



NTCA 2013 BROADBAND/INTERNET AVAILABILITY SURVEY REPORT

May 2014

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

To get more information on this report please contact Rick Schadelbauer at NTCA (703-351-2019, richards@ntca.org).

TABLE OF CONTENTS

EXECUTIVE SUMMARY.....	3
INTRODUCTION.....	4
OVERVIEW OF SURVEY.....	5
SURVEY RESULTS.....	5
CONCLUSIONS.....	14
Appendix A.....	15

FIGURES

Figure 1. Customers Served by Network Platform.....	6
Figure 2. Maximum Speed Availability.....	7
Figure 3. Broadband Take Rates by Speed Tier.....	8
Figure 4. Barriers to Broadband Deployment.....	10
Figure 5. Broadband Marketing Promotions.....	11
Figure 6. Offering Video Service?.....	12
Figure 7. Barriers to Video Deployment.....	13

EXECUTIVE SUMMARY

For over a decade, 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 2013, NTCA sent an electronic survey form to each of the companies in NTCA’s e-mail database; 171 members (27%) responded.

One hundred percent of the 2013 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. Forty-six percent of respondents’ broadband customers are served via copper loops, 29% fiber to the home (FTTH), 12% fiber to the node (FTTN), 12% cable modem, 0.6% unlicensed fixed wireless, 0.4% licensed fixed wireless, and 0.1% satellite.

Forty-one percent of those survey respondents currently deploying fiber serve at least 50% of their customers with FTTH, while 37% serve 20% of their customers or less. Seventy-six percent of survey respondents indicated they had a long-term fiber deployment strategy. Fifty-eight 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 2016, while 61% plan to offer fiber to the home to at least 50% of their customers over the same time frame. An additional 17% have already completed FTTN deployment to all customers, and an additional 10% FTTH. Deployment cost remains the most significant barrier to widespread deployment of fiber, followed by regulatory uncertainty, long loops, current regulatory rules, low customer demand, obtaining financing, and obtaining cost-effective equipment. Throughout the history of the survey, deployment cost has been respondents’ most significant concern.

Approximately 1.6% of respondents customers can receive a maximum downstream speed of between 200 and 768 kilobits per second (kbps), 0.7% 768 kbps to 1.0 megabit per second (Mbps), 2.4% 1.0 to 1.5 Mbps, 2.4% 1.5 to 3.0 Mbps, 4.4% 3.0 to 4.0 Mbps, 10.5% 4.0 to 6.0 Mbps, 12.6% 6.0 to 10.0 Mbps, and 65.5% greater than 10.0 Mbps. The overall take rate for broadband service is 72% (up from 69% last year.)

Thirty-four percent of survey respondents’ customers taking broadband subscribe to service between 3.0 Mbps and 4.0 Mbps. The next most popular speed tiers are greater than or equal to 10 Mbps (8.5%), followed by 6.0 Mbps to 10.0 Mbps (8.2%), and 4.0

¹ For the purpose of this survey, broadband is defined as throughput of at least 768 kbps in one direction. Previously, the commission had defined broadband as service of at least 200 kbps in one direction.



Mbps to 6.0 Mbps (6.2%). Non-broadband subscribers make up 27.6% of survey respondents' customer base.

The average respondent is 77 miles from its primary Internet connection; the median respondent is 50 miles away. Eighty-three percent of those who recently changed backbone providers did so for price reasons. Eighty-eight percent of respondents indicated they are generally satisfied with their current backbone access provider, while 12% 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 free customer premise equipment installation, bundling of services, price promotions, free modems, free introductory service and free education and training. More than three quarters of respondents find it difficult to compete with price promotions offered by competitors.

Nineteen percent of respondents currently offer voice over Internet protocol (VoIP) service, up slightly from 15% last year. Seventy-seven percent of respondents not currently offering VoIP have plans to do so in the foreseeable future, up from 47% last year. Seventy-seven percent of respondents offer video service to their customers, approximately the same as last year.

INTRODUCTION

In the winter of 2013, 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 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 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

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

efforts, fiber deployment, emerging technologies, Internet backbone connections, finance 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 2013 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 171 member companies, a 27% response rate.³

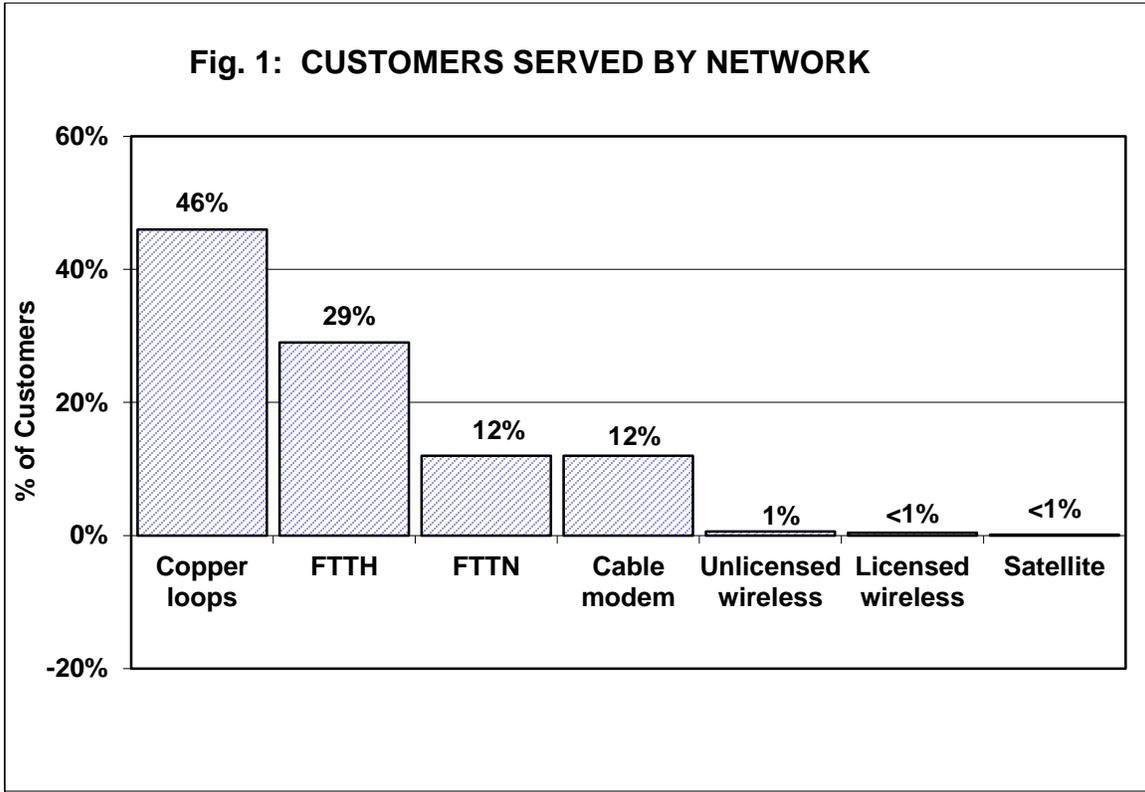
Forty-two percent of survey respondents' service areas are 500 square miles or larger; 20% are at least 2,000 square miles. Nearly three-quarters—65%—have customer densities in their service area of 10 residential customers per square mile or less. Approximately one-fourth—26%—have customer densities of two residential customers per square mile or less.

The average survey respondent serves 4,565 residential and 1,649 business voice grade access lines; a few larger companies skew these numbers upward, hence the median respondent serves 1,921 residential and 500 business lines. One hundred percent of survey respondents offer broadband⁴ service to some part of their customer base. 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: 46% of respondents' customers are served via digital copper loops, 29% fiber to the home

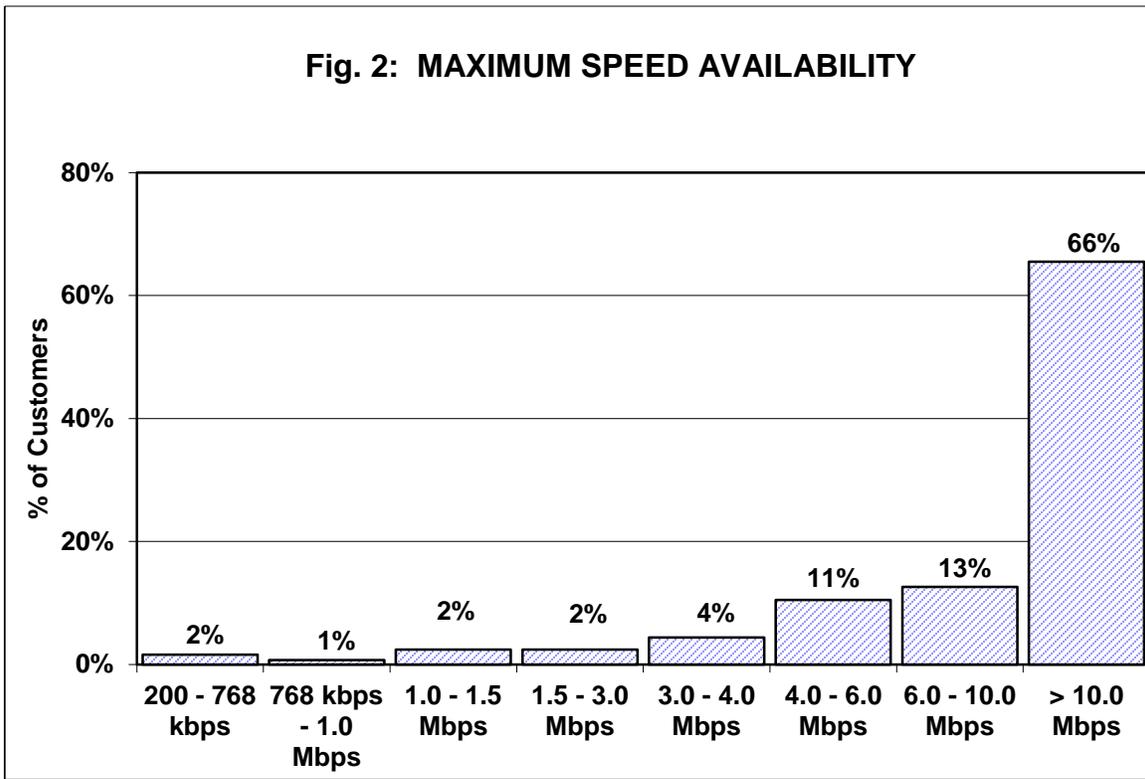
³ Based on the sample size, results of this survey can be assumed to be accurate to within $\pm 6\%$ at the 95% confidence level.

⁴ For the purpose of this survey, broadband is defined as throughput of 768 kbps in at least one direction. This was the definition implemented by the FCC in 2008. According to the Commission, throughput speeds of between 200 kbps and 768 kbps are classified as "first generation data" and throughputs between 768 kbps and 1.5 Mbps are classified as first tier "basic broadband." This report adopts those FCC conventions.

(FTTH), 12% fiber to the node (FTTN), 12% cable modem, 0.6% unlicensed fixed wireless, 0.4% licensed fixed wireless, and 0.1% satellite. (See Figure 1.)



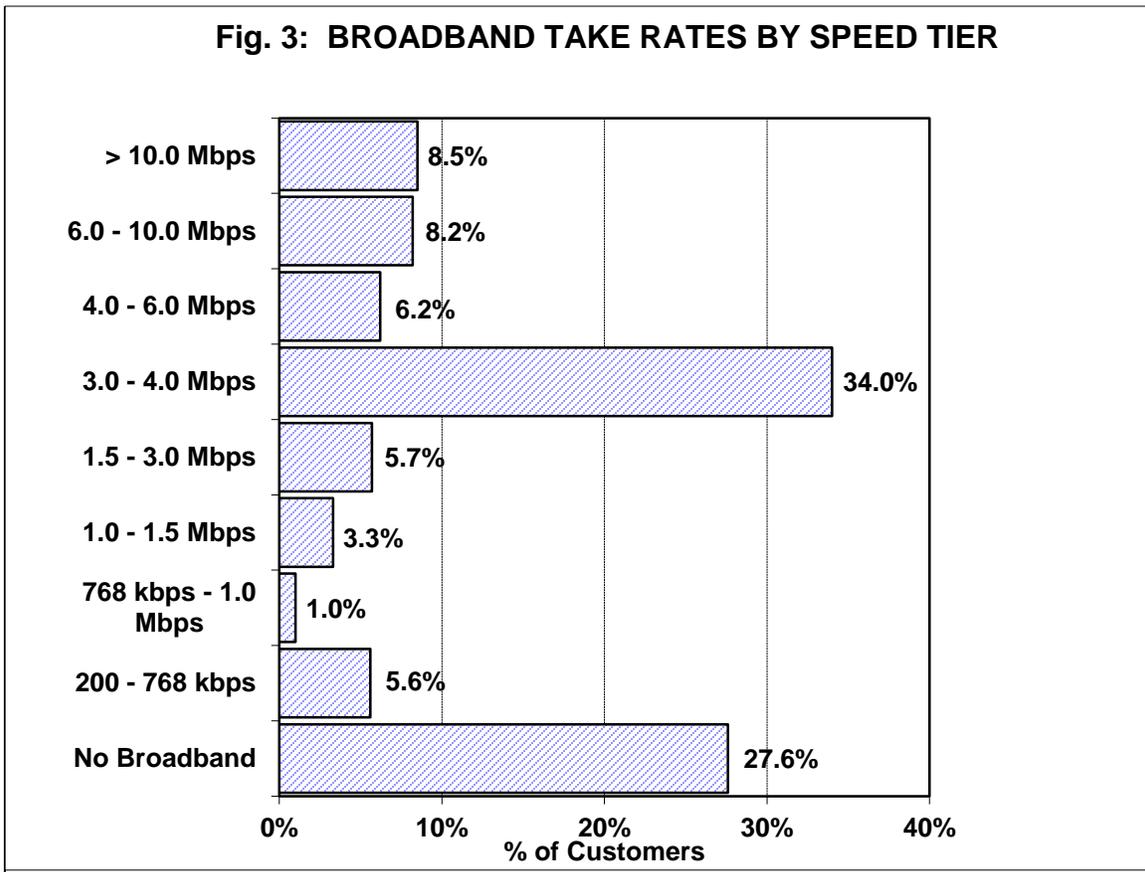
Approximately 1.6% of respondents' customers can subscribe to a maximum speed 200 kbps to 768 kbps downstream service, 0.7% to 768 kbps to 1.0 megabits per second (Mbps), 2.4% to 1.0 to 1.5 Mbps, 2.4% to 1.5 to 3.0 Mbps, 4.4% to 3.0 to 4.0 Mbps, 10.5% to 4.0 to 6.0 Mbps, 12.6% to 6.0 to 10.0 Mbps, and 65.5% to greater than 10 Mbps service. (See Figure 2.)



Survey results indicate an overall broadband take rate from NTCA member companies of 72%, up from 69% a year ago.⁵ By far, the most popular speed tier among survey respondents' broadband subscribers is 3.0 Mbps to 4.0 Mbps—34.0% of survey respondents' customers taking broadband subscribe to this level of service. Next most popular is greater than or equal to 10 Mbps (8.5%), followed by 6.0 Mbps to 10.0 Mbps (8.2%), 4.0 Mbps to 6.0 Mbps (6.2%), 1.5 Mbps to 3.0 Mbps (5.7%), 200 kbps to 768 kbps (5.6%), 1.0 Mbps to 1.5 Mbps (3.3%), and 768 kbps to 1.0 Mbps (1.0%.) Non-broadband subscribers make up 27.6% 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.

Fig. 3: BROADBAND TAKE RATES BY SPEED TIER



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.

Fifty-three percent of survey respondents indicated they offer their customers so-called “stand alone DSL”—broadband service without a voice component. Take rates for stand alone DSL service are relatively low, with the majority of those respondents offering stand alone DSL reporting take rates of 5% or less.

Thirty-three 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 35% could do so for between \$1 million and \$10 million, 11% at a cost of between \$10 million and \$20 million, 13% between \$20 million and \$50 million, and 8% estimate the total cost would exceed \$50 million.

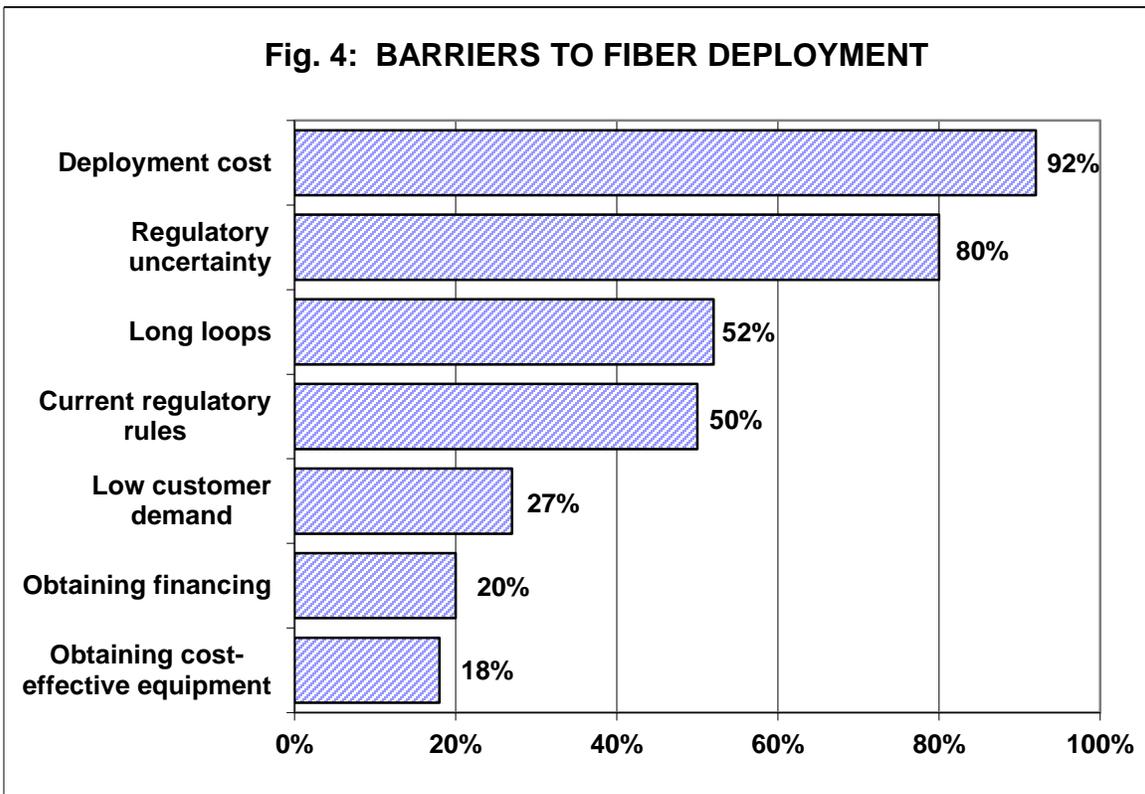
Fiber Deployment

Forty-one percent of those survey respondents currently deploying fiber serve at least 50% of their customers using fiber to the home (up from 33% last year), while 37% serve 20% of their customer base or less (unchanged.)

Survey respondents described their companies' plans to deploy fiber to the node (FTTN) and fiber to the home (FTTH) to their customers. Seventy-six percent of survey respondents indicated that they have a long-term fiber deployment strategy. Fifty-eight 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 2016. Sixty-one percent of respondents expect to be able to provide FTTH to at least half of their customers by year-end 2016. An additional 17% have already completed FTTN deployment to all customers, and an additional 10% FTTH.

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 (80%), followed by long loops (52%), current regulatory rules (50%), low customer demand (27%), obtaining financing (20%), and obtaining cost-effective equipment (18%).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 77 miles from their primary Internet connection; the median distance is 50 miles. Eighty-three percent of those respondents who recently switched Internet backbone access providers did so for price reasons, while 27% switched due to quality of service concerns and 10% for other reasons, such as obtaining diverse routing or gaining the ability to access the Internet backbone using Ethernet transport.⁷ Eighty-eight percent of respondents indicated they are generally satisfied with their current backbone access provider, while 12% are generally dissatisfied. Three-quarters of all survey respondents expect to need additional backbone capacity in one year or less.

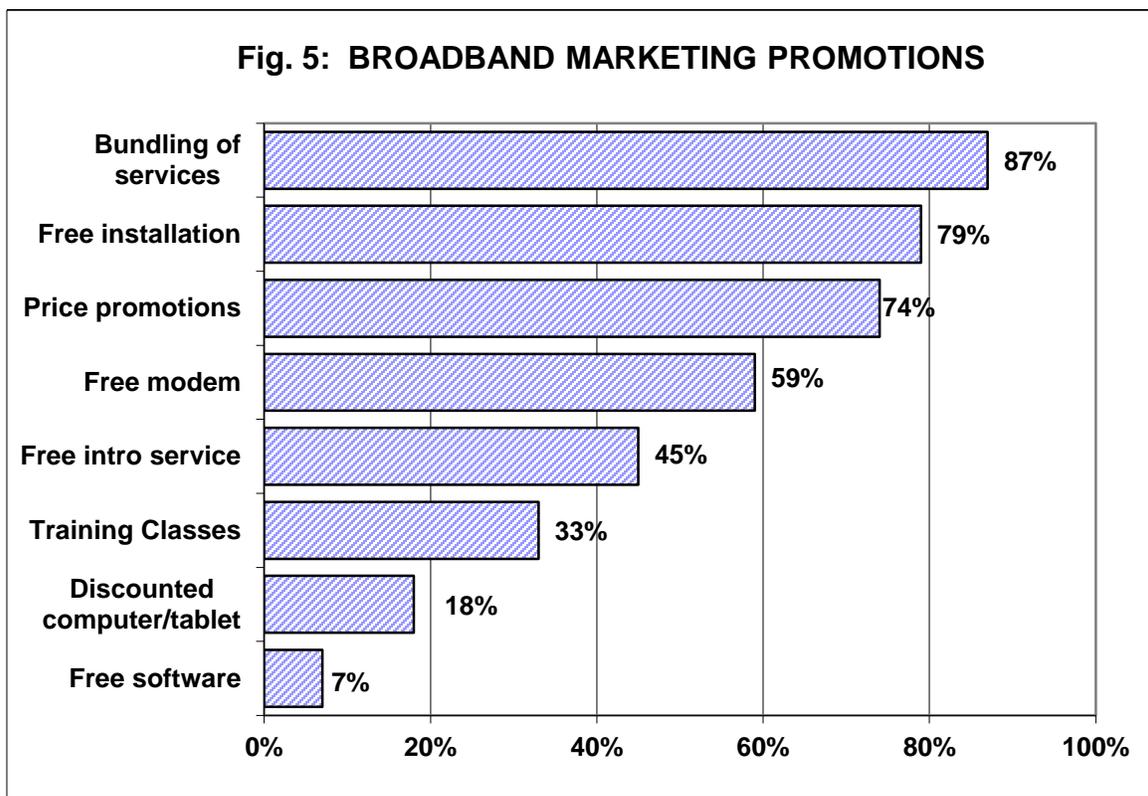
Competition/Marketing

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. Eighty-seven percent are bundling services, 79% are offering free installation, 74% are offering price promotions, 59% are offering free modems, 45% are offering free service for an introductory time period (such as 30 days), 33% are offering free education/training classes, 18% are offering discounted computers or tablets, and 7% are offering free software.⁸ (See Figure 5.) Eighty-seven percent of respondents find it difficult to compete with price promotions offered by competitors, while 47% struggle to match competitors’ service bundling. 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.

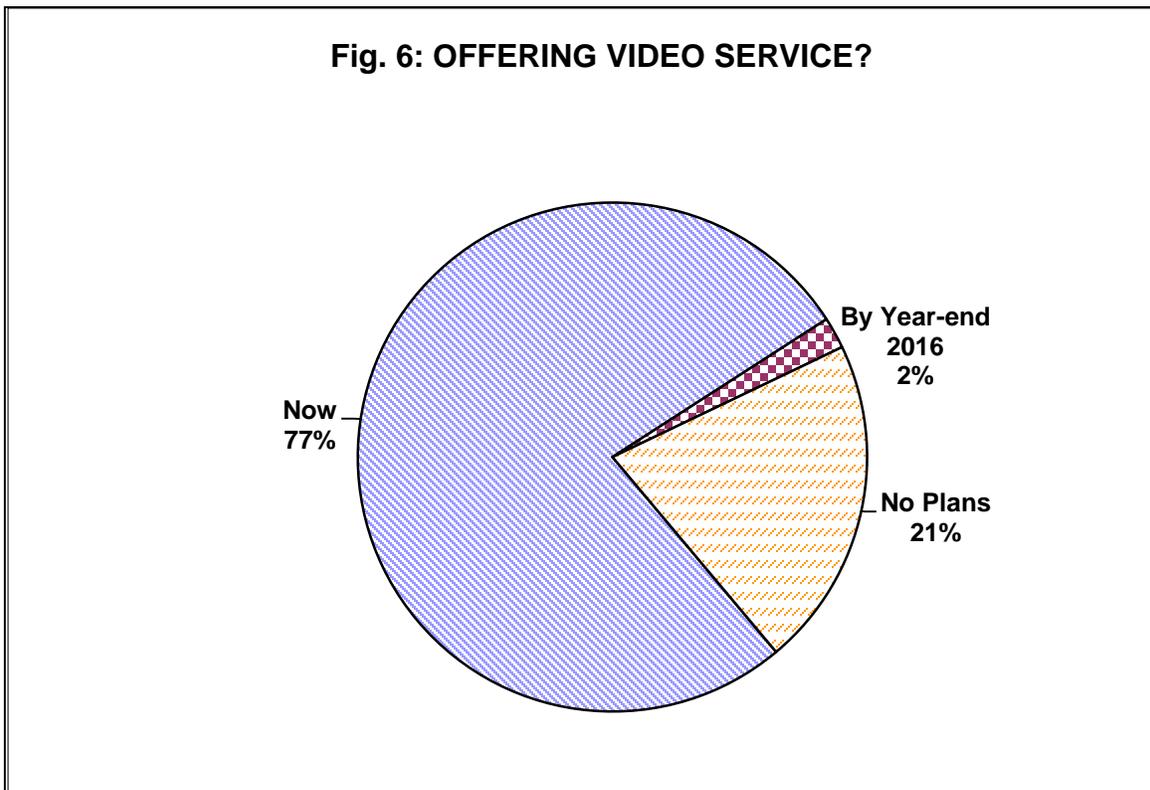
Other Services

- **VoIP**

Nineteen percent of survey respondents currently offer voice over Internet protocol (VoIP) service to their customers, up from 15% one year ago. Seventy-seven percent of those respondents not currently offering VoIP have plans to do so in the foreseeable future, up from 47% last year.

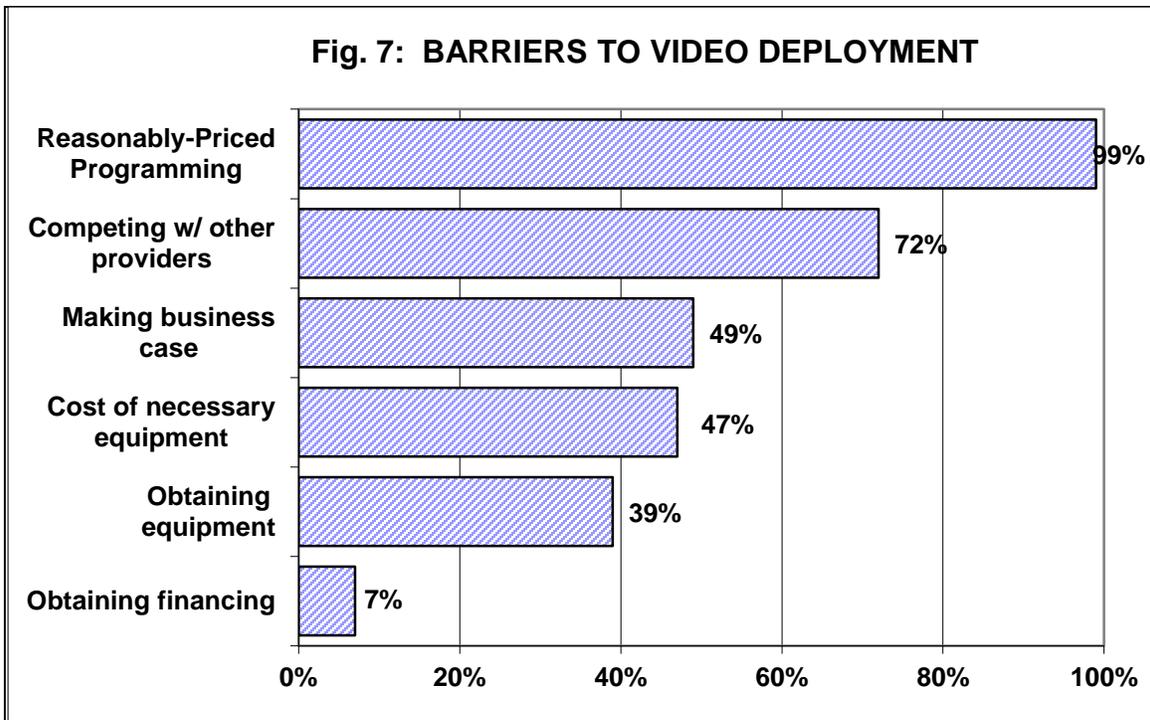
- **Video**

Seventy-seven percent of survey respondents offer video service to their customers. Eight percent of those respondents not currently offering video (2% of all respondents) plan to do so by year-end 2016. The remaining 92% of those not currently offering video (21% of all respondents) currently have no plans to offer video service. (See Figure 6.) Forty-three percent of those planning a future video offering intend to offer Internet protocol television (IPTV) service in the foreseeable future.



Of those respondents currently offering video services, 80% offer IPTV, while 55% offer legacy coax (CATV) service, and 7% offer direct broadcast satellite (DBS).⁹ Forty-five percent of those providing CATV service use an analog system, while 55% use a digital system. The average respondent offers their customers three “tiers” of entertainment television packages from which to choose, unchanged from last year. Forty-one percent of the customers of survey respondents offering video are able to watch programming on multiple devices, both inside and outside their home (i.e., “TV everywhere.”)

The main barrier facing those survey respondents providing video service is access to reasonably-priced programming, as cited by 99% of survey respondents. Seventy-two percent cited difficulty competing with other providers, 49% the challenge of making a business case for video service, 47% the cost of necessary equipment, 39% difficulty obtaining necessary equipment, and 7% difficulty obtaining necessary financing. (See Fig. 7.)



⁹ Totals exceed 100% as respondents may offer more than one type of video service.

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

NTCA member companies continue to deploy high-speed broadband, even as take rates lag behind. While broadband speeds of 10 Mbps or higher are available to two-thirds of survey respondents' customers, less than 9% of customers subscribe to service at that level. The majority of customers subscribe to service between 3 and 4 Mbps. This gap should shrink as customers begin to realize all that can be accomplished online, and as new applications are developed which will require increased bandwidth.

Larger competitors' pricing advantage continues to pose a significant challenge to NTCA member companies. With their massive scale of operations compared to the average RLEC and ability to cross-subsidize operations in different areas, nationwide providers can offer consumers in the limited areas they serve price promotions that smaller carriers who serve primarily rural areas cannot hope to match. Despite this disadvantage, however, smaller carriers continue to market their services by playing up their strengths, such as personalized customer service and concern for, and involvement in, the communities they serve.

Uncertainty surrounding the regulatory climate continues to impact NTCA members' future plans. While the future regulatory picture has become somewhat less murky with the elimination of the Quantile Regression Analysis (QRA), the future is still far from certain. It still remains unclear, for example, what will ultimately take the place of the QRA. Absent some sense of predictability, small carriers will be loath to commit precious capital resources to long-term projects, and lenders will not be willing to make loans when payback cannot be satisfactorily guaranteed.

Obtaining reasonably-priced video content remains a universal problem. Virtually every survey respondent providing video service—99%—indicated that gaining access to video content at an affordable price was a significant challenge. Absent content, these providers will not have any chance to compete with the larger, nationwide providers who possess more negotiating leverage. Overcoming this challenge will require both creativity and sharp negotiating skills.

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?

Expense to put the facilities in service and the uncertainty about return on the investment being put in place.

Most obstacles encountered were directly associated with inadequate project and construction management capabilities of engineering service providers. We were able to overcome these by submitting an application that provided for our company to perform Force Account engineering as outlined in the CFR. This was approved by RUS and has been instrumental in successful completion of our program.

The cost of deployment is the main factor in whether or not our Cooperative will provide Fiber-to-the-home. We are located in such a rural area that it will be hard to justify getting the fiber so deep into the network. We are a small Cooperative with a limited number of members to spread the cost around. We have depended on USF in the past to supplement our local service and long distance. With the uncertainty surrounding USF and CAF it is difficult to plan for too far into the future. If our Cooperative does not receive some kind of supplement, we will find it difficult to serve the copper customers, much less pay for a fiber network.

The cost involved in deploying fiber and the uncertainty of being able to keep the customer from switching to the competition (since it seems the competition entices customers with prices potentially below cost and then increases following introductory period.) Additionally, the low customer density per mile is another obstacle in making the case to deploy fiber. The ability to offer customers stand-alone broadband service at a reasonable, competitive rate would help to overcome this obstacle.

The obstacles [my company] faces are: 1) overall cost of the fiber deployment, 2) uncertainty over ability to pay for the fiber deployment, i.e. subscriber revenues + USF may be insufficient to pay back the investment, 3.) density—we have to deploy hundreds of miles of fiber optic cable, yet still not able to reach many customers compared to urban areas. This makes response #1 and #2 a difficult decision.

Lack of consumer demand for fiber-enabled speeds. Our rural customers (with very limited exception that we can accommodate via FTTN) are not demanding the speeds requiring fiber (over 50 Mbps) so no business case can be made to overbuild our own copper plant when there is no incremental revenue to be gained. Lower price would

stimulate some take rate - but why? The vast majority of rural customers don't need or want these speeds.

Costs and recovery. FCC would have to ensure that the current level of cost recovery is sustained for a period of at least 5 years.

The uncertainty from the FCC Cost Recovery policy. Without knowing the method for recovery the high cost that we see are unmanageable.

The cost of FTTH deployment in the rural areas with the uncertainty of future USF recovery.

I do not see how we can re-coop the costs of fiber to the home with the few customers that we have. The settlements we get would not overcome the expenses.

Major obstacle in rural areas is cost justification for price of materials and labor to reach customers. Typical customer in our rural area requires long drops from pedestals. This cost can drive a single home price to over \$50K in equipment and cable in some circumstances making it not feasible to do.

Predictability of recovery of investment, we are very rural and it is very expensive to deploy fiber in the rural we need to have some assurances we will be able to recover our investment.

Obstacles are: 1) cost of deploying fiber as well as the related electronics 2) distance between subscribers / lack of density to improve payback 3) uncertainty of future funding availability and loan payback capability, i.e. there is no USF funding for standalone broadband service, which is the service customers now want and need 4) regulatory burdens of available "broadband" deployment programs Conditions that need to change are: 1) FCC to establish a Connect America Fund for rural ILECs to build out and maintain standalone broadband service 2) ensure CAF II USF is available to rural CLECs to build out and maintain unserved price cap areas 3) regulatory certainty for at least ten years in order to mitigate the risk of fiber investments 4) legislative and regulatory recognition that USF for rural ILECs has worked in the past to deploy advanced services in rural areas and will work in the future, given the correct regulatory environment.

Last year, [our state] sales tax extended to telecommunications (approx 7%). Law would need to be revised (in the works). Financial (Win lottery?)

Obstacles we face in deploying fiber to our customers are costs and the time and costs associated with long loop lengths.

Financing (RUS must follow its rules), regulatory uncertainty (FCC must confirm rules so ROI can be calculated), rights of way (costs and timelines for enviro and arch studies must be streamlined).

Cost of construction, environmental and historical permit requirements from the state.

Short construction season due to weather. Securing financing.

Expense of construction, Environmental and historical permit requirements. State requirements.

There is no universal service fund for broadband, and the current CAF structure does not provide enough support compared to the upfront capital expenditure. Also, there is not enough demand for ultra high-speed broadband. Digital literacy programs are needed. The business model of putting in fiber so people can watch TV OTT does not provide enough profit margin to the broadband infrastructure provider.

Our biggest obstacle is having predictable support. We are in the middle of trying to pay off a 4 million dollar loan that we took out with CoBank to deploy fiber to the node. Since we have that, any additional construction has been done with cash on hand and it has been a slow process. If the support became more predictable and stable, management may decide to increase the installation of more fiber/equipment in order to increase our broadband speeds to our customers. We currently are able to pretty well provide 1.5 mg across our system. Some of our customers are able to access up to 6 Mbps.

1st - Cost to build and install FTTH and the regulatory certainty to be able to recover the cost. 2nd - The high cost of backhaul causes the retail cost to our customer to be higher.

The largest obstacle has been in essence replacing the entire copper infrastructure in a regulatory environment that favors non-telco competitors as well as eroded support mechanisms.

Overall it comes down to cost. We had deployed fiber throughout our system between our offices but never got as far as fiber to the home. In specific areas, we did have some fiber to the node, but in very few places. By taking a slower pace, we now find ourselves with no USF funding, but at the same time, needing to continue with the fiber push to at least the node. Without additional USF broadband type funding, this becomes very difficult.

Customers allowing us to install at their location. Change is a very difficult thing for a lot of members; they don't understand the benefit of technology changes and upgrades.

The biggest obstacle to expansion is the lack of funds due to loss of USF, and other funding.

A substantial investment in FTTP is being made with the need to have each location utilize these facilities for many years to come. In the current support environment, our subscribers are forced to take a voice service to receive reasonably priced broadband service. We are hearing more and more that the customer is interested in broadband only service and they are willing to take a competitor's inferior broadband service to avoid paying for the voice component thus potentially stranding the fiber investment. A support mechanism that would allow a broadband-only service at a competitive price thus keeping the facilities in use and allowing the recovery of the FTTP investment and ongoing maintenance is critical to the successful deployment of advanced facilities.

The biggest obstacle is developing a business plan to earn a return on the investment required to bring fiber to all of our customers especially rural subscribers with an average cost of \$10,000. The only way to overcome this hurdle is financial assistance in the form of grants or a USF for broadband service. How about expanding the contribution base to include all users of the network?

Although we continue to deploy fiber-based broadband in our rural service area, progress is slower than in metropolitan markets. One of the benefits of living in a rural community is acreage. That same benefit makes it cost prohibitive for us to cover all of the unserved or under-served potential subscribers in our service area.

We have overcome the environmental reviews, archeological reviews, historical preservation reviews and department of natural resources reviews at great cost, just to place buried fiber in the ground EXACTLY in the same place we have had buried copper for the last 50 years. Projects like ours would cost much less and be completed much faster if all the state and federal agencies could agree to a waiver for "upgrading" your network. Meaning, if you are only going where you already are, then the project is exempt from all of the above permits. Uncertainty from USF reform is still the biggest obstacle. The QRA, USF caps and ICC bill and keep has crippled our ability to invest in fiber upgrades because under these terms, we know we would never be able to recover the investment.

We have broadband available, average resident doesn't see need for much more than 1.5 or 3Mbps.

Competition has forced our prices down so much that fiber to the home does not create cash flow. Also that competition has forced us to sell naked DSL, so without the phone line, it's even harder to make it work.

The greatest obstacle is stability of cash flow. CABs changes are reducing our income resources. As well, the changes made and proposed by the FCC and USAC, which greatly affect future possible cash flow. We have committed to converting all of our customer base to FTTH. Resources began drying up, after we began the projects. We will finish, but will we survive, recover the investment required?

We have deployed fiber to all our customers, our problem is being able to buy the Internet feed at the same rate the bigger companies do that sit right next to us; therefore, causing our customers to have to pay a higher rate. Needs to be handled just like traditional phone service....same rate for all.

Cost. We don't have the cash flow and regulatory certainty to obtain financing to do an upgrade project. We have plenty of backbone, but the last mile is out of reach until we get sustained and predictable support.

[Our cooperative] purchased four telecom exchanges in 2006 and these exchanges do not receive HCL support under the "Parent Trap" ruling. We participated in the FCC Broadband Reform discussion with hopes that some funding would become available for communities like these that are caught in somewhat of a black hole. Price Cap companies receive CAF I & CAF II funding, but these exchanges who are part of our Rate of return cooperative receive no HCL support. What can be done to address companies in this situation?

The lack of uncertainty of the revenue streams once we make the investment into the fiber upgrade.

Money. We have our copper plant in place, but now in order to get the bandwidth that people are asking for we need to install fiber and go through established yards and under concrete. We need a mechanism to help pay for that that is not cost prohibitive. Broadband has become as important if not more important than dial tone, so we need some type of recovery process to get it implemented on a faster scale.

Would you, or anyone in their right mind, invest \$43,000,000+ to deploy fiber to 4,200 customers in one of the most unemployed counties in [our state] without knowing how you would recover your cost? Did not think so!

The regulatory uncertainty is definitely the most daunting problem. Because, after two years of wrangling, we were able to obtain an RUS loan to cover the cost of FTTH throughout our service area, we are moving forward and trying not to worry if we are really going to be able to pay back the loan. Again, accurately estimating future revenue streams considering the changes and uncertainty is near impossible.

Financing and Cost Recovery. Small companies have fewer choices of financial institutions willing to finance for them. CoBank does not want to make small loans and others feel the same way. Our last few loans have been from commercial banks. We choose not to borrow from RUS. We need to be sure of cost recovery to be able to deploy fiber.

The uncertainty of USF at the federal and state levels. Our company fears that recovery won't be possible. It would be helpful if recovery was based on either providing phone or internet service. A growing number of customers are not interested in phone service. The recovery model needs to be changed to fit today's world.

Costs of construction and connecting the home or business. Offering IPTV to rural as well as in town, smart farms and smart homes to drive more bandwidth needs from the consumer or business. RUS to continue being there for low interest loans.

The cost of fiber deployment is enormous. There are very few houses per route mile in the rural areas we serve. We are also unsure of the regulatory situation for our future so this is a big obstacle. And once we build it, there are future upgrades that will be needed that may be financially inhibitive. More certain revenue sources (Universal Service Funding) would be helpful, or tax incentives.

Lack of support in the form of USF. QRA would have to be revised to resume funding.

Cost is our biggest obstacle. We are on an island with a small year round community. Our first need is a submerged fiber backbone 2.7 miles to the mainland. The cost to do work has been estimated at \$1.4 million dollars.

We have a very rural (sparse) customer base across a wide geographic area. Our biggest obstacle for deploying fiber is cost and how that works into a positive ROI over a reasonable time period based on customer density.

Knowing there is support there to recoup some of our costs. Dealing with RUS it took almost 2 years to get the loan.

We will deploy fiber to all customers when the finances and rate of return allow this to happen. The only obstacle is a relative assurance of financial success - not a guarantee, but the numbers must be sound.

The biggest obstacle we face today is the cost of the infrastructure and the instability of the support mechanisms we rely on to help recover some of that cost. If we were able to get adequate, predictable support to push fiber out to more customers we would do so immediately. The biggest obstacle to the support issue is the current \$2B cap that has



been imposed on us. A change to USF contributions would both allow for more available funds and lower the impact to the customer on their bill.

Time and wet weather.

Lack of stability and consistency in the USF program are the biggest obstacles that we face. We can't make a plan to build FTTH for our customers when we don't know what the funding program is going to look like.