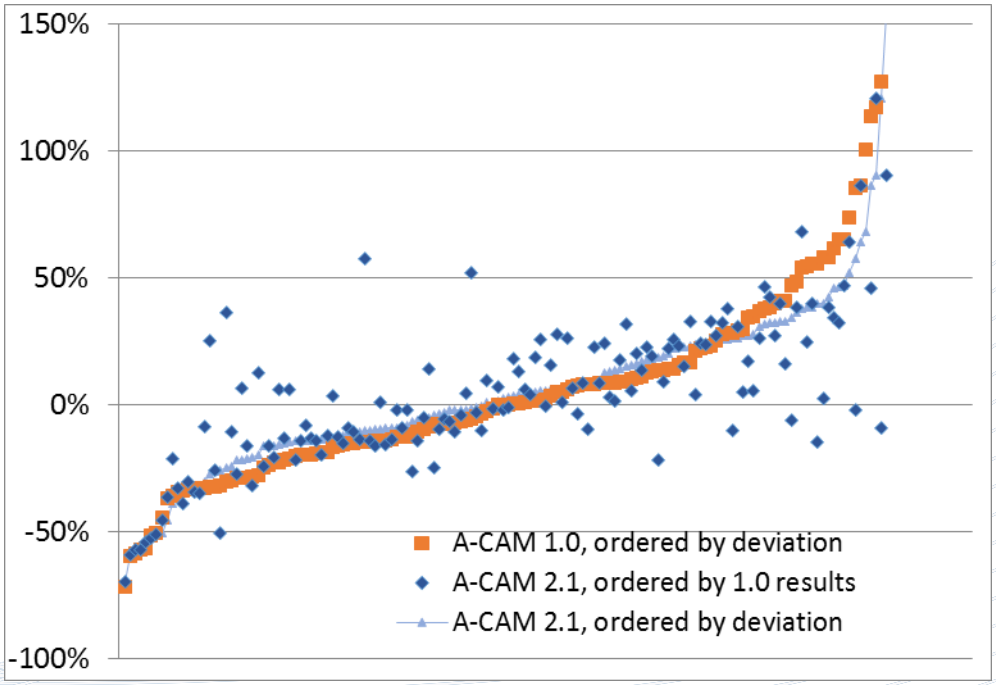

Figure 5. A-CAM Deviation by Wire Center, Ordered by A-CAM 1.0

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In many cases, the model updates somewhat improved the A-CAM's accuracy, pushing wire centers' blue data points closer to the "0% deviation" x axis. For other wire centers, though, the model updates actually decreased accuracy, increasing deviation from engineering data and pushing their blue data points away from the "0% deviation" x axis.

Of the 144 wire centers analyzed, 63 (44%) saw A-CAM accuracy decrease after the updates were made to the model. There did not seem to be any easily-identifiable commonality among the wire centers where the model's ability to estimate costs decreased from A-CAM 1.0 to A-CAM 2.1. In addition, some of the effects did not seem logical. For example, of the 48 wire centers where A-CAM 1.0 had *overestimated* costs by more than 10%, six now have the costs of FTTP deployment *underestimated* by A-CAM 2.1. In three of those six wire centers, the model now underestimates deployment costs by more than 10%. A similar impact is seen at the other end of the spectrum. Nine of the 56 wire centers A-CAM 1.0 had *underestimated* fiber deployment by more than 10% now see costs *overestimated* by A-CAM 2.1. In three of those wire centers, the model overestimates costs by more than 25%.

The inconsistency is also seen in areas where A-CAM 1.0 had appeared accurate. The twenty wire centers where A-CAM 1.0 estimates featured the smallest deviation from engineering data (3% average deviation) saw their deviation increase to 12%. Surprisingly, the inclusion of more accurate input data hurt, rather than helped, the predictive power of A-CAM 2.1 for those wire centers. *Taken together, these results suggest the model's accuracy for individual wire centers may be more attributable to luck than precision.*

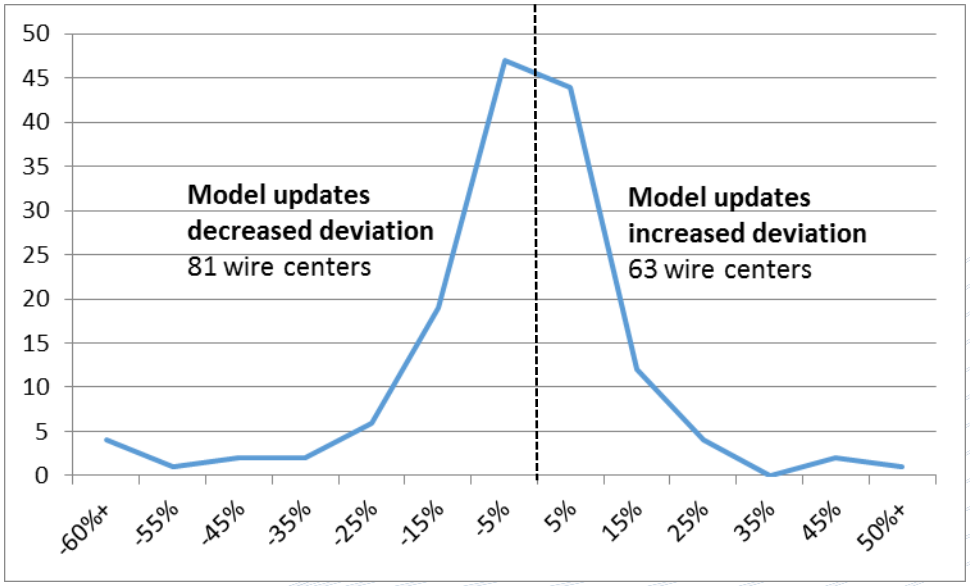

Figure 6. Model Updates Impact on Deviation Percentage

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Conclusion: More work is needed

Vantage Point Solutions is not opposed to model-based support. As was stated in our original filing, our clients vary widely in size, location, approach toward technology, and opinions of model-based support. Many of our clients could gain substantial support under the proposed A-CAM, while others will likely be better on a modified rate-of-return path. Despite the great diversity exhibited by those with whom we work, all agree on one thing, however: **they want a model that is accurate.**

Updates made to the model over the last few months have improved A-CAM accuracy to a limited degree. That provides hope that additional improvements could further increase the model's predictive power. As currently configured, the A-CAM lacks the precision needed to be the foundation upon which USF reform is built. However, the FCC has an opportunity to work with technical experts and the rural industry to identify why A-CAM 2.1 continues to feature so many major deviations from actual engineering data. Such a review could be conducted at the same time as whatever unsubsidized competitor challenge process the FCC might implement.

USF reform is needed. If done properly, it can benefit hundreds of rural providers and many thousands of rural citizens across the country. We look forward to working with the FCC and others to make needed improvements to the Alternative Connect America Model.

Respectfully submitted,

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