NTCA 2014 BROADBAND/INTERNET AVAILABILITY SURVEY REPORT

June 2015

DISCLAIMER: Data from the survey has been presented as reported.

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EXECUTIVE SUMMARY

For a decade and a half, NTCA–The Rural Broadband Association has conducted its annual Broadband/Internet Availability Survey to gauge the deployment rates of advanced services by its member companies. In the winter of 2014, NTCA sent an electronic survey form to each of the companies in NTCA's e-mail database; 128 members (20%) responded.

One hundred percent of the 2014 survey respondents offer broadband to some part of their customer bases, compared with the 58% of the 2000 survey respondents who offered the then-lower definition of broadband service.[1] Respondents indicated that they use a variety of technologies within their respective serving areas to provide at least basic levels of broadband to their customers. Thirty-nine percent of respondents' broadband customers are served via fiber to the home (FTTH), 31% via copper loops, 18% cable modem, 12% fiber to the node (FTTN), 1% licensed fixed wireless, and 0.1% satellite.

Forty-five percent of those survey respondents currently deploying fiber serve at least 50% of their customers with FTTH, while 29% serve 20% of their customers or less. Eighty-five percent of survey respondents indicated they had a long-term fiber deployment strategy. Seventy-four percent of those respondents with a fiber deployment strategy plan to offer fiber to the node to more than 75% of their customers by year-end 2017, while 67% plan to offer fiber to the home to at least 50% of their customers over the same time frame. An additional 25% have already completed fiber deployments to all customers. Deployment cost remains the most significant barrier to widespread deployment of fiber, followed by regulatory uncertainty, long loops, current regulatory rules, obtaining financing, low customer demand, fiber order fulfillment delays, and obtaining cost-effective equipment. Throughout the history of the survey, deployment cost has been respondents' most significant concern.

Approximately 0.5% of respondents' customers can receive a maximum downstream speed of between 768 kbps and 1.0 megabit per second (Mbps), 0.5% 1.0 to 1.5 Mbps, 1.2% 1.5 to 3.0 Mbps, 3.0% 3.0 to 4.0 Mbps, 3.6% 4.0 to 6.0 Mbps, 8.4% 6.0 to 10.0 Mbps, and 82.7% greater than 10.0 Mbps. The overall take rate for broadband service is 70% (down only slightly from 72% last year, despite the stricter definition of broadband service applied to this year's survey).

Nearly thirty-four percent of survey respondents' customers taking broadband subscribe to service greater than or equal to 10 Mbps downstream. The next most popular speed tiers are 6.0 Mbps to 10.0 Mbps (9.5%), and 3.0 Mbps to 4.0 Mbps (8.9%). Non-broadband subscribers make up 30% of survey respondents' customer base.

[1] For the purpose of this survey, broadband is defined as throughput of at least 3 Mbps in one direction. This is a change from previous NTCA Broadband Surveys, which defined broadband as throughput of at least 768 kbps in one direction.

The average respondent is 109 miles from its primary Internet connection; the median respondent is 73 miles away. Ninety-six percent of those who recently changed backbone providers did so for price reasons. Eighty-one percent of respondents indicated they are generally satisfied with their current backbone access provider, while 19% are generally dissatisfied.

Survey respondents indicated they face some type of competition from national Internet service providers (ISPs), cable companies and fixed and/or mobile wireless Internet service providers (WISPs.) Respondents are taking numerous marketing steps to increase broadband take rates, including bundling of services, free customer premise equipment installation, price promotions, free introductory service, free modems, and free education and training. Eighty-four percent of respondents find it difficult to compete with price promotions offered by competitors.

Thirty-one percent of respondents currently offer voice over Internet protocol (VoIP) service, up from 19% last year. Forty-eight percent of respondents not currently offering VoIP have plans to do so in the foreseeable future, down from 77% last year. Seventy-three percent of respondents offer video service to their customers, down slightly from 77% last year.

INTRODUCTION

In the winter of 2014, NTCA–The Rural Broadband Association surveyed its members on their activities in the areas of providing broadband services and Internet availability to their members/customers. NTCA is a national association representing nearly 900 rural rate of return regulated operating company telecommunications providers in 45 states. All NTCA members are small carriers that are "rural telephone companies" as defined in the Communications Act of 1934, as amended by the Telecommunications Act of 1996. Only four NTCA member companies serve 40,000 lines or more; the largest serves just over 65,000. Population density in most member service areas is generally in the 1 to 5 customers per square mile range.

This latest broadband survey is a follow-up to similar surveys conducted in recent years by NTCA, and seeks to build upon the results of those surveys.[2] This year's survey asked about technologies used to provide broadband service, broadband availability and subscription rates, prices charged, quantity and type of competition, broadband marketing efforts, fiber deployment, emerging technologies, Internet backbone connections, finance

[2] Copies of this and previous NTCA survey reports may be downloaded from the NTCA web site, www.ntca.org.

and availability of capital. The survey also provided an opportunity for respondents to provide any specific comments they wished to share.

OVERVIEW OF SURVEY

The 2014 NTCA Broadband/Internet Availability Survey was conducted online. Every effort was made to minimize the reporting burden on the survey respondents.

The survey was composed of general questions about the respondent's current operations, competition/marketing and current and planned fiber deployment. Additional questions dealt with the Internet backbone, voice over Internet protocol (VoIP) and video. The survey also provided an opportunity for respondents to offer any miscellaneous thoughts.

SURVEY RESULTS

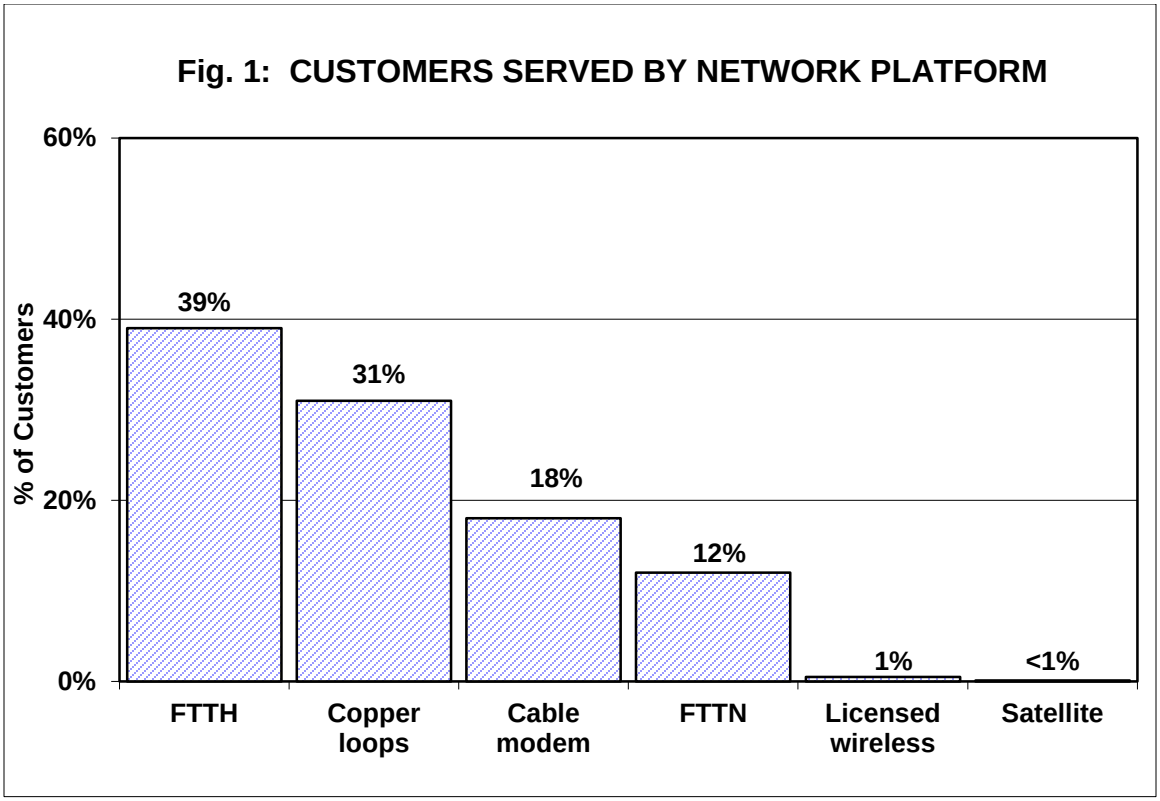
The survey URL for each part of the survey was distributed via e-mail to all member companies in NTCA's e-mail database. The message contained instructions for online access to the survey. Responses were received from 128 member companies, a 20% response rate.[3]

Fifty-two percent of survey respondents' service areas are 500 square miles or larger; 21% are at least 2,000 square miles. Nearly three-quarters—74%—have customer densities in their service area of 10 residential customers per square mile or less. More than one-fourth—28%—have customer densities of two residential customers per square mile or less.

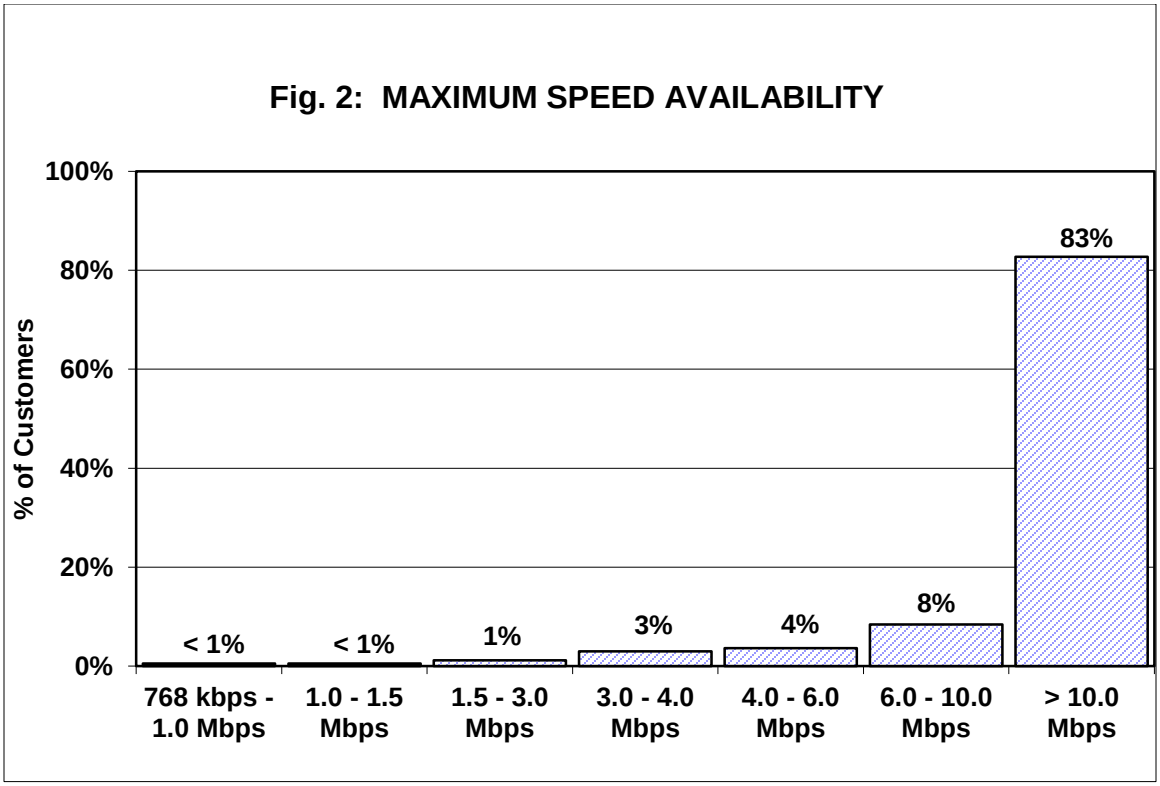
The average survey respondent serves 4,054 residential and 2,831 business voice grade access lines; a few larger companies skew these numbers upward, hence the median respondent serves 1,468 residential and 486 business lines. One hundred percent of survey respondents offer broadband service to some part of their customer base.[4] Respondents indicated that they use a variety of technologies, even within individual serving areas, to offer at least basic levels of broadband to their customers: 39% of respondents' customers are served via fiber to the home (FTTH), 31% via copper loops, 18% cable modem, 12% fiber to the node (FTTN), 0.5% licensed fixed wireless, and 0.1% satellite. (See Figure 1.)

[3] Based on the sample size, results of this survey can be assumed to be accurate to within ± 8% at the 95% confidence level.

[4] For the purpose of this survey, broadband is defined as throughput of at least 3 Mbps in one direction. This is a change from previous NTCA Broadband Surveys, which defined broadband as throughput of at least 768 kbps in one direction.

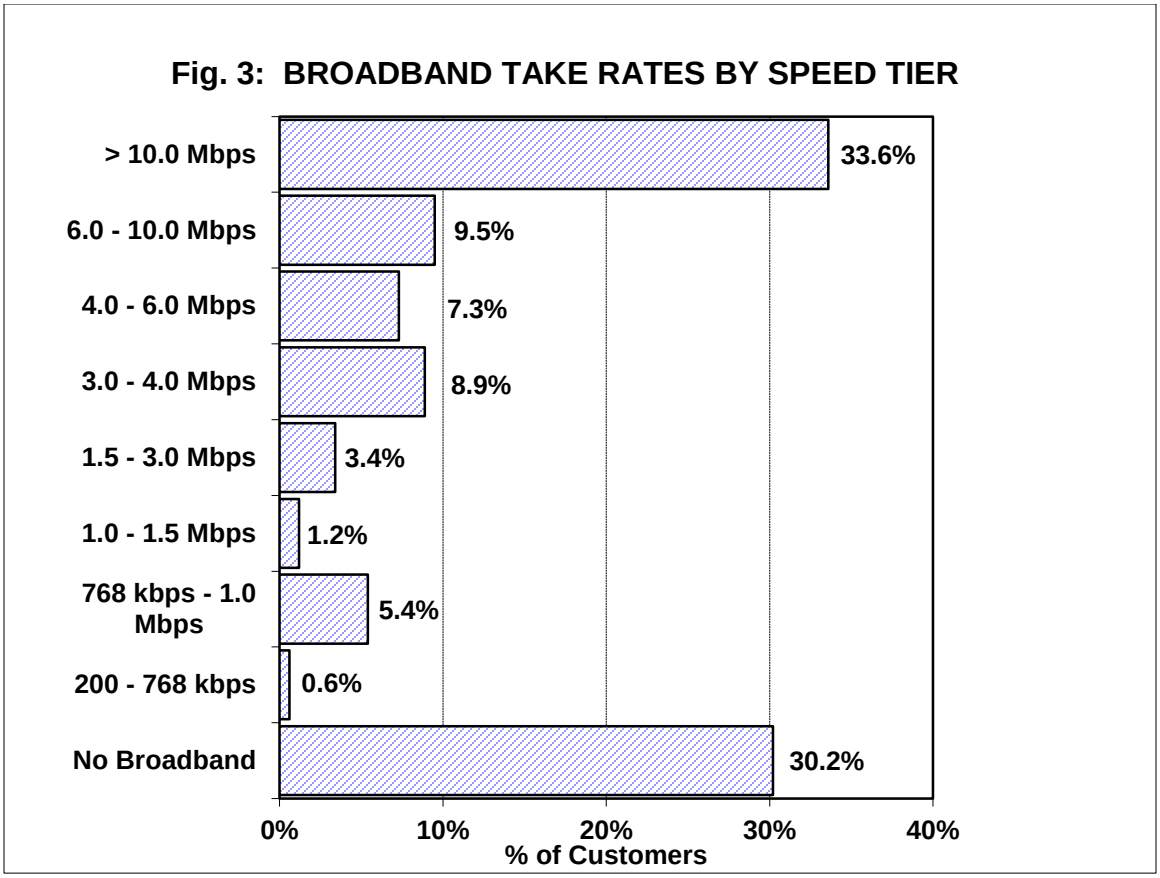


Approximately 0.5% of respondents' customers can subscribe to a maximum speed 768 kbps to 1.0 megabits per second (Mbps) service, 0.5% to 1.0 to 1.5 Mbps, 1.2% to 1.5 to 3.0 Mbps, 3.0% to 3.0 to 4.0 Mbps, 3.6% to 4.0 to 6.0 Mbps, 8.4% to 6.0 to 10.0 Mbps, and 82.7% to greater than 10 Mbps service. (See Figure 2.)



Survey results indicate an overall broadband take rate from NTCA member companies of 70%, down only slightly from 72% a year ago, despite the stricter definition of broadband service applied to this year's survey.[5] By far, the most popular speed tier among survey respondents' broadband subscribers is greater than 10.0 Mbps—33.6% of survey respondents' customers subscribe to this level of service. Next most popular is 6.0 Mbps to 10.0 Mbps (9.5%), 3.0 Mbps to 4.0 Mbps (8.9%), 4.0 Mbps to 6.0 Mbps (7.3%), 768 kbps to 1.0 Mbps (5.4%), 1.5 Mbps to 3.0 Mbps (3.4%), and 1.0 Mbps to 1.5 Mbps (1.2%.) Non-broadband subscribers make up 30% of survey respondents' customer base. (See Fig. 3.)

[5] The take rate provided here is for customers taking service from NTCA member companies only. Total rural broadband subscription rates are likely higher, as survey respondents may be joined by a variety of competitors in the provision of broadband services within portions of their service area.



Typical prices charged range from $34.95 to $44.95 for cable modem service, $29.95 to $49.95 per month for DSL service, $39.95 to $49.95 for wireless broadband service, and $39.95 to $59.95 for fiber-based broadband service.

Forty-four percent of survey respondents indicated their customers may purchase so-called "stand alone DSL"—broadband service without a voice component. Take rates for stand alone DSL service are relatively low, however, with the majority of those respondents offering stand alone DSL reporting take rates of 10% or less.

Twenty percent of respondents estimate that they could bring all of their customers currently receiving service below 25 Mbps up to that speed for $1 million or less in additional capital investment. An additional 25% could do so for between $1 million and $10 million, 22% at a cost of between $10 million and $20 million, 14% between $20 million and $50 million, and 19% estimate the total cost would exceed $50 million.

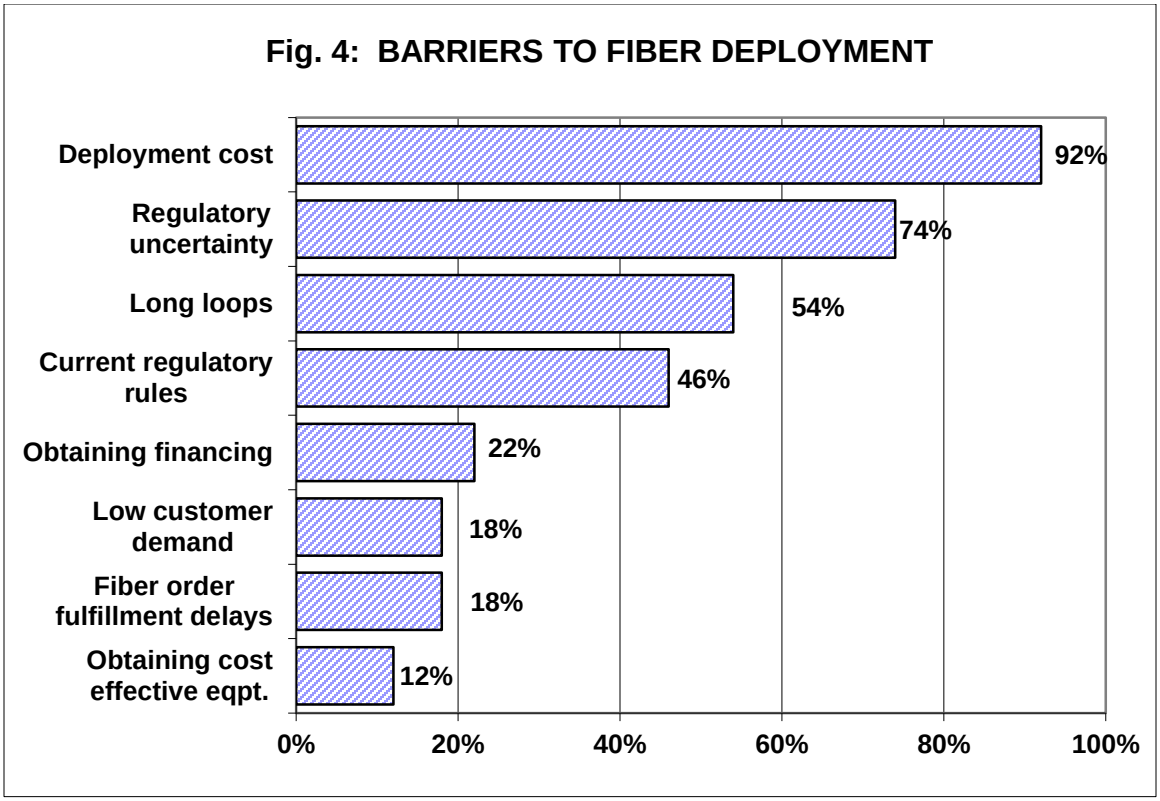
Fiber Deployment

Forty-five percent of those survey respondents currently deploying fiber serve at least 50% of their customers using fiber to the home (up from 41% last year), while 29% serve 20% of their customer base or less (down from 37%.)

Survey respondents described their companies' plans to deploy fiber to the node (FTTN) and fiber to the home (FTTH) to their customers. Eighty-five percent of survey respondents indicated that they have a long-term fiber deployment strategy. Seventy-four percent of those survey respondents with a fiber deployment strategy expect to offer fiber to the node to more than 75% of their customers by the end of 2017. Sixty-seven percent of respondents expect to be able to provide FTTH to at least half of their customers by year-end 2017. An additional 25% have already completed fiber deployment to all of their customers.

Ninety-two percent of survey respondents identified the cost of fiber deployment as a significant barrier to widespread deployment. Regulatory uncertainty was the number two barrier (74%), followed by long loops (54%), current regulatory rules (46%), obtaining financing (22%), low customer demand (18%), fiber order fulfillment delays (18%) and obtaining cost-effective equipment (12%).[6] (See Figure 4.)

[6] Totals exceed 100% as respondents were allowed to select more than one barrier.



Internet Backbone

Survey respondents are, on average 109 miles from their primary Internet connection; the median distance is 73 miles. Ninety-six percent of those respondents who recently switched Internet backbone access providers did so for price reasons, while 17% switched due to quality of service concerns and 13% for other reasons, such as obtaining diverse routing or gaining the ability to access the Internet backbone using Ethernet transport.[7] Eighty-one percent of respondents indicated they are generally satisfied with their current backbone access provider, while 19% are generally dissatisfied. Seventy percent of all survey respondents expect to need additional backbone capacity in one year or less.

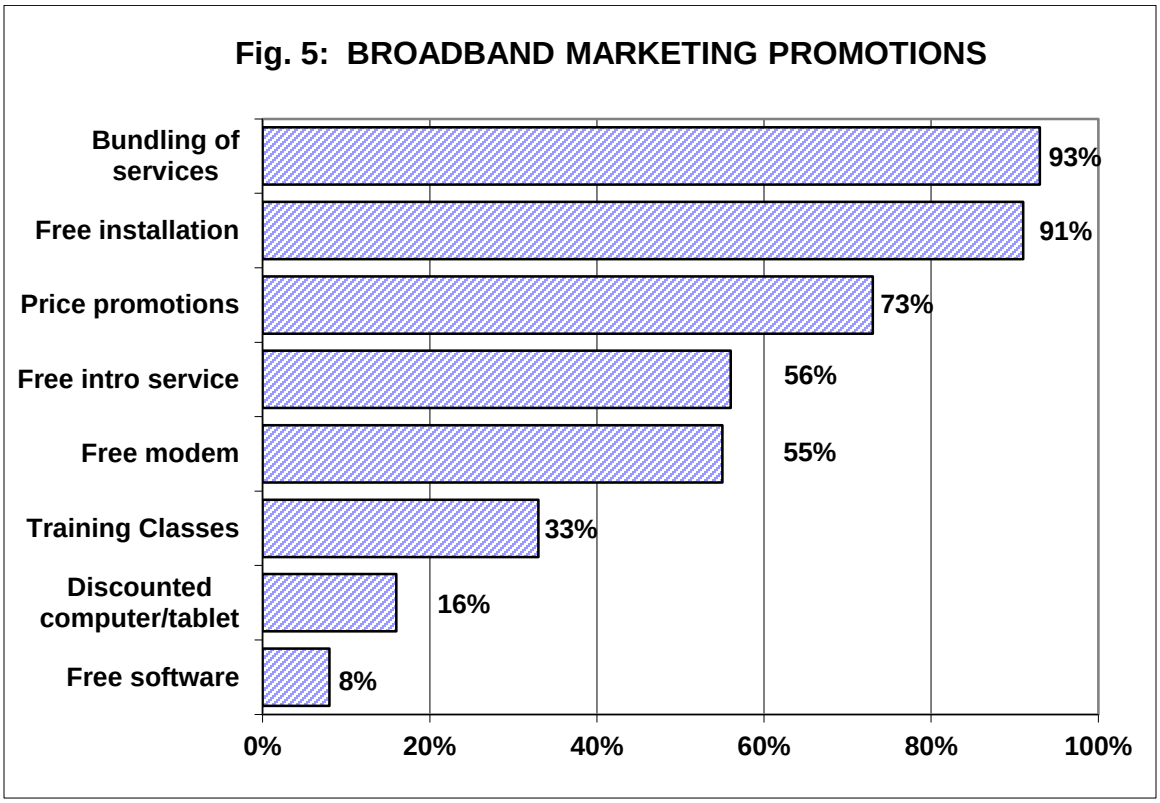
Competition/Marketing

Virtually all survey respondents indicated that they face competition from at least one other service provider in some portion of their service area. Survey respondents typically compete with national ISPs, fixed and/or mobile wireless Internet service providers

[7] Totals exceed 100% as respondents were allowed to select more than one reason for switching providers.

(WISPs) and satellite broadband providers. Other potential competitors include cable companies, electric utilities, local ISPs and neighboring cooperatives.

Rural incumbent local exchange carriers are taking numerous steps in the marketing arena to increase broadband take rates. Ninety-three percent are bundling services, 91% are offering free installation, 73% are offering price promotions, 56% are offering free service for an introductory time period (such as 30 days), 55% are offering free modems, 33% are offering free education/training classes, 16% are offering discounted computers or tablets, and 8% are offering free software.[8] (See Figure 5.) Respondents consider their bundling of services, free installation and price promotions to be their most effective marketing promotions.



[8] Totals exceed 100% as respondents' companies may be offering more than one marketing promotion.

Other Services

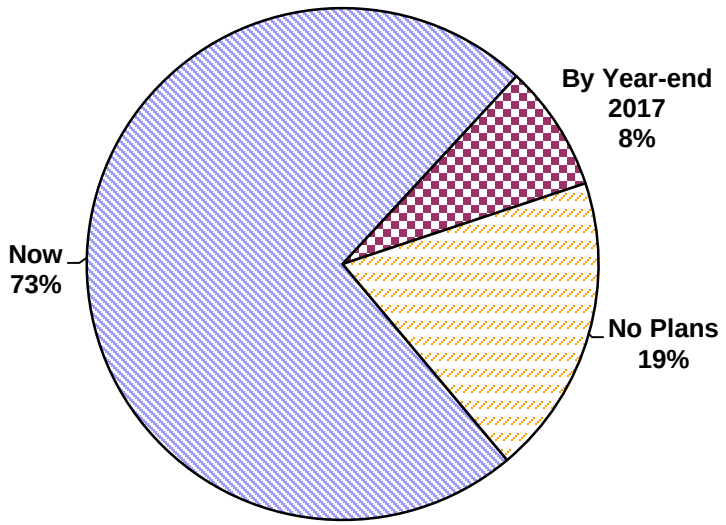
- **VoIP**

Thirty-one percent of survey respondents currently offer voice over Internet protocol (VoIP) service to their customers, up from 19% one year ago. Forty-eight percent of those respondents not currently offering VoIP have plans to do so in the foreseeable future, down from 77% last year.

- **Video**

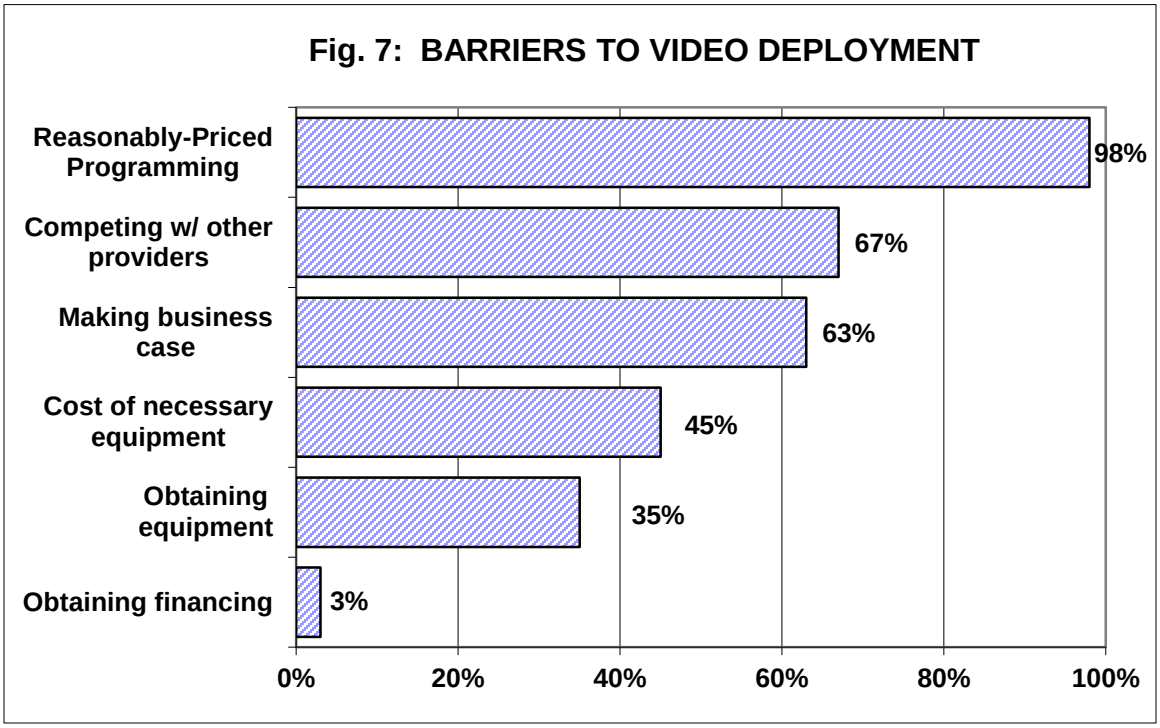
Seventy-three percent of survey respondents offer video service to their customers. Twenty-eight percent of those respondents not currently offering video (8% of all respondents) plan to do so by year-end 2017. The remaining 72% of those not currently offering video (19% of all respondents) currently have no plans to offer video service. (See Figure 6.) Forty-six percent of those planning a future video offering intend to offer Internet protocol television (IPTV) service in the foreseeable future.

Fig. 6: OFFERING VIDEO SERVICE?



Of those respondents currently offering video services, 72% offer IPTV, while 60% offer legacy coax (CATV) service, and 2% offer direct broadcast satellite (DBS).[9] Thirty-four percent of those providing CATV service use an analog system, while 66% use a digital system. The average respondent offers their customers three "tiers" of entertainment television packages from which to choose, unchanged from last year. Sixty percent of the customers of those survey respondents offering video are able to watch programming on multiple devices, both inside and outside their home (i.e., "TV everywhere"), up from 41% last year.

The main barrier facing those survey respondents providing video service is access to reasonably-priced programming, as cited by 98% of survey respondents. Sixty-seven percent cited difficulty competing with other providers, 63% the challenge of making a business case for video service, 45% the cost of necessary equipment, 35% difficulty obtaining necessary equipment, and 3% difficulty obtaining necessary financing.[10] (See Fig. 7.)



[9] Totals exceed 100% as respondents may offer more than one type of video service.
[10] Totals exceed 100% as respondents may be facing more than one barrier.

Miscellaneous

Survey respondents were asked what specific obstacles they have encountered in their efforts to deploy fiber to their customers, and how conditions would need to change to allow them to successfully overcome those obstacles. Their responses are presented in Appendix A of this report.

CONCLUSIONS

Fiber deployment continues to edge out, as RLECs compete to provide their customers the services they demand. Deploying fiber in RLECs' service territory is expensive and challenging, due to low customer densities and difficult terrain. Yet survey respondents report reaching more and more of the customers with fiber—45% currently provide fiber to the home to at least half of their customers. In the long run, fiber reflects an efficient mode of deployment, as it will be the only way to ensure that end users will be able to do all the things they want to, not only today but also well into the future.

Survey respondents are making higher-speed broadband service available to their customers who want it. Eighty-three percent of respondents' customers can receive broadband service of 10 Mbps or greater, up from 66% just a year ago. While take rates traditionally lag behind availability—just over a third of respondents' customers actually subscribe to service of at least 10 Mbps, for example--historically, rural Americans have come to demand faster and faster broadband service over time, just like their non-rural counterparts.

Regulatory uncertainty continues to pose significant concern for NTCA member companies. While things have improved somewhat in the past year—74% of respondents identified regulatory uncertainty as a significant barrier to fiber deployment in the current survey, down slightly from 80% a year ago—the lack of predictability in the regulatory arena continues to hamper the operations of survey respondents. The more that RLECs are able to know with some degree of certainty what their regulatory future will look like, at least in the short run, the more they will be able to focus their energies on their core mission of serving their customers.

The ability to gain access to reasonably-priced video content is a significant barrier faced by nearly every single survey respondent. Negotiating with larger content providers has long been a difficult challenge facing small rural providers with limited resources and minimal negotiating clout. But with a substantial number of RLECs currently offering video service—73% of respondents currently offer video, with an additional 8% expecting to do so by year-end 2017—their ability to obtain access to content at reasonable rates will be central to their ongoing viability.

APPENDIX A

Q: What specific obstacles have you encountered in your efforts to deploy fiber to your customers, and how would conditions need to change to allow you to successfully overcome those obstacles?

Our biggest concern is how we get recovery for project. We are 100 percent now but we need money to pay the RUS loan back.

The main obstacle that we encounter in efforts to deploy fiber to customers is making the very large investment with minimal return on that investment. We continue to require customers to take a phone line so as to recover some of those costs and in return we appear to be 'out dated' and 'not techy.' Regulatory changes to provide USF funds based upon broadband connections would be more logical, up to date and beneficial to the companies out here 'sticking our necks out' to provide service to people in these rural areas.

Stability in cost recovery

Financing - Building Business Case

Cost of deployment continues to be the main obstacle in FTTH. Small ILECs in mostly rural areas need a way to recover the significant cost of deployment.

In our rural market the cost to deploy fiber is so high it is hard to build a business case without federal/state support.

Allow federal support of broadband service

Construction costs, and equipment costs would need to come down.

Difficulty includes the high cost per customer especially in the rural area where you pass fewer customers per mile. And the reductions in high cost funding support are making repayment of these investments difficult.

Cost, more certainty for the future of settlements

Cost of last mile equipment/construction. Return on investment & cost recovery when vacating traditional copper plant.

Cost of construction, cost of equipment, and construction labor costs

We have rocky areas and pole attachment rates from TVA Cooperatives are high. Cost will be a barrier to less populated areas. We need sufficient and predictable support in order to even determine which areas have sufficient population to recover any investment.

Too much uncertainty in FCC

Cost of deployment - insure USF is in place for both deploying and ongoing maintenance of fiber network.

I would say we can, and have overcome all the obstacles, permitting, historical preservation, EPA, wetland mitigation, plowing through bedrock, etc. The only issue we can't overcome is the uncertainty of being able to repay our $18 million RUS loan. The ACAM model would completely devastate our company, we would be bankrupt within two years. At the very least, the FCC must allow sufficient support to continue operations through the term of our loan.

Construction costs in established neighborhoods and price resistance from older demographic groups.

Cost, long loops, time to install

The biggest obstacles to deploying more fiber is a shortage of capital. And some solution to making more funding available to rural companies instead of less would help us in making broadband more accessible.

Cost and the regulatory uncertainty we face.

Cost, RUS funding, and fiber availability

Cost - FCC parent trap - regulatory uncertainty

Cost to deploy FTTH, it's not personal that we do not reach everyone, it is simply that the numbers stop working. For ROI we cannot extend a FTTH broadband product without a solid, in-place and well defined cost recovery mechanism. Without this type of funding we will continue to deploy in dense areas but will not hit sparely populated ones. One other factor that could change is consumers' buying habits, if customers clamor and are willing to buy more expensive FTTH broadband we can deploy deeper into our networks. Our deployment must be market or regulatory driven.

Long rural drops are expensive

Regulatory uncertainty is a key barrier for continued fiber deployments.

Some customers are concerned about the equipment to be placed in their homes. Educating the customers about the purpose of equipment being placed seems to help the customer accept this change in how they receive telecommunications services.

Our biggest hurdle is the cost and recovery of the construction of fiber due to the remote locations of many of our subscribers.

Weather resources - manpower

This high cost to build out fiber to our rural areas and the regulatory uncertainty to recover that cost. Another major factor is the high data-only NECA tariffs that prevent us from offering a competitive data-only broadband service.

Cost/resources

Right of way fees to county and permitting. More obstructing municipalities.

Financial cost to deploy

Obtaining easements from landowners, business case of fiber because of no additional revenue in doing so.

Loss of rural subscribers

An ongoing obstacle for the deployment of fiber and advanced broadband for small rural carriers is the uncertainty of a clear support mechanism to ensure end users have these latest technologies. While regulators continue to push and encourage meeting the consumer demands for increased broadband speeds, the lack of a definitive direction to support the broadband only service continues to raise a question relative to ongoing investments to support just a broadband solution. It is difficult for small rural carriers to continue a commitment to provide the best broadband services throughout the rural areas they serve without a clear support mechanism in place.