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Consumer Benefits from Cable-Telco Competition

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* This report was commissioned by Comcast. The methodology, analysis, and conclusions are the authors' own.

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Executive Summary

What is new in the updated report

In August 2006, we released our report on the consumer benefits from cable-telco competition. Since then, cable voice service has penetrated the market at a much more rapid pace than we and others had predicted. Also, the cable companies and the incumbent local exchange carriers ("ILECs") have been cutting prices very aggressively, which brings even more benefits to consumers. This report describes these developments in the marketplace and presents new information on the benefits to date from cable competition as well as updated projections on the benefits from increased competition in the local voice market. Among the new findings in the report:

- As of June 2007 there were over 12 million cable voice subscribers, which is an increase of more than 4 1/2 million subscribers from June 2006.
- Preliminary estimates show 13 million cable voice subscribers as of September 2007.
- Subscribers to cable voice service save almost \$12.00 a month on their telephone bills compared to the rates charged by the incumbents.
- Subscribers to "triple play" bundles of voice, Internet, and video service save far more than consumers who subscribe to the three services separately.
- The ILECs have been forced to respond to competition by lowering prices and offering attractive bundles. This creates enormous benefits to consumers.
- The total benefit from competition in residential and small business voice service markets during the period 2008 through 2012 is projected to be \$111 billion.
- Consumers have already received benefits of \$23.5 billion from cable voice competition over the past four years and from the competitive response of the ILECs over the past two years.

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Summary of report

Competition in telecommunications has brought significant benefits to U.S. residential and small business customers. Over 12 million customers now subscribe to cable voice service, and that number is growing rapidly as cable providers are now realizing their goal to offer voice service to the vast majority of households in the United States. This has brought direct consumer benefits of \$4.0 billion to the cable companies' subscribers and \$19.5 billion in indirect consumer benefits due to the competitive response of the ILECs, for a total of \$23.5 billion of consumer benefits.

Cable voice service has evolved to become an IP (Internet Protocol) based service. IP-based service is lower-cost, lower-priced, and rich with enhanced calling features compared to traditional telephone services. The major cable providers offer a comprehensive bundle of voice service, including unlimited calling within the United States, at prices at or below \$40.00 per month.

We project that 32 million households will subscribe to cable voice services by the end of 2012. Based on an \$11.70 average price difference between cable voice service and traditional telephone services, we calculate annual benefits of \$2.26 billion in 2008 climbing to \$4.46 billion in 2012. The sum total of these benefits for the five-year period is \$17.2 billion.

VoIP providers, whose customers provide their own broadband connection (*over the top* or "OTP" VoIP), also bring competitive pressure to bear in the market. We estimate benefits to their customers in 2008 of \$1.01 billion, which will increase to \$1.37 billion in 2012. Over a five-year period, these benefits will amount to \$6.11 billion.

These benefits, however, are dwarfed by the indirect benefits from the competitive pressure placed on the ILECs by competitors. The ILECs' response to competition has already benefited consumers. Initially, this response was to competition from the UNE-P-based CLECs, which obtained almost their entire network functions from the ILECs. With the threat from UNE-P now disappearing, however, continued and even growing benefits from this competitive response rests on the viability and profitability of facilities-based providers, and especially the cable companies.

Based on the competitive response observed to date, and even assuming no additional price cuts by the ILECs, we estimate benefits from competition in the voice market to the nearly 100 million households in the U.S. with wireline telephones to be approximately \$71.7 billion over

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the next five years.

Small business customers also benefit from competition for telephone service in general, and from cable voice service in particular. The small business customer can cut his or her telephone bill by about 50 to 70 percent by using a cable provider's voice service. We rely on a much more conservative assumption about the savings to small business customers from competition. We estimate that over a five-year period, cable voice service will provide small business customers with a savings of \$811 million off their telephone bills. This class of customers will also benefit from the competitive pressure placed on the ILECs. We estimate this benefit, which will accrue to 5.5 million small businesses, will equal \$15.5 billion over the next five years.

Total consumer benefits from all sources equal more than \$111 billion over the next five years.

Total Savings from Cable-Telco Voice Competition (in millions)

Category	Savings
Cable, Residential Market	\$17,202
Cable, Small Business Market	\$811
OTP VoIP	\$6,110
ILEC Competitive Response, Residential Market	\$71,723
ILEC Competitive Response, Small Business Market	\$15,503
Total	\$111,348

Note: Total may not compute exactly due to rounding.

Competition is not a sure thing. The incumbent local telephone carriers ("ILECs") continue to dominate the residential local telephone market with an 88% market share, and therefore have the incentive and ability to thwart competition by raising the costs of their rivals. Although the cable companies can control the costs of their own networks, they are not immune to the anticompetitive actions of the ILECs. So long as the cable companies have a much smaller share of the local voice market, the ILECs will be able to impose artificial interconnection costs on them, and thereby gain a significant competitive advantage.

Consequently, the consumer benefits from competition, which are estimated in this report, will not be realized unless Congress and federal and state regulators maintain vigilance over interconnection requirements, which voice service competitors have relied on since the passage of the Telecommunications Act of 1996.

I. Introduction and Background

The telecommunications industry in the United States has experienced a roller-coaster ride over the eleven-year period following passage of the Telecommunications Act of 1996. Passage of this Act was expected to stimulate intense competition in the telecommunications industry by facilitating entry into local markets by long distance carriers and other competitive local exchange carriers (CLECs). As a trade-off for long distance carrier entry into local markets, the Bell Operating Companies (BOCs) were provided with a mechanism to free themselves from the U.S. District Court restrictions on their entry into the long distance market. Most observers anticipated a complex and confusing transition period to competition; nevertheless, policymakers hoped it would result in vigorously competitive markets, which would benefit users in all segments of the telecommunications market.

Markets did not fulfill the expectations that robust competition would develop in all major local telephone markets. There was a "land rush" by competitors into some segments of the market. CLEC investment in fiber optic networks in major business districts exploded. The long distance companies entered local markets very aggressively using the unbundled network elements of the ILECs. And the BOCs broke through into the long distance market and quickly gained substantial shares of the market. As of December 2003, the CLECs provided almost 14% of residential and small business telephone lines and 24% of all business lines.¹ Competition from the CLECs in the residential market, however, rested on very thin ice. Of the total 18.7 million lines provided by CLECs to residential customers, 15.2 million were provided over the unbundled network element platform (UNE-P).² UNE-P permitted rapid, widespread entry by CLECs, but it was dependent totally on the will of the FCC to continue to pursue the goal of facilitating entry by UNE-P-based CLECs and on whether the FCC's interpretation of the 1996 Act would be upheld by the courts.

In December 2004, following a long period of litigation and regulatory warfare at the FCC and state commissions, the FCC adopted an order that eliminated the UNE-P requirement³. The impact of this decision was compounded by the acquisition of the two largest CLECs operating in

¹ Federal Communications Commission, *Local Telephone Competition: Status as of June 30, 2006*, January 2007, Table 2. (Hereafter: FCC Local Telephone Competition Report).

² FCC Local Telephone Competition Report, Tables 2 and 4.

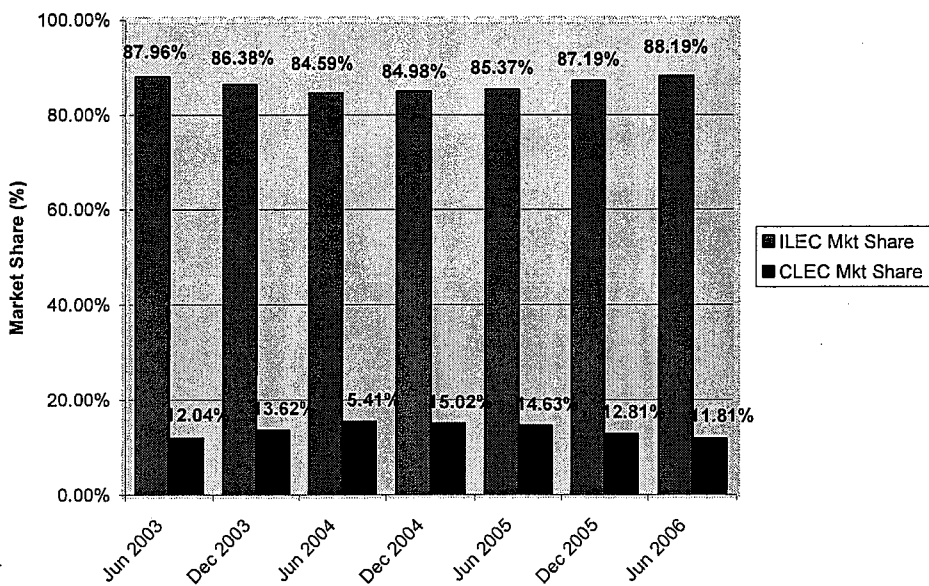
³ Federal Communications Commission, *Order on Remand*, WCC Docket No. 04-314, December 15, 2004; CLECs were allowed to continue to serve existing UNE-P customers for a brief transition period.

* This report was commissioned by Comcast. The methodology, analysis, and conclusions are the authors' own.

the residential market (i.e., AT&T and MCI) by the two largest BOCs (i.e., SBC and Verizon). As a result of these events, the share of the residential market served by CLECs leasing facilities owned by the ILECs has been shrinking steadily.⁴

Since the demise of the UNE-P rules, competition has grown in the residential and small business market from cable television companies, wireless carriers, and providers of voice services over the Internet, such as Vonage, that do not own local communications facilities. Nevertheless, the ILECs still maintain a dominant position in the provision of voice service to residential and small business customers, with an 88% share of residential access lines.⁵ Until competition is fully established in these markets, which will take many more years under the best of circumstances, the ILECs will have the incentive and ability to foreclose competitors' access to the market by using a variety of tactics that can raise their rivals' costs.

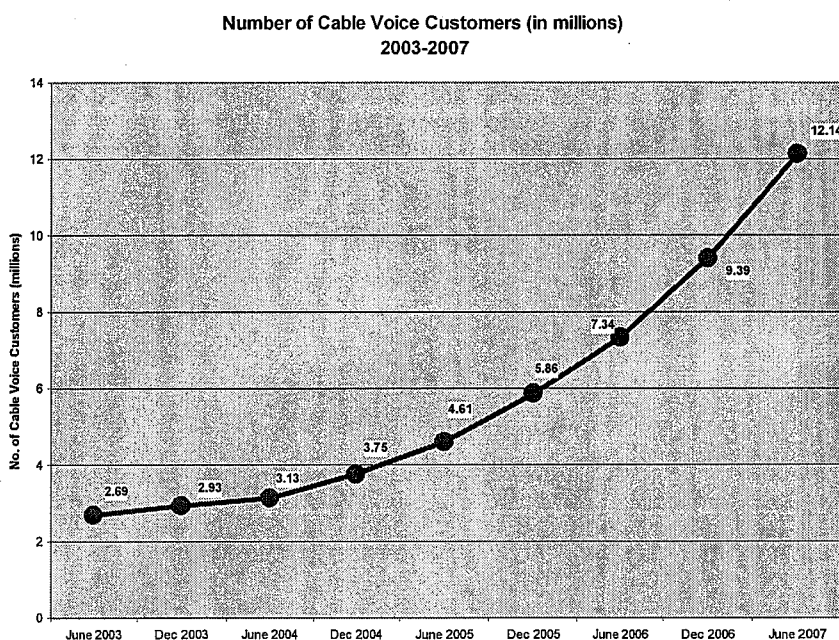
Residential Lines Market Share: (2003-2006)



⁴ Between June 2004 and June 2006 the number of UNE-P lines has fallen from 17.1 million to 8.4 million lines. Over the same period, resold lines increased by 123,000 and unbundled loops (without switching) increased by approximately 100,000. FCC Local Competition Report, Table 4.

⁵ FCC Local Competition Report, Table 2. This report shows the ILECs with 94.4 million residential lines and the CLECs with 12.4 million lines, as of June 30, 2006.

Of these three classes of competitors, cable companies will provide the greatest competitive pressure over the long run. Cable television lines pass 96% of households in the U.S. and an increasing number of small businesses.⁶ Cable companies provided voice service to 12.1 million homes as of June 30, 2007,⁷ and approximately 13 million homes as of September 30, 2007.⁸ Cable offers voice services to a service to more than approximately 80% of U.S. households within a short period of time.⁹



⁶ Residential statistics obtained from SNL Kagan, *Cable TV Investor*, July 31, 2007, at 2. Business market statistics obtained from the Insight Research Corporation, "Cable Telephony in Small Businesses: The Competitive Threat to ILECs 2004-2009, May 2004. (Hereafter, "Insight Report").

⁷ SNL Kagan, *Broadband Technology*, August 24, 2007, at 9.

⁸ Preliminary industry estimate for September 2007.

⁹ Cable voice service homes passed was 100.4 million of the 126.7 million households in the United States representing a penetration rate of approximately 80%. (See SNL Kagan LC, *Broadband Technology*, June 20, 2007 at 4.) (Hereafter, "SNL Kagan Report"). Similarly, a recent study by Bernstein Research estimates that 76% of total households in the United States are passed by cable companies offering telephone service. (See Bernstein Research, *VoIP: The End of the Beginning*, April 3, 2007, at Exhibit 3; hereafter, "Bernstein Research Report").

Wireless competition is an important factor in the residential market, but does not provide as powerful a competitive threat as cable voice service for a number of reasons. First, only some households appear willing to “cut the cord” and use wireless service as a complete substitute for wireline service.¹⁰ Most consumers do not view wireless as an effective substitute for wireline service, and it would be improper to put the two products in the same market for purposes of competition analysis.¹¹ The small number of customers that have ported their wireline number to their wireless phone also points to wireless service as more of a complement to wireline service, not a substitute, except for certain demographic groups.¹² Second, the customers that stand to benefit the most from cable voice competition are the big spenders on wireline service, who are typically not cutting the cord.¹³ Third, the two largest wireless carriers (AT&T and Verizon) are owned or controlled by the BOCs, who have little incentive to cannibalize their own wireline businesses in region. Moreover, to the extent that independent wireless providers, such as Sprint, constitute a competitive threat to the ILECs, they too depend on the ILECs for the same essential inputs as the cable companies and are subject to the threat of significant cost increases for interconnection with the ILECs.

VoIP service providers unaffiliated with a cable company or ILEC, such as Vonage, are also important players in the market, but they do not control access to their own customers. Their customers must subscribe to a broadband service, which is provided either by an ILEC through DSL or by the local cable company. These VoIP companies cannot provide market discipline to the same degree as the major facilities-based competitors to the ILECs, *i.e.*, the cable companies.

¹⁰ As of 2005, approximately 10.5% of US households with telephone service had “cut the cord”. Federal Communications Commission, *Trends in Telephone Service*, February 2007 at Table 7.4, shows that 11.3 million households of the total 107 million households with telephone service in 2005 had wireless service only.

¹¹ *Declaration of Simon Wilkie*, Exhibit A to Petition to Deny of Cbeyond Communications, et al., Before the Federal Communications Commission, WC Docket No. 05-65, August 25, 2005, at 21; “Confronting Telecom Industry Consolidation, A Regulatory Agenda for Dealing with the Implosion of Competition,” prepared for National Association of State Utility Consumer Advocates by Lee L. Selwyn, Helen E. Golding, and Hillary A. Thompson, Economics and Technology, Inc., April 2005.

¹² Since number portability to wireless service began in November 2003, only 1.8 million numbers have been switched from landline numbers to wireless numbers as of June 2006. This figure represents only 3.2% of the total numbers that were ported during the period. Similarly, during the same time period 54,000 wireless numbers were switched to landline numbers FCC Telephone Trends Report, Table 8.8

¹³ “Cord-Cutting Reaches One in 20 Mobile Households,” Charles S. Golvin, Forrester Research Inc., at 2

Competition in voice services brings enormous benefits to consumers. This has been proven time and time again by markets that were opened to competition and protected from monopoly abuse. Competition in the terminal equipment market, which had previously been controlled by the Bell System monopoly, encouraged the delivery of superior products and lower prices for all types of equipment, including telephone sets, PBXs, answering machines, and facsimile machines. Competition in the long distance market is a powerful and well-documented example of the benefits of moving from monopoly to competition.¹⁴

Competition is not inevitable. As shown by the rapid demise of UNE-P-based competition, CLEC competition was eliminated by a combination of legal and regulatory decisions and the abuse of market power by the Bell monopolies. Although owning network facilities allows the cable companies to control their costs, this does not mean they are immune to anticompetitive actions. Specifically, the cable companies cannot provide voice service unless they are able to connect their customers with the ILECs' customers. So long as the cable companies have a smaller share of the market, the ILECs can use their dominant position to impose artificial interconnection costs on them, and thereby maintain a significant competitive advantage. Consequently, future consumer benefits from competition, which are estimated in this report, will not be realized unless Congress and federal and state regulators maintain vigilance over interconnection requirements, which the competitors have relied on since the passage of the Telecommunications Act of 1996.

¹⁴ Michael D. Pelcovits, "Long Distance Telecommunications," in *Network Access, Regulation, and Antitrust*, ed. Diana L. Moss, American Antitrust Institute, Routledge 2005.

An example of a recent threat posed by major changes in interconnection policy can be found in the "Missoula Plan" for so-called reform of Intercarrier Compensation, which was sponsored by a large coalition of ILECs and other telecommunications companies. This seemingly benign attempt to "accommodate today's Intermodal, competitive and increasingly Internet-oriented communications environment," will create artificial barriers to competition from cable companies, wireless carriers, and other non-facilities-based entrants.¹⁵ Our report does not provide an analysis of how the Missoula Plan distorts markets and denies opportunities for competition. Rather the purpose of this report is to quantify the risk to consumers from measures that could lead to re-monopolization of the residential and small business telecommunications market. The benefits from competition measured in this report are at risk should pro-competitive policies not be maintained and enforced over the next several years.

¹⁵ "Missoula Plan," filed at the FCC in CC Docket No. 01-92 on July 24, 2006, at 1.

II. Competition from Cable Voice Service

Cable voice service has already brought significant benefits to consumers. Until recently, cable companies provided voice service using older circuit-switched technology. This required significant investment in telephone-specific technology and limited the range of services that could be provided to customers. Subscription to cable voice service reached about three million customers using the old technology.¹⁶

Over the past two years, cable providers have initiated voice service by carrying voice signals over their managed IP networks. These IP-based services are made available at a lower cost and lower price than comparable traditional telephone services, and provide an astounding array of enhanced service features. The price of a cable voice service to residential customers, which includes unlimited local and long distance calling and a dozen calling features, is as low as \$34.95 per month, plus approximately \$6.00 in taxes and other fees. The features of a typical cable voice service are shown in the chart below.

Features of Typical Cable Voice Service

- Call Waiting, Caller ID, Call Blocking, Three-Way Calls
- Call Screening, Repeat Dialing, Speed Dialing, Voice Mail
- Unlimited Local and Long-Distance Calls, 911 Access, Bundled Billing
- Allow Customers to Manage Service Features and Listen to Voice Mail on the Internet
- Assign Specific Ringtones to Different Numbers

Price comparison between cable and ILECs

Customers using cable voice services save a significant amount compared to comparable services offered by the ILECs. For example, a subscriber to one of Verizon's Freedom packages

¹⁶ Kagan Report, at 5.

pays in the range of \$34.99 to \$60.99 per month plus at least \$10.00 in fees and taxes. Comparable services from AT&T and BellSouth cost at least \$50.00 plus fees and taxes. Depending on the features sought by the customer, the savings provided by cable voice service can be as high as \$29 per month, as shown in the table below.

Voice Product Type	Product	Price
Cable	Cablevision	\$34.95
	Comcast	\$39.95
	Cox	\$44.90
Traditional	AT&T One Rate USA	\$63.95
	Bell South PreferredPack Plan + PreferredPack Unlimited	\$53.94
	Qwest Choice Home + Qwest Unlimited	\$45.99
	Verizon Freedom Value	\$34.99
	Verizon Freedom Essentials	\$39.99
	Verizon Freedom	\$55.99-\$60.99

Since our last report, Verizon has introduced a new product: Verizon Freedom Value. This product does not include voicemail, nor does it have any of the other desirable options included in the cable voice unlimited calling plans.

Also since the publication of the original report, both the ILECs and cable companies have introduced bundled packages containing high-speed Internet access, digital video and unlimited local and long distance calling. These new "Triple Play" bundles offer significant savings off the stand alone prices of the services included. The prices of the Triple Play bundles are as low as \$89.95 for cable customers and \$94.99 for ILEC customers.

Triple Play Product Type	Product	Price
Cable	Cablevision Optimum Triple Play	\$89.85
	Comcast Triple Play	\$99.99
	Time Warner All-the-Best Package	\$109.85
Traditional	Bell South Triple Choice	\$120.93
	Qwest Choice Bundle	\$107.97
	Verizon Triple Freedom	\$94.99-\$104.99

III. Quantification of Benefits to Cable Voice Customers

We now quantify the benefits accruing to cable voice customers over the next five years. This requires an analysis and projection of the number of cable voice subscribers and an estimate of the average monthly savings per subscriber.

Forecasting Future Sales

We forecast future sales of cable voice subscriptions to both homes and small businesses using the Bass model of product adoption, which is well-recognized and widely used in business and academic settings.¹⁷ The Bass model describes new sales in year t , S_t , as a function of three key parameters: the market potential, m , the coefficient of adoption due to external influences (such as the mass media), p , and the coefficient of adoption due to internal influences (i.e., word-of-mouth from previous adopters), q . The functional form is:

$$S_t = p(m - N_{t-1}) + q(N_{t-1}/m)(m - N_{t-1}),$$

where N_{t-1} is the cumulative number of past subscribers as of the previous year. Thus, $m - N_{t-1}$ represents the total number of customers who have not yet, but will at some time, purchase cable voice service. This relationship indicates that a constant proportion, p , of not-yet-adopters ($m - N_{t-1}$), will adopt due to external media influences each year, while a growing proportion, $q * (N_{t-1}/m)$, of not-yet-adopters will adopt due to word-of-mouth influences each year.

In the original version of the report, the average number of residential users of cable voice services in 2007 was forecasted to be 10.0 million. Due to the rapid customer growth experienced in 2006 and the beginning of 2007 (where at the end of the second quarter of 2007 the number of cable voice subscribers was already 12.1 million),¹⁸ it now appears that this estimate was too low. Taking into account this trend, the new forecasted average number of cable voice users in 2007 is

¹⁷ Frank Bass, "A New Product Growth Model for Consumer Durables," *Management Science*, 1969.

¹⁸ Kagan Research, LLC, *Broadband Technology*, August 24, 2007, at 9.

12.4 million.¹⁹ Similarly, the size of the potential market has also grown from 107 million households to 110.8 million households since the original version of the report was published.²⁰

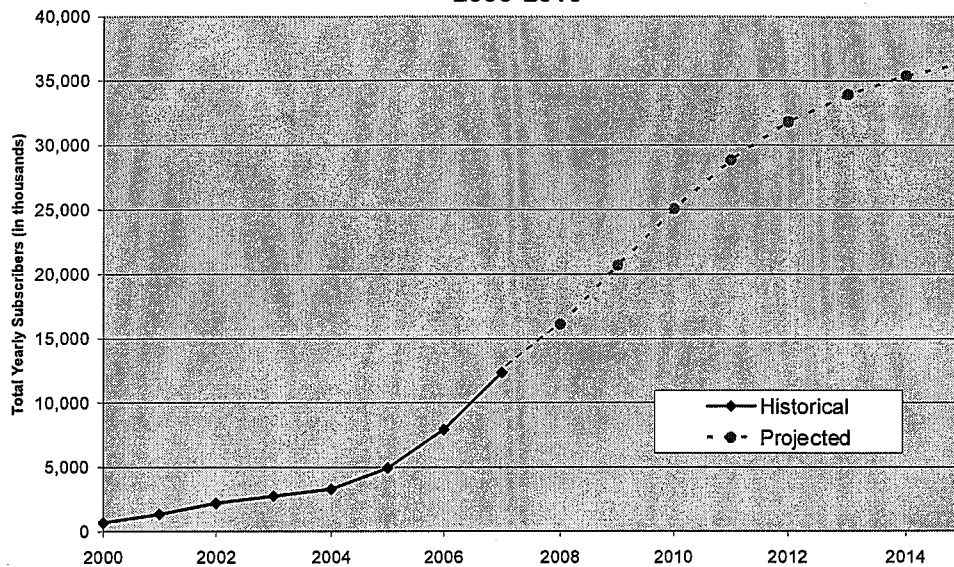
Based on this updated data, we now estimate the market potential over the next fifteen years for cable voice services to be 38.8 million subscribers. Our methodology remains the same, wherein we base the expected growth of cable voice service on the experience in the long distance market where facilities-based providers achieved approximately a 35% share of the market within 15 years following divestiture. Using data on past adoption of cable voice by residential customers, we estimate the p and q parameters to be .00135 and .3867, given the estimated market potential of about 38.8 million subscribers.²¹ Accordingly, we forecast average residential users of cable voice services to be around 16.1 million in 2008, growing to 31.8 million by 2012. The entire adoption curve for a 15-year period is shown in the chart below.

¹⁹ The estimate of total subscribers in a year is the average of subscriber estimates for all four quarters. Kagan projects that there will be 14.3 million cable subscribers at the end of 2007 (See SNL Kagan Report at 1). Similarly, Bernstein Research forecasts that there will be 13.4 million cable voice subscribers by the end of 2007. (See Bernstein Research Report at 7).

²⁰ This number reflects the number of households in the United States with telephones as of March 2007. (See Federal Communications Commission, *Telephone Subscribership* in the United States, June 2007, Table 1).

²¹ The potential market is the 110.8 million households with telephones in the US (*Telephone Subscribership in the United States*. FCC: June 2007.) This estimate of the entire market is then multiplied by 35%, which is the market share that major competitors to AT&T in the long-distance market reached after about 12 years of competition. This market share figure is based on data in: *Long Distance Market Shares: Fourth Quarter 1998*. FCC, March 1999.

US Residential Cable Voice Subscribers 2000-2015



Calculating Consumer Savings

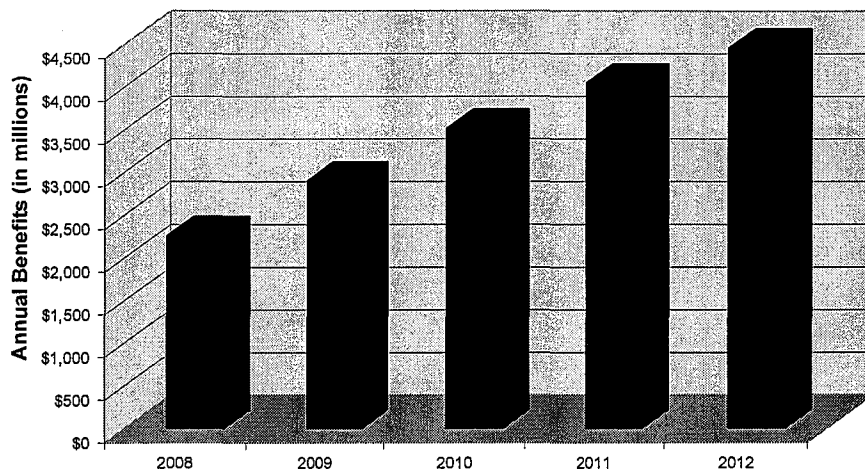
In the prior version of our study we based the estimate of customers' savings on voice service from a 2006 J.D. Power study of the average revenue per subscriber for cable and ILEC services, which found that cable voice services cost \$11.19 less per month on average than the ILEC competitors' traditional phone services.²² Based a more recent version of the J.D. Power study, we now estimate a somewhat larger cost saving. According to this new study, customers of cable voice service reported spending \$39.80 per month on average for voice service.²³ Customers of the ILECs reported spending an average of \$51.50 per month on telephone service. This indicates that cable voice services cost \$11.70 less per month on average than their ILEC competitors' traditional telephone services.

²² J.D. Power and Associates. *J.D. Power and Associates Reports: Cable Companies Dominate Customer Satisfaction Rankings for Local and Long Distance Telephone Service*. July 12, 2006.

²³ J.D. Power and Associates. *J.D. Power and Associates Reports: Bundling Video with Voice and Data Services Gives Cable Companies a Competitive Edge over Telephone Providers*. July 11, 2007.

Using the updated estimate of cost savings of \$11.70 per month, we then apply it to the new number of cable voice subscribers derived from the market diffusion model. This yields an updated estimate of annual benefits of \$2.26 billion in 2008, which increases to \$4.46 billion in 2012. The graph below shows the updated estimate of the yearly benefits. The sum of these benefits for the five-year period is \$17.2 billion.

Direct Benefits to Residential Customers of Cable Voice



The sum total of these benefits for the five-year period is \$17.2 billion, as shown in the table below. (This does not include any benefits to small business customers, which are discussed in a subsequent section of the report.)

Direct Benefits to Residential Customers of Cable Voice (in millions)

	2008	2009	2010	2011	2012	5-year Total
Cable Voice Subscribers	16.1	20.7	25.1	28.8	31.8	
Annual savings	\$2,262.6	\$2,904.5	\$3,520.3	\$4,050.0	\$4,464.4	\$17,201.7

Note: Total may not compute exactly due to rounding.

This estimate of \$17.2 billion in total savings is very likely to underestimate the benefit to cable customers for a number of reasons: First, as shown above in our comparison of the total cost to the subscriber of the ILECs' calling plans and the corresponding plans of the cable providers, actual savings are likely to be much greater than the \$11.70 differential used in the calculation. The price difference between comparable ILEC and cable bundled service plans is sometimes as high as \$29 a month.

Second, the \$11.70 average price difference between the ILEC and cable customers ignores any difference in the nature of services purchased by these customers. Since ILEC prices are generally higher and many customers are very slow to respond to either a competitor's price or the ILECs' own competitive response, the average ILEC customer will buy fewer services than the average cable customer. When an ILEC customer switches to a cable provider, the customer will not only get a lower price but also the benefit of the features and unlimited calling typical of the cable companies' plans, which are not included in the \$17.2 billion savings.

IV. Benefits from Competition from OTP VoIP Providers

Another type of new entrant into the residential market is the “over-the-top” (OTP) VoIP provider, which provides service directly to customers who lease broadband access on their own. The largest of these providers, Vonage, serves approximately 2.4 million subscribers and has a market capitalization of \$249 million.²⁴ As of the end of 2006, Vonage’s estimated market share of the total VoIP market (inclusive of cable companies and OTP VoIP) was 23.9 percent.²⁵ Dozens of other OTP VoIP providers market their services to customers throughout the United States. It was estimated that there were 2.7 million OTP VoIP subscribers, excluding those provided by the BOCs.²⁶ Thus as of the end of 2006, Vonage provided service to approximately 82 percent of all OTP VoIP subscribers.²⁷

OTP VoIP providers generally offer service at prices below the cable providers. There are a number of reasons for this, aside from the reduced level of customer service and service features, such as the lack of a battery back-up and professional installation.

In order to estimate the direct benefits to consumers from the OTP VoIP providers, we assume that their average prices are \$10 per month less than cable, which is the approximate price difference in the current market.²⁸ Therefore, these providers’ customers will save \$21.70 per month compared to the ILECs’ prices, predicated on their subscribing to broadband Internet service anyway.

²⁴ Number of customers as of March 31, 2007 was 2.39 million. [See, Vonage First Quarter 2007 Shareholder Synopsis available at <http://files.shareholder.com/downloads/VAGE/0x0x56424/ad50fa02-58fb-4dc5-abfc-5bd1100ce9be/FactSheet.pdf>.] Market capitalization is given as of October 25, 2007.

²⁵ Vonage had 2.224 million subscriber lines as of the end of 2006. [See, Vonage First Quarter 2007 Shareholder Synopsis.] Market share information of the VoIP market is from the Bernstein Research Report at 3.

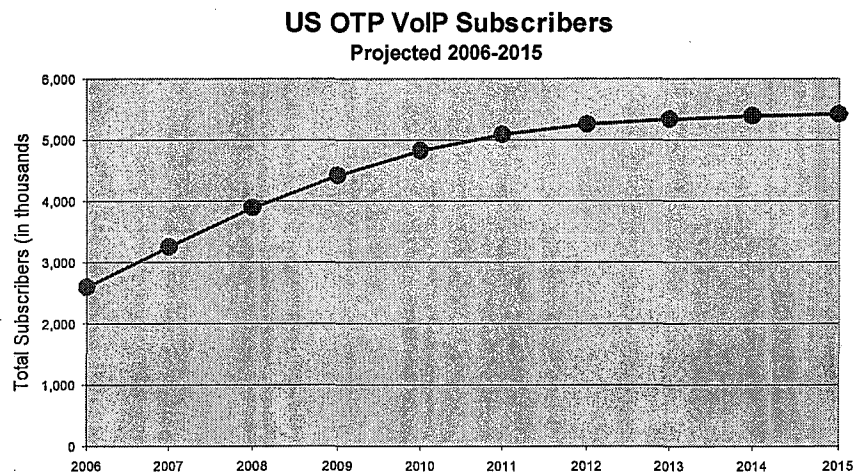
²⁶ Bernstein Research Report at Exhibit 1.

²⁷ This figure is calculated using the number of Vonage subscriber lines at the end of 2006 which was estimated to be 2.22 million.

²⁸ Vonage’s Premium Unlimited residential bundle, for example, is currently priced at \$24.99 per month (\$10 less than Cablevision’s price). See <http://vonage.com/index.php?ic=1>.

We approach the calculation of direct benefits for this market segment using the same method described above for the cable companies. We use the same market diffusion model, but adjust it to reflect a smaller initial level of sales and projected long-run adoption saturation level of sales from the OTP VoIP providers. In our prior report we estimated that the saturation market share of these providers would be 10%. This was based on the market share reached by the small long distance carriers after 12 years of competition in that market. Recent events in the market, including the patent litigation threatening Vonage's viability, and the rapid penetration of the cable companies VoIP services, suggest a lower saturation level for the OTP VoIP providers. Therefore, in this update, we cut the saturation market share in half to 5%. This results in a much lower estimate of the benefits from OTP VoIP providers.

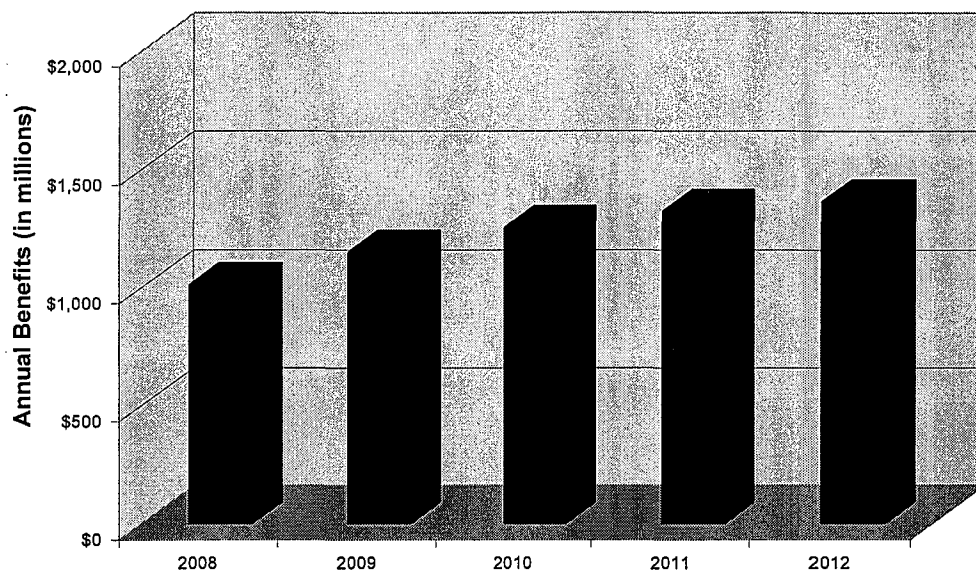
The diffusion curve is shown in the graph below. Using the updated information regarding the size of the potential market, the new long run saturation level is estimated to be 5.5 million subscribers.²⁹



We estimate yearly cost savings for OTP VoIP providers by multiplying the estimates of subscribers each year by the cost savings of \$21.70 per month. This yields annual benefits, as shown in the graph below, ranging from \$1.01 billion in 2008 to \$1.37 billion in 2012.

²⁹ We estimate the long-run saturation by multiplying the potential market of 110.8 by 5%.

Direct Benefits to Customers of OTP VoIP Telephone



The sum of the yearly benefits over five years is \$6.11 billion, as shown in the table below.

Direct Benefits to Residential Customers of OTP VoIP (in millions)

	2008	2009	2010	2011	2012	5-year Total
VoIP Subscribers	3.9	4.4	4.8	5.1	5.2	
Annual savings	\$1,012.2	\$1,151.7	\$1,255.6	\$1,324.4	\$1,366.0	\$6,109.9

Note: Total may not compute exactly due to rounding.

Competitive Response by the Incumbents

We have estimated the potential benefits from cable voice and OTP VoIP providers over the next five years to be \$17.2 billion and \$6.11 billion, respectively. These benefits, however, are dwarfed by the indirect benefits from the competitive pressure placed on the ILECs by competitors. The competitive response by the ILECs to competition will benefit all customers who use wireline service and have an alternative to the ILEC.³⁰

The magnitude of indirect benefits can be gauged by looking at the ILECs' response to the entry by the CLECs into the local market. The CLECs introduced services that offered unlimited local and long distance services and bundled calling features, such as call waiting, caller ID, and voice mail. This led the ILECs to respond with their own bundled service offerings. The ILECs' new bundled services were priced well below the amount customers would have paid for the individually priced services in the package assembled at their tariffed rates.

Now that the pressure from the UNE-P-based providers has been eliminated, the consumer benefits from CLEC competition are at risk. The pressure on the ILECs to maintain low prices will come primarily from the cable companies and to a lesser extent from the wireless and OTP VoIP providers. We now attempt to measure the magnitude of these benefits.

Our approach to measuring these benefits is to examine the effect of UNE-P-based competition on the ILECs. The basis of this approach is the fact that, absent pressure from UNE-P-based CLECs, the effect of losing the competitive pressure from facilities-based cable providers would allow the ILECs to raise prices back to where they were prior to entry of the UNE-P-based competitors.³¹

³⁰ The benefit accrues to customers that stay with the ILECs and to customers that switch to a CLEC. For ILEC customers, this price reduction is their entire benefit. CLEC customers, however, benefit from the ILEC response to competition, which forms a new base price off of which the CLEC will still offer a discount.

³¹ The market is now in a transition state between a monopoly and a state of full competition. We have measured the benefits from bringing the current, limited amount of competition into the market. If competition evolves further, the benefits to all customers will increase. The benefits from pro-competitive policies, therefore, are likely to be substantially higher than estimated in this study.

To estimate the effect of CLEC competition on the ILECs' rates and the resulting benefit to consumers, we compare the average monthly household expenditure on wireline service between 1998 (the pre-CLEC era) and 2004/2005, which was the height of success of the UNE-P based CLECs. According to the FCC, the average household spent \$61 on local and long distance service per month in 1998. This same measure fell to \$49 in 2004 and \$48 in 2005.³² In our prior report, we relied on TNS Telecoms data, which indicated that average spending in 2005 was \$50.16.³³ In this report, we rely on the most recent FCC data, which provides a consistent data series over this entire period. To err on the conservative side, we base the estimated cost savings on the slightly higher price for 2004, rather than the 2005 price data, because the peak of UNE-P-based competition occurred toward the end of 2004. Based on this observed decline in spending between 1998 and 2004, we estimate that the effect of competition on average spending by residential customers was \$12.00 per month.

We apply the competitive pricing effect to all households with wireline service, which we estimate to be 90% of the total 110.8 million households with telephone service.³⁴ This yields a figure of 99.7 million households in 2007, which are projected to grow by 1.5% per year. Furthermore, we subtract some households from the nationwide wireline total to account for the limited impact of competition on local markets served by small independent ILECs. Some of the smaller independent ILECs have refused to enter into interconnection agreements with competitors and may continue to withhold interconnection. We approximate the percentage of the market with a competitive impact by taking the ratio of access lines served by the largest eleven local exchange carriers to the total of all access lines, which is 0.955.³⁵

These adjustments to exclude wireless-only households and households in areas served by the smaller ILECs generate our estimate that 96.7 million households will receive the benefits

³² *Trends in Telephone Service*. FCC, April 2007, Table 3.2. The 2005 figure used in this calculation differs somewhat from the J.D. Power 2005 estimate of average spending of ILEC customers. There are many possible reasons for this, including the possible use of a different sample or the existence of sampling error. In any case, this should not bias the estimate obtained from the two sources for the two different effects of competition.

³³ The 2005 figure used in the previous report was taken directly from a TNS press release on March 13, 2006 (see <http://www.tnstelecoms.com/press-3-13-06.html>), which provided statistics for the fourth quarter of 2005. The minor disparity between the FCC number and the TNS number may be due to differences in what data from the TNS Bill Harvesting data is averaged.

³⁴ Households with wireless service only will also benefit to the extent that wireless carriers must respond to lower wireline prices. We have not included any benefits for these customers or any wireless customers that might benefit from increased pricing pressure from wireline service.

³⁵ *Trends in Telephone Service*, Table 7.3.

from a competitive response in 2008. We then apply the estimate of \$12.00 per month per subscriber to this number of households, which yields our estimate of \$13.9 billion in benefits from the competitive response in 2008. Applying the same methodology for all five years of the study, we estimate that consumers will receive benefits from a competitive response of \$71.7 billion.

Savings from the ILECs' Competitive Response is \$71.7 billion over 5 Years

We confirm this result in two ways. First, we estimated the reduction in real prices for voice service using the US City Average CPI for Telephone Services produced by the U.S. Bureau of Labor Statistics.³⁶ This yields a 24.0% real price decline from June 1998 to June 2007. Assuming that prices were \$48.00 per month in 2006,³⁷ this implies that the average price was around \$63.51 in 1998, a price decline of approximately \$15.50 in that time period. This methodology suggests that indirect benefits from cable voice and OTP VoIP competition will be more than \$100 billion over the next five years.

Indirect Benefits to Residential Voice Customers from Competition with Cable (in millions)

<i>Approach</i>	<i>Pre-competition price</i>	<i>Post-competition price</i>	<i>Price difference</i>
Household average expenditure	\$61.00	\$49.00	\$12.00
CPI	\$63.51	\$48.00	\$15.51

Finally, we present an estimate based on a study performed by the Phoenix Center in 2004.³⁸ This study showed that "all you can eat" long distance plans competing with the ILECs result in a savings of around \$69 billion over five years, if these packages are priced at \$50. The

³⁶ U.S. Bureau of Labor Statistics, CPI, series CUUR0000SEED and CUUR0000SA0.

³⁷ From the fourth quarter 2005 TNS figure cited above.

³⁸ Phoenix Center Policy Bulletin No. 8, January 27, 2004. The Phoenix Center study estimates consumer surplus for the average subscriber to the ILECs' service compared to the consumer surplus if that customer would subscribe to a UNE-P-based CLEC's bundled service offering. This analysis is based on a sample of 16,000 telephone bills in 1999. The study does not distinguish between direct and indirect benefits from competition.

latter estimate of savings is conservative, as the prices of several such “all you can eat” services are much lower than \$50 a month; Verizon’s Freedom Essentials plan, as mentioned above, costs \$39.99 per month. Similarly, Verizon’s Freedom Value plan costs \$34.99 per month.

These results are confirmed by the recent response of the ILECs to the increased competition from cable companies and other service providers. Several ILECs have lowered the effective prices of their bundled voice service plans. The timing of the price reduction is closely related to the acceleration of voice service entry by cable providers in many markets. For example, Verizon introduced the Freedom Essentials Plan in 2005, and the Freedom Value Plan in 2006³⁹ which provide a \$16 savings and a \$21 savings respectively off of the original Freedom plan.⁴⁰ The Freedom Essentials Plan lacks a few features of the Freedom plan, but these are unlikely to be important or valuable to many customers.⁴¹ Likewise, the Freedom Value Plan does not include voice mail or any other calling features. It is likely that Verizon has retained the old plan in order to avoid having to reduce rates on its base of customers, who do not seek lower prices in response to marketplace developments. For new customers or price-sensitive customers, however, the Verizon website directs their attention to the lower-priced Freedom Essentials and Value plans.

Also, as discussed earlier, the ILECs have responded more recently to competition from cable companies with bundled service plans that include high-speed Internet service and video service, along with the suite of voice services. This marketplace development, which has occurred since we wrote our prior report, provides even more compelling evidence that competition brings down prices dramatically across large swaths of the market. And in light of these new developments, we are confident that the price effect used in this paper to calculate benefits is very modest and likely understates the true benefits.

Although we do not have a complete count of the number of households served by smaller ILECs that do not interconnect with competitors, it is possible to estimate the additional benefits

³⁹ “In an effort to compete with the ever-growing customer base of cable companies, Verizon is rolling out two new nationwide plans that are 30 to 46 percent cheaper than its existing plans,” *Telecom Happenings*, v1, no. 12. Tele-Tech Services, December 2005 (see http://www.telecomdb.com/Subscribers/Updates/december_05.htm).

⁴⁰ Monthly fees, exclusive of subscriber line charge, taxes, and other fees based on rates in Maryland. Comparable prices exist in other jurisdictions.

⁴¹ The three major features that distinguish Verizon Freedom from Verizon Freedom Essential are unlimited calling to Canada, three-way calling, and speed dialing.

that would accrue from adding the previously excluded households served by the smaller ILECs to the benefit tally. These benefits would be equal to \$3.4 billion over the five year study period, assuming the same \$12.00 price response to competition. In all likelihood, however, the competitive response would be greater in areas that have experienced very little competition in the past.

In conclusion, we have found compelling evidence that the BOCs have been forced to respond to competition from the UNE-P-based CLECs and more recently by the cable providers, the OTP VoIP providers, and to some extent by wireless providers. Nevertheless the BOCs still retain a very large share of the residential market, and they are capable of using their dominant position to disadvantage rivals. Therefore, if policymakers were to eviscerate the competitive interconnection policies adopted in the wake of the Telecommunications Act of 1996, and upon which competitors to the BOCs have relied, competitive forces would be weakened and consumers would face a substantial price increase for voice services.

V. Effect of Competition in Small Business Market

Several of the cable providers offer voice service to small business customers. These offerings are generally priced far below comparable services offered by the ILECs. For example, Cablevision offers the Optimum Voice service to its online business customers at a price per line of \$34.95 for three lines or fewer and \$29.95 for four or more lines. Optimum Voice includes unlimited local, regional, and long distance calling within the U.S., Puerto Rico and Canada, and several other calling features shown in the box below.

Optimum Voice (Cablevision) Service Features:

- Call Waiting, Caller ID, Call Blocking, Three-Way Calling
- Other Call Blocking and Anonymous Calling Features, "Find Me" Forwarding Service
- "My Optimum Voice" Allows Customers to Manage Calling Features, Voice Mail, and Call Details on the Internet
- Assign Specific Ringtones for up to 32 Different Numbers

The savings to small business customers of these cable services are enormous. The average price paid for flat-rate local service by businesses with a single line in urban areas was \$47.90 in October 2005.⁴² This price is for local service only and does not include any calling features or long distance calling. When the cost of these other services are added to the expenditure on basic local service, the average small business pays about \$100 per month,⁴³ which is between two and three times higher than the price of Cablevision's Optimum Voice product.⁴⁴ In other words, the small business customer can cut his telephone bill by about 50 to 70 percent by using a cable provider's voice service.

ILECs have responded to competition in the small business market. For example, Verizon offers a Freedom package to business customers at prices ranging from \$36 to \$42 per month. This package, however, does not include any calling features, which would cost an additional \$5 to \$25 per month, depending on the features chosen. On an apples-to-apples comparison, then, Verizon's product is in the range of \$41 to \$67 per month, which implies a price difference between \$6 and \$32 per month relative to cable voice offerings.

Size of the Small Business Market

It is difficult to draw precise boundaries on the definition of a small business. There are 7.25 million business establishments in the United States, and 5.20 million of these are owned by enterprises with fewer than 20 employees.⁴⁵ This cutoff would correspond to the definition used by Verizon in its description of the businesses to which it targets small business service offerings.⁴⁶

We have chosen to use an even more conservative definition of small business by limiting this analysis to firms with fewer than 10 employees.⁴⁷ This narrows our focus to the type of businesses that are less likely to be served by the traditional CLECs and are much more

⁴² FCC Telephone Trends, Table 13.2.

⁴³ Lehman Brothers Equity Research, *Business Markets – Sizing the Cable Opportunity*, June 6, 2007 at 2. This figure is for the average monthly telecom spending by small business with 1 to 4 employees.

⁴⁴ The FCC figure and the SBA Survey include taxes and fees, so to compare their numbers to Optimum Voice it is necessary to use a price for this service that includes taxes and fees.

⁴⁵ Bureau of the Census, 2003 County Business Patterns.

⁴⁶ <http://www22.verizon.com/pages/business>.

⁴⁷ The estimate used in the paper appears very conservative in comparison to the recent Lehman Brothers Research Report, which estimates the number of small businesses with 1-4 employees to be 8 million. This group alone is estimated to spend \$9 billion annually on wireline voice services.

dependent on competition from cable voice service. According to the U.S. Census reports, there are 4.55 million business establishments in this category.⁴⁸ This is a much smaller number than cited in other studies of the number of small business U.S. firms that cable companies compete for.⁴⁹

Monthly expenditures on local and long distance wireline service by these establishments are shown in the table below.

<i>Number of Employees in the Firm</i>	<i>Number of Establishments</i>	<i>Average Expenditure on Local and Long Distance</i>
less than 4	3,510,352	\$153
5 to 9	1,037,709	\$345
Total	4,548,061	\$197

Source: Bureau of Census, SBA Survey.

Note: Expenditure for total is a weighted average for all firms.

Effect of Competition on Prices Charged to Small Business

Increased competition, especially from cable companies, has the potential to bring enormous savings to small business customers. We estimate these savings using a number of very conservative assumptions:

- Cable penetration is estimated to follow the same growth pattern as in the residential market, but lagging two years behind.
- Cable is assumed to save a typical small business customer 10% (off the current price) on its monthly bill compared to prices charged by the ILECs after their competitive response. This is based on the comparison made earlier between Verizon Freedom Business and Cablevision's Optimum Voice.

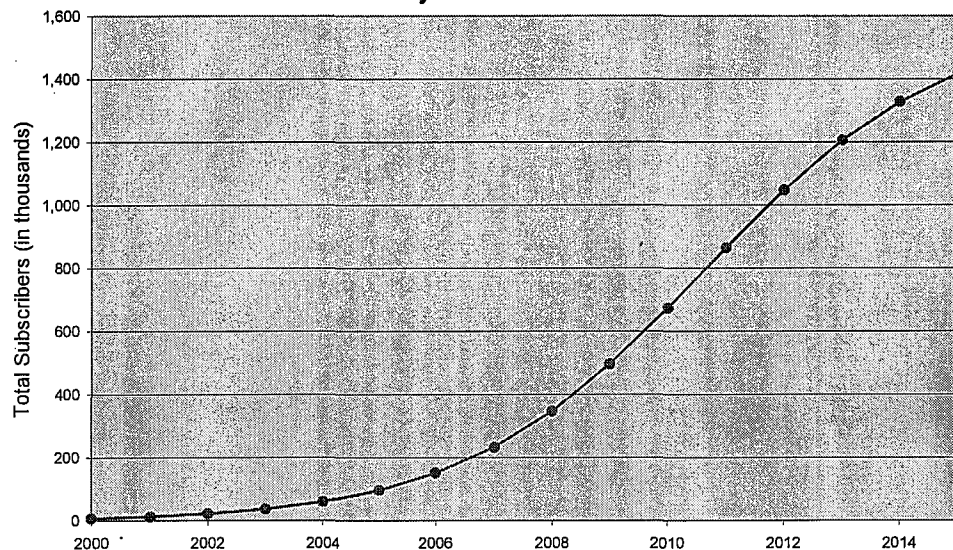
⁴⁸ Bureau of the Census, 2003 County Business Patterns.

⁴⁹ Insight Research Corporation, *Cable Telephony: The Threat to Small Business ILEC Markets 2007-2012*, April 2007.

- The competitive response of the ILECs is assumed to provide all small business voice customers with a 25% price reduction off of their average monthly bills. This is far below the full potential, because the rates paid by most small business establishments are far above cost, comparable residential rates, or the competitive responses already seen in the marketplace.

The savings from cable voice service in the small business market are shown below and are broken down into direct and indirect components. Though we do not have data on historical adoption by small businesses, we use the coefficients of external and internal influence estimated for residential consumers⁵⁰ and an adoption saturation level of 1.6 million⁵¹ to forecast sales of cable voice to small businesses of around 314 thousand in 2008, growing to 859 thousand in 2012, as shown in the graph below.

US Small Business Cable Voice Subscribers
Projected 2000-2015

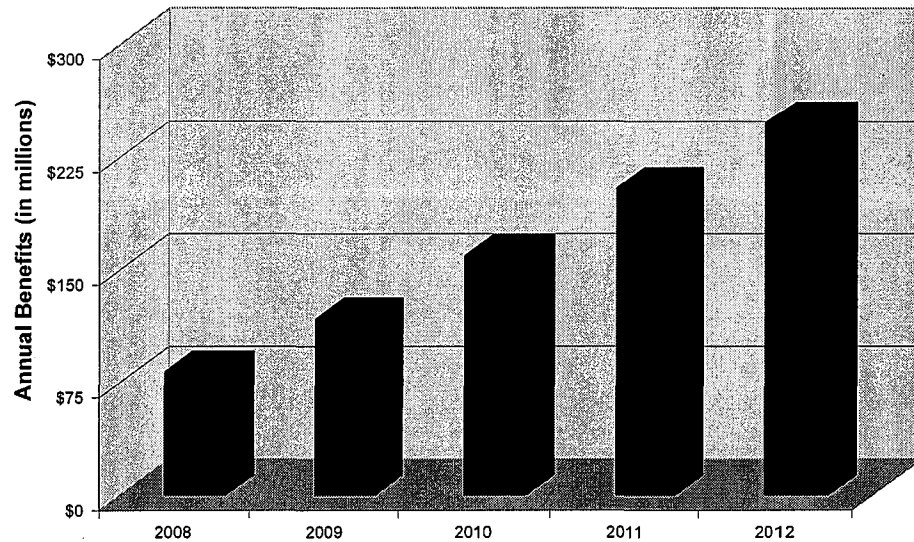


⁵⁰ This is a conservative assumption as adoption of new technology by businesses often occurs more rapidly than adoption by consumers.

⁵¹ This is estimated as 35% of the total number of small businesses in the US with 10 or fewer employees.

Using these forecasted sales and an estimated direct savings of \$19.70 a month for business customers, which is a very modest 10% saving, we estimate yearly benefits ranging from \$74.23 million in 2008 to \$203.07 million in 2012.

Direct Benefits to Small Business Customers of Cable Voice



The total direct benefit to small business customers over a five-year period is \$810.7 million as shown in the table below.

Direct Benefits to Small Business Customers of Cable Voice (in millions)

	2008	2009	2010	2011	2012	5-year Total
Cable Voice Subscribers	0.3	0.5	0.7	0.9	1.0	
Annual savings	\$82.0	\$117.2	\$159.3	\$204.4	\$247.8	\$810.7

Note: Total may not compute exactly due to rounding.

We also compute the indirect savings to the small business market as a result of the competitive response by the ILECs. Based on the assumptions described above, the indirect savings to the average small business will be \$49.25 a month. This benefit will accrue to all 4.5 million small businesses. Therefore, we estimate that over a five-year period the total indirect benefits to small business will be equal to \$15.5 billion.

***Total Savings from the ILECs' Competitive Response in the Small Business
Market is \$15.5 billion over Five Years***

VI. Total Savings

Savings from the sources discussed above total \$111.3 billion over the five-year period 2008-2012. These savings are summarized in the table below and depicted in the chart on the following page.

Total Savings from Cable-Telco Voice Competition
(in millions)

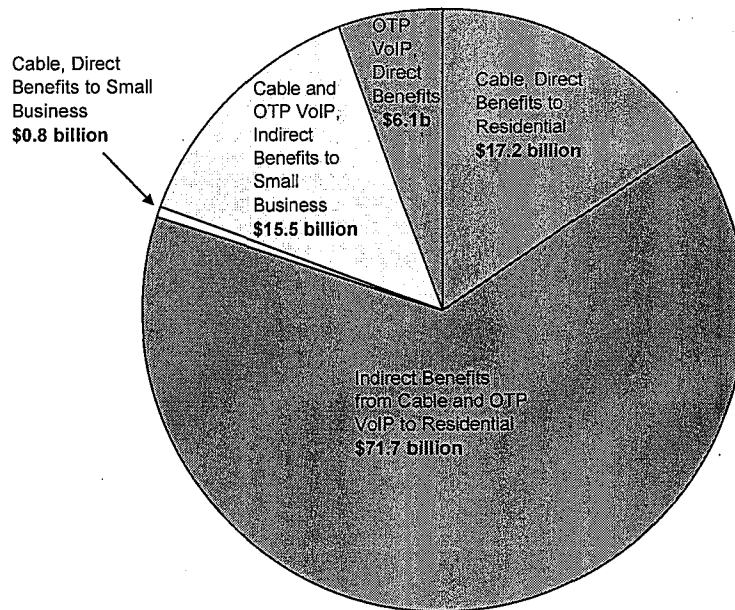
Category	Savings
Cable, Residential Market	\$17,202
Cable, Small Business Market	\$811
OTP VoIP	\$6,110
ILEC Competitive Response, Residential Market	\$71,723
ILEC Competitive Response, Small Business Market	\$15,503
Total	\$111,348

Note: Total may not compute exactly due to rounding.

\$24.1 billion of these benefits are directly observable in the lower prices that customers of cable voice and OTP VoIP pay as compared to traditional alternatives, although this calculation still leaves out the value of the increased features that cable voice services provide. Further, we estimate that the effect of competition from cable and other CLECs leads to a reduction in the overall level of prices of voice service provided to all customers, yielding total indirect savings of \$87.2 billion in the next five years.

Benefits are also estimated on a statewide basis for all categories. These were computed by apportioning the nationwide benefits among the states based on the number of households (for residential benefits) and the number of small businesses (for the business market benefits). Results are shown on the attached table.

**\$111.3 Billion in Benefits to Consumers over 5 Years
from Cable Voice and OTP VoIP Competition**



Benefits to Residential and Small Business 2008-2012

State	Savings to Residential			Savings to Small Business		Total Savings
	Cable, Direct	Cable, Indirect	OTP VolP, Direct	Cable, Direct	Cable, Indirect	
Alabama	\$288,718,108	\$1,203,814,336	\$102,549,712	\$10,391,189	\$198,714,402	\$1,804,187,746
Alaska	\$38,075,940	\$158,758,182	\$13,524,183	\$2,282,653	\$43,651,994	\$259,292,952
Arizona	\$344,707,477	\$1,437,262,819	\$122,436,561	\$13,055,294	\$249,661,044	\$2,167,123,195
Arkansas	\$172,926,912	\$721,021,263	\$61,421,866	\$7,074,693	\$135,291,866	\$1,097,736,598
California	\$1,795,549,938	\$7,486,571,478	\$637,760,926	\$94,053,306	\$1,798,614,852	\$11,812,550,501
Colorado	\$281,966,936	\$1,175,665,224	\$100,151,764	\$17,082,647	\$326,677,532	\$1,901,544,103
Connecticut	\$198,340,038	\$826,981,663	\$70,448,348	\$10,284,774	\$196,679,399	\$1,302,734,223
Delaware	\$51,525,700	\$214,837,153	\$18,301,400	\$2,621,504	\$50,131,959	\$337,417,716
District of Columbia	\$38,786,464	\$161,720,723	\$13,776,554	\$1,802,630	\$34,472,326	\$250,558,698
Florida	\$1,123,128,532	\$4,682,900,682	\$398,923,738	\$55,738,204	\$1,065,901,514	\$7,326,592,669
Georgia	\$515,004,173	\$2,147,317,359	\$182,924,201	\$22,846,676	\$436,905,122	\$3,304,997,531
Hawaii	\$67,711,266	\$282,323,105	\$24,050,347	\$3,360,702	\$64,267,897	\$441,713,318
Idaho	\$81,159,063	\$338,393,890	\$28,826,867	\$4,724,483	\$90,347,969	\$543,452,273
Illinois	\$714,336,449	\$2,978,436,172	\$253,724,982	\$34,499,153	\$659,739,585	\$4,640,736,341
Indiana	\$377,294,277	\$1,573,133,952	\$134,011,058	\$15,265,222	\$291,922,282	\$2,391,626,791
Iowa	\$181,308,630	\$755,968,959	\$64,398,966	\$8,809,231	\$168,462,063	\$1,178,947,850
Kansas	\$166,183,592	\$692,904,893	\$59,026,708	\$8,146,859	\$155,795,281	\$1,082,057,333
Kentucky	\$258,432,134	\$1,077,536,527	\$91,792,444	\$9,427,220	\$180,280,075	\$1,617,468,400
Louisiana	\$269,213,818	\$1,122,490,912	\$95,621,987	\$10,777,632	\$206,104,494	\$1,704,208,843
Maine	\$94,886,190	\$395,629,345	\$33,702,602	\$4,882,411	\$93,368,090	\$622,468,638
Maryland	\$315,555,649	\$1,315,713,851	\$112,082,131	\$14,633,331	\$279,838,390	\$2,037,823,351
Massachusetts	\$374,691,966	\$1,562,283,579	\$133,086,744	\$20,345,490	\$389,074,045	\$2,479,481,824
Michigan	\$621,688,684	\$2,592,139,972	\$220,817,446	\$25,834,838	\$494,048,806	\$3,954,529,746
Minnesota	\$310,277,830	\$1,293,707,905	\$110,207,503	\$16,270,545	\$311,147,430	\$2,041,611,213
Mississippi	\$171,249,390	\$714,026,812	\$60,826,027	\$6,383,444	\$122,072,872	\$1,074,558,546
Missouri	\$359,586,699	\$1,499,301,952	\$127,721,508	\$16,529,006	\$316,090,065	\$2,319,229,231
Montana	\$59,352,264	\$247,470,126	\$21,081,316	\$4,235,903	\$81,004,684	\$413,144,293
Nebraska	\$106,255,139	\$443,032,343	\$37,740,736	\$5,615,370	\$107,384,723	\$700,028,312
Nevada	\$136,922,949	\$570,902,218	\$48,633,627	\$5,763,851	\$110,224,182	\$872,446,827
New Hampshire	\$80,723,943	\$336,579,648	\$28,672,317	\$4,337,327	\$82,944,242	\$533,257,476
New Jersey	\$478,834,603	\$1,996,507,814	\$170,077,141	\$28,687,709	\$548,605,277	\$3,222,712,544
New Mexico	\$115,762,030	\$482,671,461	\$41,117,486	\$4,751,933	\$90,872,911	\$735,175,821
New York	\$1,096,476,089	\$4,571,772,937	\$389,457,063	\$62,360,323	\$1,192,538,654	\$7,312,605,066
North Carolina	\$541,282,633	\$2,256,885,780	\$192,258,041	\$22,504,973	\$430,370,617	\$3,443,302,044
North Dakota	\$42,182,032	\$175,878,595	\$14,982,625	\$2,298,696	\$43,958,778	\$279,300,727
Ohio	\$696,466,070	\$2,903,925,366	\$247,377,606	\$27,696,290	\$529,646,008	\$4,405,111,340
Oklahoma	\$220,541,012	\$919,548,945	\$78,333,906	\$9,657,695	\$184,687,543	\$1,412,769,101
Oregon	\$215,300,072	\$897,696,768	\$76,472,378	\$11,902,025	\$227,606,663	\$1,428,977,906
Pennsylvania	\$755,218,308	\$3,148,893,674	\$268,245,799	\$32,074,970	\$613,381,072	\$4,817,813,822
Rhode Island	\$62,583,488	\$260,942,760	\$22,229,013	\$3,494,745	\$66,831,250	\$416,081,257
South Carolina	\$265,122,449	\$1,105,431,890	\$94,168,775	\$10,651,075	\$203,684,307	\$1,679,058,496
South Dakota	\$48,044,173	\$200,320,876	\$17,064,798	\$2,848,771	\$54,478,070	\$322,756,688
Tennessee	\$363,894,437	\$1,517,263,126	\$129,251,573	\$13,183,099	\$252,105,092	\$2,275,697,326
Texas	\$1,240,539,758	\$5,172,448,490	\$440,627,001	\$51,069,513	\$976,620,472	\$7,881,305,233
Utah	\$119,014,848	\$496,234,135	\$42,272,854	\$6,924,607	\$132,421,728	\$796,868,172
Vermont	\$42,669,457	\$177,910,921	\$15,155,754	\$2,635,764	\$50,404,657	\$288,776,552
Virginia	\$437,059,646	\$1,822,326,527	\$155,239,105	\$19,594,884	\$374,719,949	\$2,808,940,111
Washington	\$365,515,868	\$1,524,023,707	\$129,827,488	\$19,475,814	\$372,442,928	\$2,411,285,806
West Virginia	\$121,567,940	\$506,879,287	\$43,179,686	\$4,353,013	\$83,244,209	\$759,224,135
Wisconsin	\$345,488,675	\$1,440,520,036	\$122,714,035	\$15,148,291	\$289,686,165	\$2,213,557,202
Wyoming	\$32,621,716	\$136,016,717	\$11,586,899	\$2,296,379	\$43,914,465	\$226,436,175
Total	\$17,201,745,455	\$71,722,926,854	\$6,109,883,596	\$810,686,160	\$15,503,039,998	\$111,348,282,062

Note: Total may not compute exactly due to rounding.

VII. Benefits Already Realized

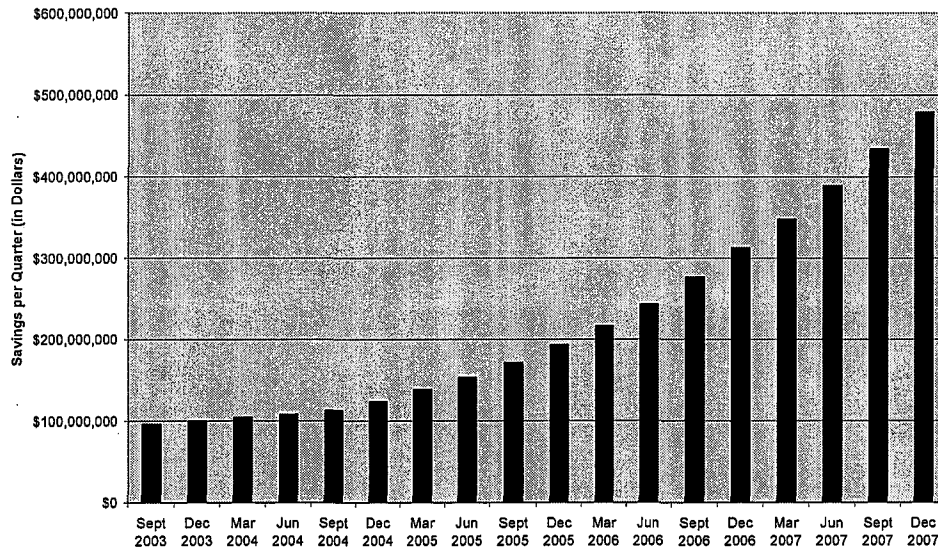
In this updated report we include an estimate of the benefits from cable voice competition already realized. We calculate the benefit from two sources: the direct benefit to cable voice subscribers, and the indirect benefit to all voice subscribers resulting from the ILECs' competitive response to cable voice service. The savings over the past two years from these sources totals nearly \$23 billion. (We also show benefits on a statewide basis, but only for 2007.)⁵² Benefits for the entire period to date are estimate only for residential customers, since competition in the business market was very limited. Also, we exclude any benefits from OTP VoIP services.

Direct Benefits

We estimate direct benefits already realized using the same method and same data sources used earlier in the paper to estimate projected benefits to cable voice subscribers. Although benefits begin prior to 2003, we restrict our measurement to the period of time covered by the primary data sources described and utilized earlier. This covers a period of four years plus two quarters (third and fourth quarter 2003 and 2004 through 2007). Benefits are calculated as the monthly savings \$11.70 x 3 (the number of months per quarter) x the number of cable voice subscribers during that quarter. The benefits are shown on a quarterly basis in the chart below. For the entire period, the benefit to cable voice subscribers totals \$4.0 billion.

⁵² Prior to 2007, cable penetration had not yet reached the level or geographic distribution where it would be reasonable to use the proportion of households in each state as a proxy for the number of cable voice customers in each state or the number of ILEC customers benefiting from a competitive response.

Direct Benefits to Cable Voice Subscribers
(June 2003 to December 2007)



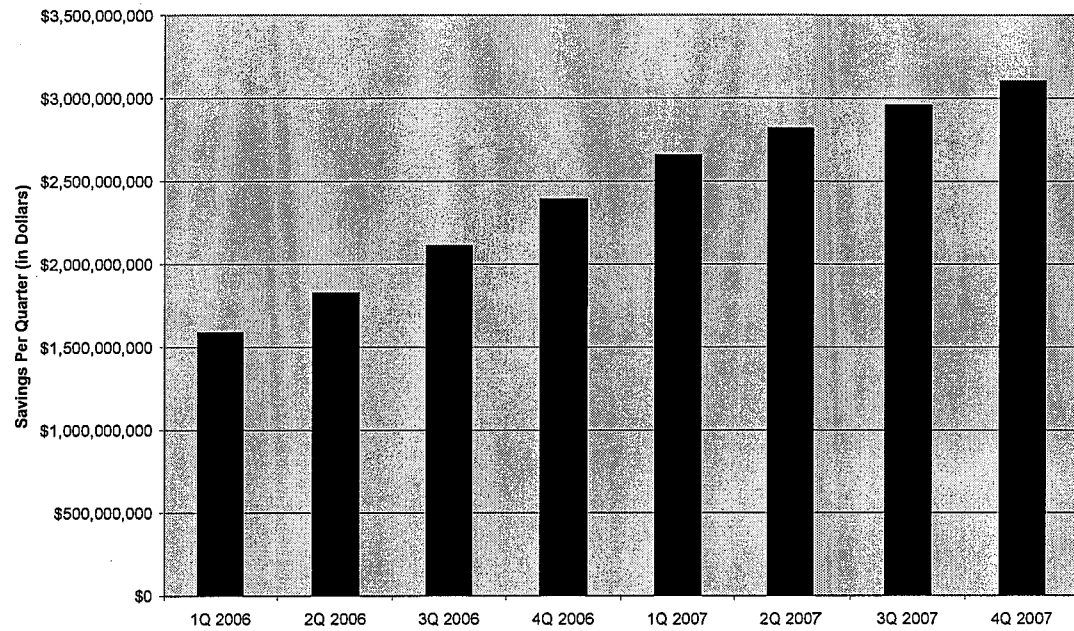
Indirect Benefits

In order to estimate indirect benefits from the ILECs' competitive response, we modify the methodology that was used in the main study to project future benefits. For this earlier period, we limit the indirect benefits to the customers in the residential market that were passed by cable companies offering voice service. Because cable voice competition was limited in geographic scope, it is unlikely that the ILECs were forced to respond everywhere. Therefore, we assume that the ILECs' response to competition only benefited consumers in the areas where cable voice service was available. Annual data on cable penetration of the voice market were obtained from the Kagan Report and extrapolated to estimate penetration on a quarterly basis.

We begin the benefit period in 2006, even though cable companies began offering voice service several years earlier. The reason is that prior to 2006 (or arguably prior to 2005), the ILECs faced widespread competition from UNE-P-based CLECs. Therefore, it is difficult to attribute their competitive response to the cable companies alone. Rather than allocate the benefits during this earlier period, we begin the benefit period after the UNE-P-based CLECs are forced to exit the market for new subscribers.

Benefits from the ILECs' competitive response are then estimated by multiplying the number of households in each quarter that were passed by cable companies offering voice service by our previously-derived estimate of the average monthly competitive reduction in price by ILECs, which is \$12.00. Total benefits for all of 2006 and 2007 equal \$19.5 billion. The benefits are shown on a quarterly basis in the chart below.

Benefits to Households with Telephone Service due to ILECs' Competitive Response
(January 2006 to December 2007)



Benefits to Residential Customers in 2007

State	Savings to Residential		Total Savings
	Cable, Direct	Cable, Indirect	
Alabama	\$27,710,453	\$193,713,490	\$221,423,942
Alaska	\$3,654,435	\$25,546,798	\$29,201,233
Arizona	\$33,084,174	\$231,279,183	\$264,363,357
Arkansas	\$16,597,099	\$116,024,158	\$132,621,257
California	\$172,332,460	\$1,204,712,257	\$1,377,044,717
Colorado	\$27,062,492	\$189,183,835	\$216,246,327
Connecticut	\$19,036,188	\$133,074,926	\$152,111,114
Delaware	\$4,945,310	\$34,570,825	\$39,516,135
District of Columbia	\$3,722,629	\$26,023,519	\$29,746,149
Florida	\$107,795,110	\$753,555,599	\$861,350,708
Georgia	\$49,428,832	\$345,538,615	\$394,967,447
Hawaii	\$6,498,761	\$45,430,422	\$51,929,183
Idaho	\$7,789,447	\$54,453,132	\$62,242,579
Illinois	\$68,560,253	\$479,279,277	\$547,839,529
Indiana	\$36,211,775	\$253,143,079	\$289,354,854
Iowa	\$17,401,556	\$121,647,816	\$139,049,372
Kansas	\$15,949,892	\$111,499,773	\$127,449,664
Kentucky	\$24,803,680	\$173,393,317	\$198,196,997
Louisiana	\$25,838,479	\$180,627,216	\$206,465,695
Maine	\$9,106,943	\$63,663,257	\$72,770,199
Maryland	\$30,286,254	\$211,719,959	\$242,006,212
Massachusetts	\$35,962,012	\$251,397,076	\$287,359,088
Michigan	\$59,668,148	\$417,117,877	\$476,786,025
Minnesota	\$29,779,702	\$208,178,841	\$237,958,542
Mississippi	\$16,436,095	\$114,898,636	\$131,334,731
Missouri	\$34,512,246	\$241,262,298	\$275,774,544
Montana	\$5,696,484	\$39,822,006	\$45,518,490
Nebraska	\$10,198,107	\$71,291,177	\$81,489,284
Nevada	\$13,141,527	\$91,867,539	\$105,009,067
New Hampshire	\$7,747,685	\$54,161,191	\$61,908,876
New Jersey	\$45,957,366	\$321,270,884	\$367,228,249
New Mexico	\$11,110,554	\$77,669,762	\$88,780,316
New York	\$105,237,074	\$735,673,320	\$840,910,394
North Carolina	\$51,950,974	\$363,169,973	\$415,120,947
North Dakota	\$4,048,528	\$28,301,753	\$32,350,281
Ohio	\$66,845,098	\$467,289,265	\$534,134,362
Oklahoma	\$21,166,983	\$147,970,521	\$169,137,504
Oregon	\$20,663,970	\$144,454,147	\$165,118,118
Pennsylvania	\$72,483,993	\$506,708,687	\$579,192,680
Rhode Island	\$6,006,609	\$41,989,974	\$47,996,583
South Carolina	\$25,445,799	\$177,882,139	\$203,327,938
South Dakota	\$4,611,161	\$32,234,918	\$36,846,079
Tennessee	\$34,925,692	\$244,152,546	\$279,078,237
Texas	\$119,063,950	\$832,331,878	\$951,395,827
Utah	\$11,422,752	\$79,852,219	\$91,274,971
Vermont	\$4,095,309	\$28,628,788	\$32,724,097
Virginia	\$41,947,908	\$293,242,255	\$335,190,163
Washington	\$35,081,313	\$245,240,434	\$280,321,747
West Virginia	\$11,667,791	\$81,565,199	\$93,232,990
Wisconsin	\$33,159,152	\$231,803,323	\$264,962,475
Wyoming	\$3,130,952	\$21,887,323	\$25,018,275
Total	\$1,650,981,150	\$11,541,396,400	\$13,192,377,550

Note: Totals may not compute exactly due to rounding.