



NTCA 2012 BROADBAND/INTERNET AVAILABILITY SURVEY REPORT

March 2013

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

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EXECUTIVE SUMMARY

For the more than 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 late fall and early winter of 2012, NTCA sent an electronic survey form to each of the companies in NTCA’s e-mail database; 132 members (25%) responded.

One hundred percent of the 2012 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: 88% of those who offer broadband utilize copper loops (only 29% of 1999 survey respondents offered DSL service), 74% fiber to the home (FTTH), 48% fiber to the node (FTTN), 16% cable modem, 15% licensed fixed wireless, 14% unlicensed fixed wireless, and 7% satellite. Seventy-four percent of 2012 survey respondents provide broadband via both digital copper loops and fiber broadband service, while 14% offer digital copper loops but not fiber and only 10% fiber but not digital copper loops.

Eighty percent of respondents’ customers can receive 200 to 768 kilobits per second (kbps) downstream service, 83% 768 kbps to 1.0 megabits per second (Mbps), 76% 1.0 to 1.5 Mbps, 76% 1.5 to 3.0 Mbps, 67% 3.0 to 4.0 Mbps, 65% 4.0 to 6.0 Mbps, 51% 6.0 to 10.0 Mbps, and 40% greater than 10.0 Mbps. The overall take rate for broadband service is 69%.

The typical respondent is 79 miles from its primary Internet connection. Eighty-nine percent of those who recently changed backbone providers did so for price reasons. Eighty-five percent of respondents indicated they are generally satisfied with their current backbone access provider, while 15% are generally dissatisfied.

Ninety-seven percent of survey respondents indicated they face some type of competition in the provision of advanced services from at least one other service provider in some portion of their service area. By comparison, only 66% of respondents to the 2003 survey indicated they faced competition and only 43% in the 1999 survey. Current competitors include national Internet service providers (ISPs), cable companies and fixed and/or 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

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.

introductory service and free education and training. More than half of respondents find it difficult to compete with price promotions offered by competitors.

Fifty-three 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 2015, while 61% plan to offer fiber to the home to at least 50% of their customers over the same time frame. 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.

Fifteen percent of respondents currently offer voice over Internet protocol (VoIP) service, up slightly from 11% last year. Forty-seven percent of respondents not currently offering VoIP have plans to do so in the foreseeable future, virtually unchanged from last year. Seventy-nine percent of respondents offer video service to their customers, up slightly from 72% last year.

INTRODUCTION

In the late fall/early winter of 2012, 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, and at the time the survey was conducted served approximately 575 local exchange carriers in 44 states that provide service primarily in rural areas.² 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 50,000 lines or more; the largest serves just over 90,000. 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.³ 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 and availability of capital. The survey also provided an opportunity for respondents to provide any specific comments they wished to share.

² This survey was conducted prior to NTCA's unification with OPASTCO which took place in March 2013. All demographics provided here are those of pre-unification NTCA.

³ Copies of this and previous NTCA survey reports may be downloaded from the NTCA web site, www.ntca.org.

OVERVIEW OF SURVEY

The 2012 NTCA Broadband/Internet Availability Survey was conducted online. Every effort was made to minimize the reporting burden on the survey respondents.

The survey was comprised 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 132 member companies, a 25% response rate.⁴

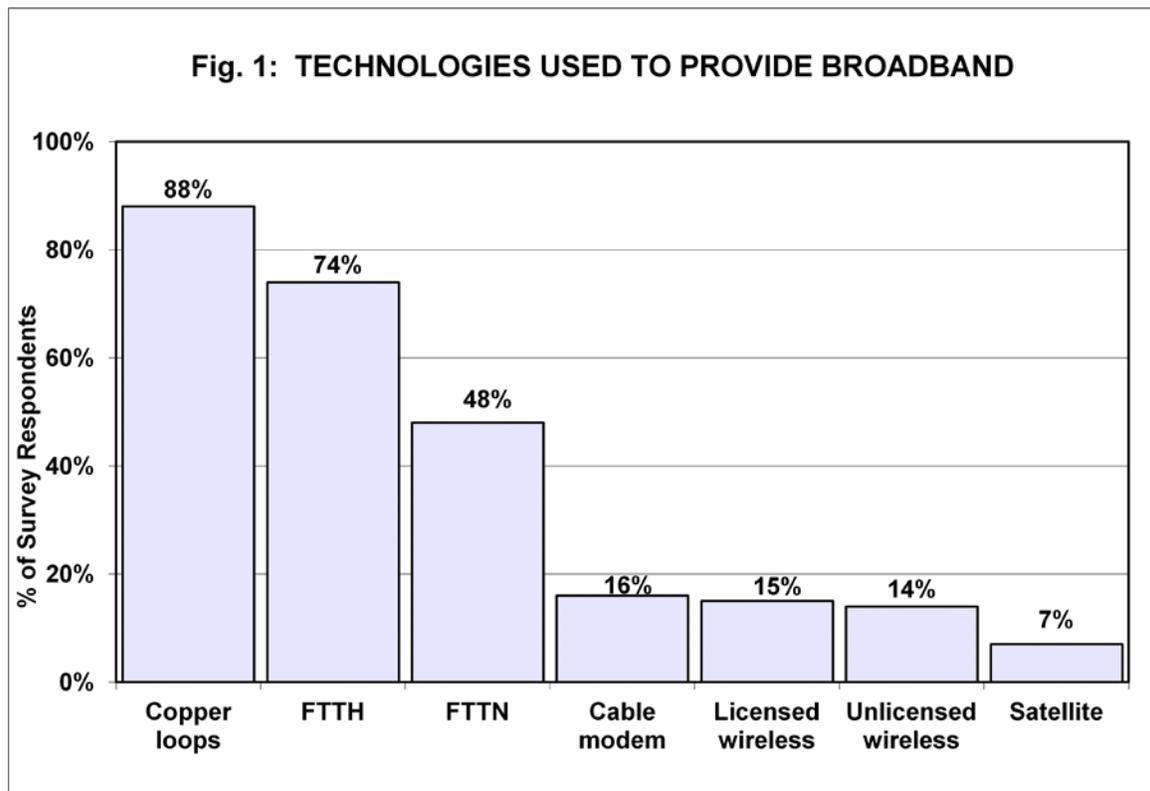
Forty-five percent of survey respondents' service areas are 500 square miles or larger; 19% are at least 2,000 square miles. Nearly three-quarters—71%—have customer densities in their service area of 10 residential customers per square mile or less. More than one-fourth—28%—have customer densities of two residential customers per square mile or less.

The average survey respondent serves 4,259 residential and 1,428 business voice grade access lines; a few larger companies skew these numbers upward, hence the median respondent serves 1,785 residential and 443 business lines. One hundred percent of survey respondents offer broadband⁵ 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: 88% utilize digital copper loops, 74% fiber to the home (FTTH), 48% fiber to the node (FTTN), 16% cable modem, 15% licensed fixed wireless, 14% unlicensed fixed wireless, and 7%

⁴ Based on the sample size, results of this survey can be assumed to be accurate to within $\pm 7\%$ at the 95% confidence level.

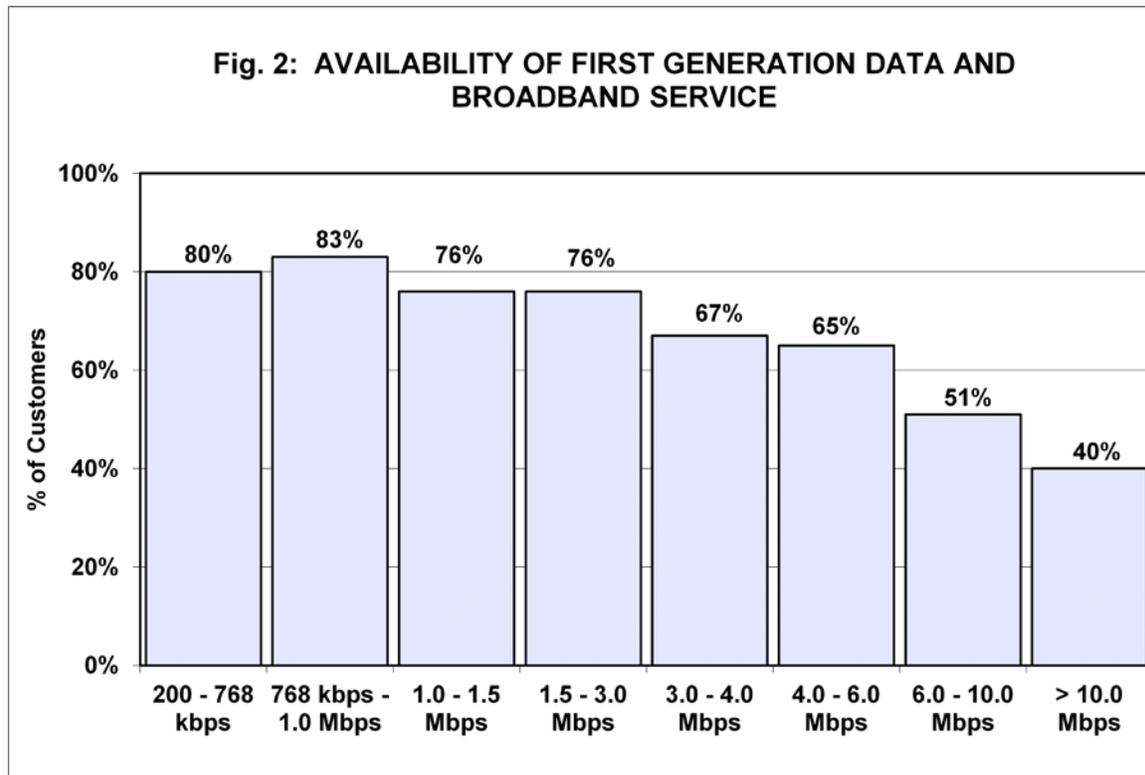
⁵ For the purpose of this survey, broadband is defined as throughput of 768 kbps in at least one direction. This was the definition implemented by the FCC in 2008. According to the Commission, throughput speeds of between 200 kbps and 768 kbps are classified as "first generation data" and throughputs between 768 kbps and 1.5 Mbps are classified as first tier "basic broadband." This report adopts those FCC conventions.

satellite.⁶ (See Figure 1.) Eighty-nine percent of survey respondents are providing either FTTN, FTTH or both, a significant increase from 67% in the 2011 survey and 68% in 2010. Seventy-four percent of survey respondents provide both digital copper loops and fiber broadband service, while 14% offer digital copper loops but not fiber and 10% fiber but not digital copper loops. Thus, ninety-eight percent of those respondents that offer broadband service include either digital copper loops, fiber, or both among their service offerings.



⁶ Percentages sum to greater than 100% as some respondents utilize more than one technology to serve their customers. For example, a provider may utilize FTTH to serve some portion of its serving area, while relying upon copper plant and DSL technology to serve the rest of its customers.

Eighty percent of respondents’ customers can subscribe to 200 kbps to 768 kbps downstream service, 83% to 768 kbps to 1.0 megabits per second (Mbps), 76% to 1.0 to 1.5 Mbps, 76% to 1.5 to 3.0 Mbps, 67% to 3.0 to 4.0 Mbps, 65% to 4.0 to 6.0 Mbps, 51% to 6.0 to 10.0 Mbps, and 40% to greater than 10 Mbps service. (See Figure 2.)



Survey results indicate an overall broadband take rate from NTCA member companies of 69%, up from 66% a year ago.⁷ 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 service.

Fifty percent of survey respondents indicated they offer their customers so-called “stand alone DSL”—DSL 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.

⁷ Keep in mind that 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.

Twenty-seven 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 30% could do so for between \$1 million and \$10 million, 15% at a cost of between \$10 million and \$20 million, 9% between \$20 million and \$50 million, and 18% estimate the total cost would exceed \$50 million.

Internet Backbone

The typical respondent is 79 miles from its primary Internet connection. Eighty-nine percent of those respondents who have recently switched Internet backbone access providers did so for price reasons, while 22% switched due to quality of service concerns and 17% for other reasons, such as obtaining diverse routing or gaining the ability to access the Internet backbone using Ethernet transport.⁸ Eighty-five percent of respondents indicated they are generally satisfied with their current backbone access provider, while 15% are generally dissatisfied. More than three-quarters of all survey respondents expect to need additional backbone capacity in one year or less.

Competition/Marketing

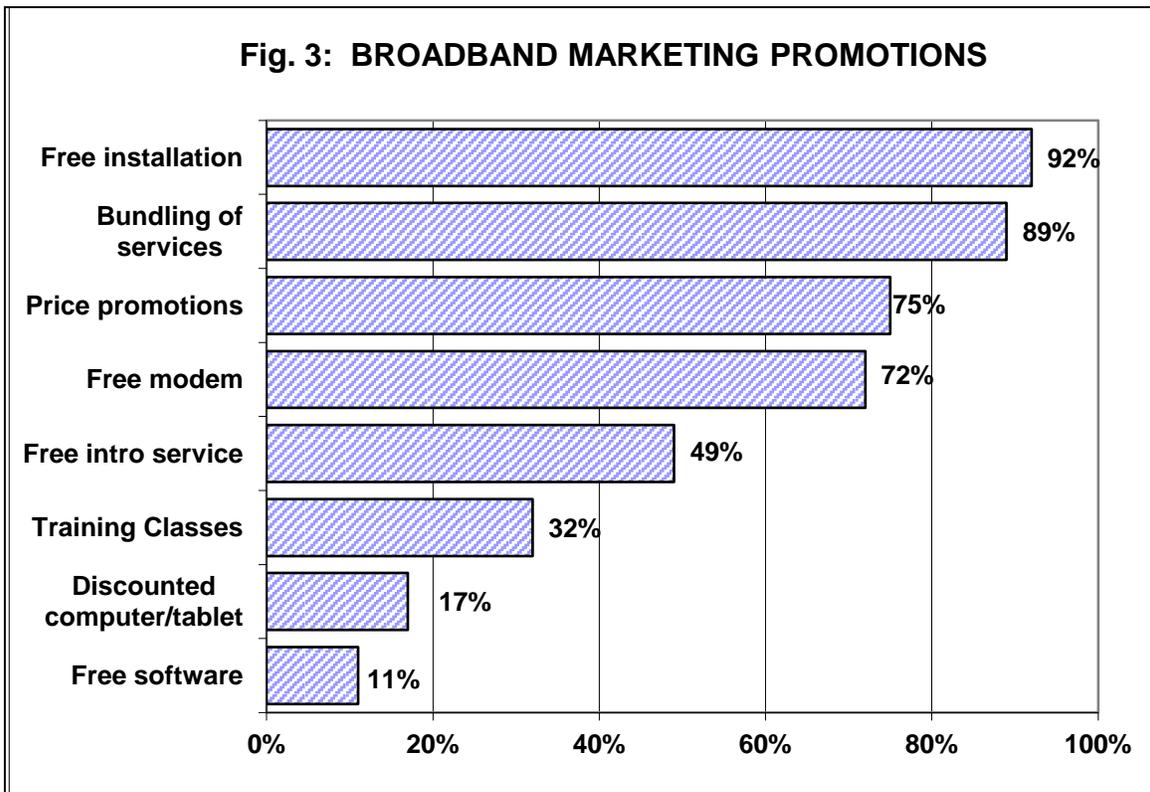
Competition in broadband is becoming more prevalent and more varied: 97% of survey respondents indicated that they face competition from at least one other service provider in some portion of their service area. Survey respondents typically compete with national ISPs, fixed and/or mobile wireless Internet service providers (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-two percent are offering free installation, 89% are bundling services, 75% are offering price promotions, 72% are offering free modems, 49% are offering free service for an introductory time period (such as 30 days), 32% are offering free education/training classes, 17% are offering discounted computers or tablets, and 11% are offering free software.⁹ (See Figure 3.) Fifty-six percent of respondents find it difficult to compete with price promotions offered by competitors, while 39% 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 were allowed to select more than one reason for switching providers.

⁹ Totals exceed 100% as respondents' companies may be offering more than one marketing promotion.

Fig. 3: BROADBAND MARKETING PROMOTIONS



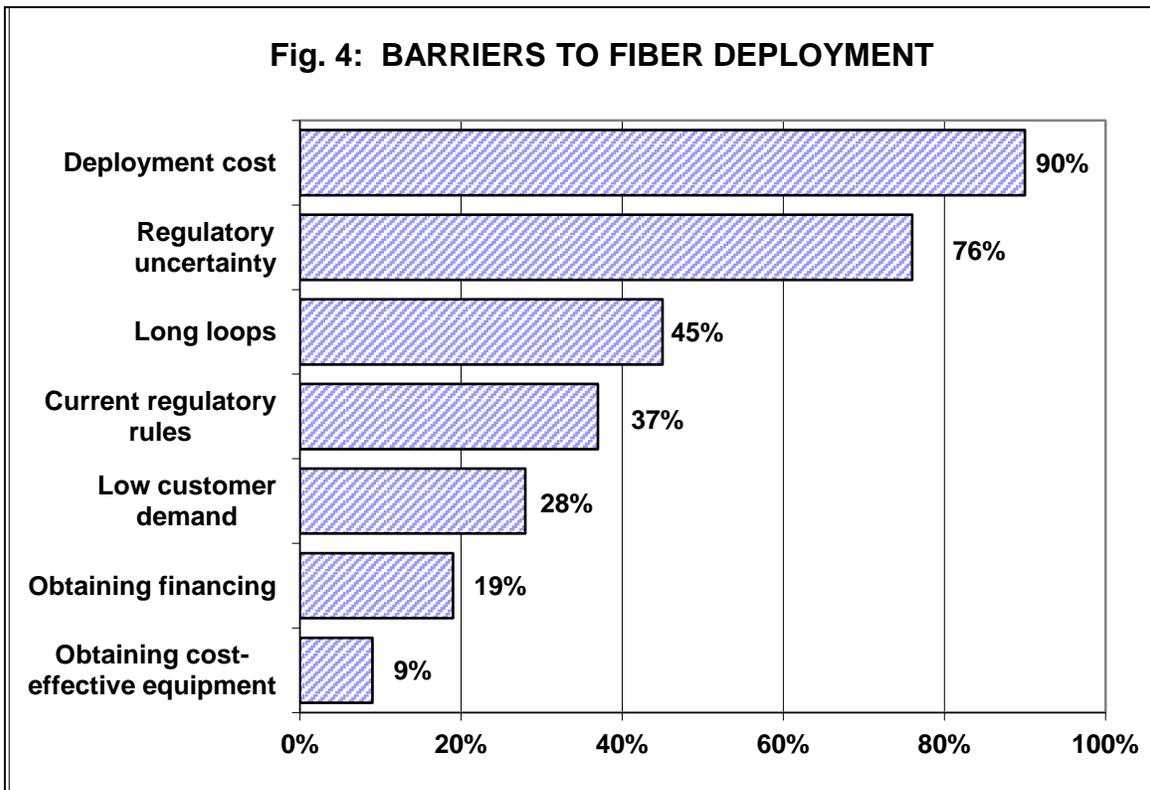
Fiber Deployment

Thirty-three percent of those survey respondents currently deploying fiber serve at least 50% of their customers using fiber to the home, while 37% serve 20% of their customer base or less.

Survey respondents described their companies’ plans to deploy fiber to the node (FTTN) and fiber to the home (FTTH) to their customers. Fifty-three 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 2015. Sixty-one percent of respondents expect to be able to provide FTTH to at least half of their customers by year-end 2015 (up from 46% last year.)

Ninety percent of survey respondents identified the cost of fiber deployment as a significant barrier to widespread deployment. Regulatory uncertainty was the number two barrier (76%), followed by long loops (45%), current regulatory rules (37%), low customer demand (28%), obtaining financing (19%), and obtaining cost-effective equipment (9%).¹⁰ (See Figure 4.)

¹⁰ Totals exceed 100% as respondents were allowed to select more than one barrier.



Other Services

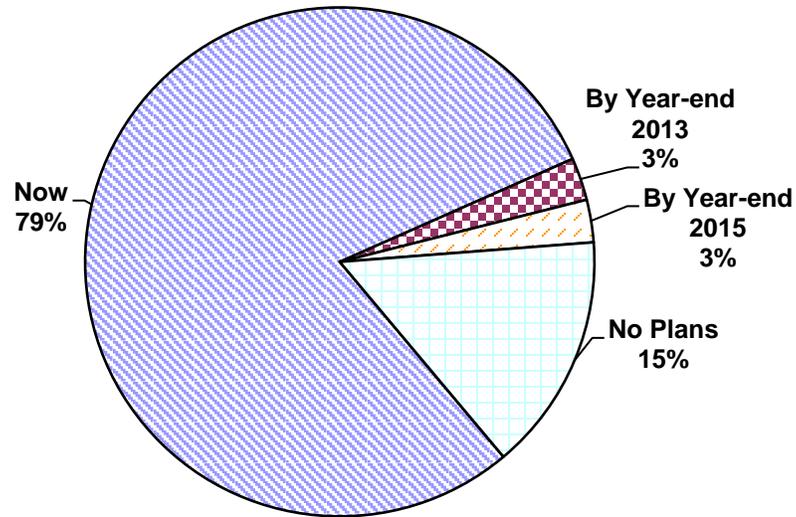
- **VoIP**

Fifteen percent of survey respondents currently offer voice over Internet protocol (VoIP) service to their customers, up from 11% one year ago. Forty-seven percent of those respondents not currently offering VoIP have plans to do so in the foreseeable future, unchanged from last year.

- **Video**

Seventy-nine percent of survey respondents offer video service to their customers. Thirteen percent of those respondents not currently offering video (3% of all respondents) plan to do so by year-end 2013, and another 13% expect to do so by year-end 2015. The remaining 73% of those not currently offering video (15% of all respondents) currently have no plans to offer video service. (See Figure 5.) Half (50%) of those not currently offering video intend to offer Internet protocol television (IPTV) service in the foreseeable future.

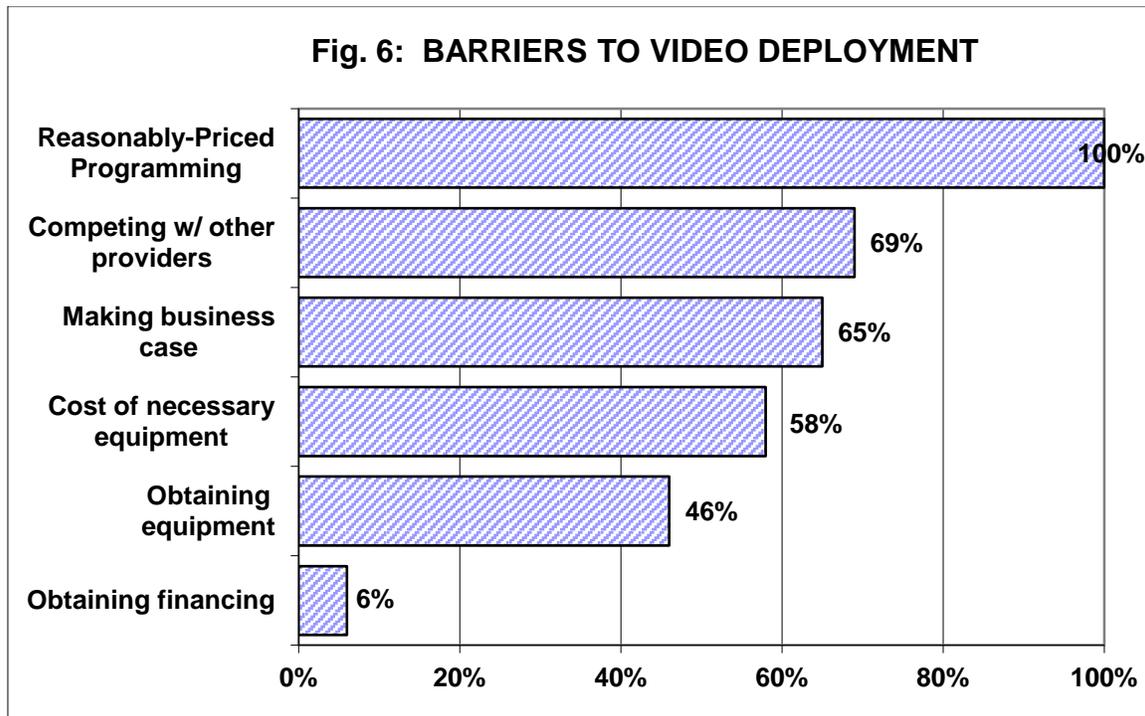
Fig. 5: OFFERING VIDEO SERVICE?



Of those respondents currently offering video services, 76% offer legacy coax (CATV) service, while 55% offer IPTV and 5% offer direct broadcast satellite (DBS).¹¹ Fifty-eight percent of those providing CATV service use an analog system, while 42% use a digital system. The average respondent offers their customers three “tiers” of entertainment television packages from which to choose, down from four last year.

The main barrier facing those survey respondents providing video service is access to reasonably-priced programming, as cited by 100% of survey respondents. Sixty-nine percent cited difficulty competing with other providers, 65% the challenge of making a business case for video service, 58% the cost of necessary equipment, 46% difficulty obtaining necessary equipment, and 6% difficulty obtaining necessary financing. (See Fig. 6.)

¹¹ 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

Regulatory uncertainty is an increasingly serious problem for rural carriers.

Though deployment cost retains its long-held position as the top barrier facing survey respondents, regulatory uncertainty is a strong number two, cited by more than three-quarters (76%) of all respondents, up from 67% last year. More telling are the open-form answers to a question about challenges being faced, presented in Appendix A of this report. It is patently clear from these answers that regulatory uncertainty is a major impediment to providers, and weighs heavily upon their minds. More importantly, the uncertainty is leading to carriers slowing their forward progress by cancelling or postponing planned projects. Paradoxically, this is the exact opposite of the intent of the

proposed reforms that are the source of the lion's share of uncertainty. Until regulations are imposed that allow carriers to plan their future with some degree of certainty, the telecommunications industry in rural America will not be able to realize its full potential.

In spite of the uncertainty, fiber deployment continues to grow at an impressive rate. Seventy-four percent of respondents in this year's survey offer fiber to the home to some portion of their customer base (up from 64% last year), and 48% offer fiber to the node (up from 29%.) A fiber network is absolutely essential for those providers who wish to offer their customers today's state-of-the-art, bandwidth intensive services. A carrier's decision to deploy capital-intensive fiber plant can only be made with some reasonable certainty of ongoing viability and stability.

Access to fairly-priced video content is a universal impediment for survey respondents. As video increasingly becomes a "must have" service, the stakes become even higher for small carriers trying to negotiate fair prices for video content. Every single respondent to this survey---100%--cited obtaining access to reasonably-priced content an impediment to their provision of video services. The ability to obtain fairly-priced video content will be critical for rural providers' ability to survive and compete.

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?

[My company's] major obstacle is the availability of money to fund the deployment of FTTH in a reasonable time frame. We applied to RUS for a loan to cover our FTTH project about two years ago and are struggling through the process (still no approval/rejection decision). RUS' major concerns are the reduced revenues and uncertainty that result from the FCC's 2011 access reform order. Once the funds are available we could be 100% FTTH within three years.

High cost, low density service area. We need predictable, sufficient and specific USF support.

It all comes down to predictable future recovery. How are we to invest with such a volatile, unknown future they have thrown at us?

The changes in revenue sources (i.e., USF and ICC) make the future too uncertain to spend additional monies on deploying Fiber-to-the-Home (FTTH).

We have installed fiber to about half our customers in [a particular town.] We are waiting for the right financial time. So much is in flux with our revenues right now with the government that we are in a hold pattern until things are more certain.

Our biggest obstacle is cash flow. We currently have a loan with CoBank that will not be paid off until 2018 or so. Management has decided that with the uncertainty created with all of the changes at the FCC, along with our state PUC, all future construction will be funded with cash on hand. They do not want to run the risk taking on additional debt not knowing if the funds will be there in the future to pay off the debt. This has significantly reduced the number of construction projects that we can undertake and has pushed back other projects' start dates.

As we deploy fiber deeper into our network, customer density continues to become more of an issue. The number of customers that we can reach with a mile of fiber continues to go down as we get deeper into our network. Unfortunately, the risk of not being able to recover the cost of these customers is beginning to outweigh the reward of getting them on our fiber network.

My brief answer for the CLEC: Insufficient return on investment (not enough return for rural CLEC's to become very aggressive with fiber deployments). My ILEC answer is: Concerns about future return on investment (in lieu of reasonable and stable subsidy system).

We started our fiber to the home deployment in 2005 in a staged rollout. We did the in-town customer in 2005/2006, then started our rural deployment in a two phase project starting in 2008 and finishing phase two construction in 2009, with final customer cutover to the new

FTTH being completed in 2011. We used RUS financing in all three projects with no issues. Our story has been one of success and no real problems. We have now started to venture outside of our LEC area with a redundant fiber route that has given us access to new business opportunities on the non-regulated side of the business and this is also turning into a success.

A broadband based versus landline based recovery system. We still require a landline for any customer who wants to subscribe to Internet and likely turn away customers every day who do not want to pay for a landline. Unfortunately, the NECA tariff is not conducive to offering a naked DSL product. In order to make the investment in fiber deployments there must be some sort of recovery based upon broadband usage or broadband customers. Cash flow – the large up-front investment makes cash flow tight.

First part response: Dollars and Sense and not Dollars and Cents would be my answer. It takes a lot of \$\$\$\$ to do a project such as FTTH or FTTN. It also has to make sense to do for your company. If switching and access revenues go away it makes it very hard to do projects such as this. Second part response: Continued support from USF, financing with low interest rates and funding from RUS, population growth not dwindling population, video service from programmers without 10-20% increase each year. Customers willing to pay for the bandwidth they are using in their home and not a one rate for whatever they want to use. Being able to compete with our local/state networks to provide backhaul opportunities to other carriers or big businesses. With all of this I can do a better job of attracting new and small businesses to my communities I serve.

Lack of affordable middle mile transport (currently satellite only) eliminates the need for fiber distribution network. Copper is sufficient. Need fiber middle mile to change economics.

[My company] spent \$4m putting in a FTTN system about 5yrs ago. We offer DSL at a variety of speeds and currently meet the FCC's numbers. Out of 1200 customers – only 5 take the 10 MB package and none are taking anything faster. Although my response to “what is your 5 year plan?” is “we’re built out” I’m told this will not suffice. With the competition of two 4G choices, satellite and a Motorola canopy system in place in our area, a fiber to the home plant would still face competition and I fear would bankrupt us. Our FTTN build will take 15 years to get a return on investment and FTTH would add at least another 20 (if we don’t lose any customers.) And the massive increases in TV programming costs are making video no longer a viable product. We will probably start putting interduct in ground anyway but my customers just won’t spend anything more than they are now. I would be ahead to just lower my price and not do anything than take on heavy debt. They are ditching cable and Dish to watch Netflix, though, so my mind might change soon.

Our obstacle is financing, and a predictable return on investment would be the solution to overcome this.

Clearly cost of construction and implementation is the biggest issue. Cost recovery mechanisms like Universal Service or government grants are necessary for widespread FTTH deployment in rural areas. Competitive rate structure requirements for content providers would provide substantial cost relief in the video offering capabilities of provider companies. Elimination of penetration requirements would be the mother ship of reducing costs.

Uncertainty over USF funding and a dearth of revenue streams for broadband services makes it difficult to forecast revenues in the future that will allow for more long term business planning and capital expenditures. The FCC has made a decision, and in my opinion the correct one, that access revenues will be phased out over time due to declining minutes and technology changes that allow for voice services to simply be an application on the broadband network. However, what they fail to understand is that without replacing this revenue stream with a comparable one on the broadband network compromises the long term viability of these networks. Just like with traditional long distance voice service, it was understood that all parties who receive financial compensation for use of the network have an obligation to fund an appropriate share of that network for everyone's benefit. The fact that there is no consideration of broadening the base for users of broadband services (i.e. benefactors such as fee based websites) who use the broadband network for financial benefit have an obligation to pay for an appropriate share of that network as well. If all users of the broadband network who receive financial benefit fund the network, it will be more robust and provide for lower retail prices that will lead to more ubiquitous adoption and use by the general public.

There are several obstacles [my company] is encountering: 1. Sparsely populated area; 2. Cost to provide fiber; 3. Keeping services affordable in a limited income area; and 4. Recovery of expense to provide fiber. Conditions that would need to change: 1. Support from FCC/NECA/etc. to recover cost; 2. Majority of our subscriber base wanting higher broadband speeds; 3. Support to keep monthly services affordable.

It's pretty simple for us. The issues are the overall high cost to install fiber to very sparsely populated areas, and having a viable funding mechanism that would give us anything close to a viable ROI for that investment.

Enormous costs associated with materials, construction, and installation. We need more long-term certainty about revenue streams impacted by USF/ICC reform.

Obstacles are primarily construction costs and limited universal service funding. CAF funding for rate-of-return carriers focused on speed goals comparable to urban areas is needed to overcome this obstacle.

The FCC has hampered [my company's] ability to provide fiber to the home/business because of the ICC/USF Reform Order. [We] filed a Petition for Waiver with the FCC



which is pending a decision from them since June, 2012. Providing fiber to our customers would be part of [our] long range plan absent the Order.

To make a long answer short; under present circumstances, it is cost and lack of funds that prevent [my company] from deploying fiber to all our customers. A remedy to this situation would be for the FCC to grant its waiver to [my company] so that it can meet the FCC's objective of deploying broadband to a larger percentage of its customer base.

The biggest obstacle is the continued uncertainty coming from the FCC. We have the need to deploy fiber because our copper plant is 40 years old. We have an RUS loan to fund the project. But I can't determine if we can actually pay the loan back.

Cost recovery in order to repay loans.