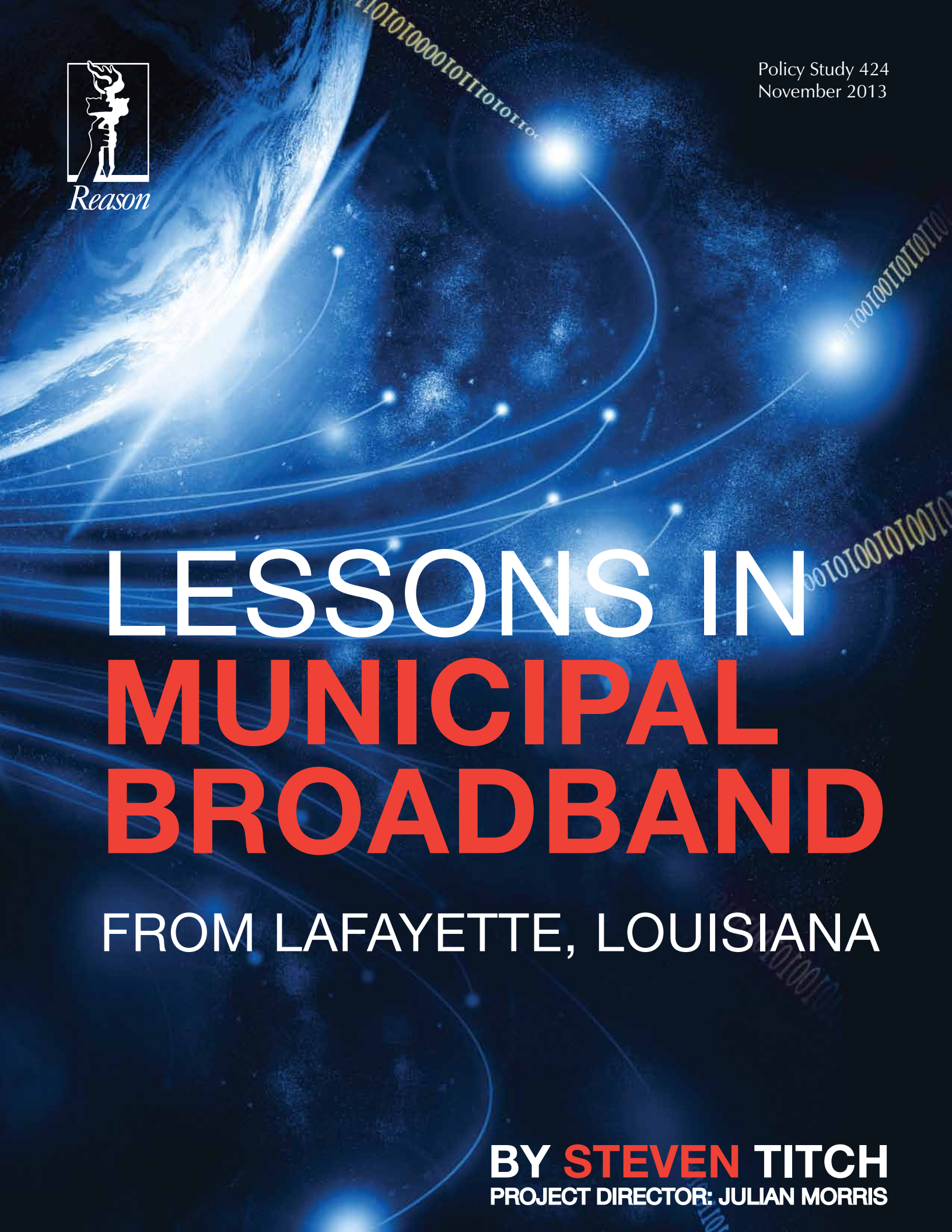

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LESSONS IN MUNICIPAL BROADBAND

FROM LAFAYETTE, LOUISIANA

BY STEVEN TITCH
PROJECT DIRECTOR: JULIAN MORRIS

Reason Foundation

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Reason Foundation

Lessons in Municipal Broadband from Lafayette, Louisiana

By Steven Titch

Project Director: Julian Morris

Executive Summary

Government-funded broadband projects, exemplified by the one undertaken in 2005 by Lafayette Utilities Service (LUS), start with a fundamental error: governments believe they are entering a monopoly-based infrastructure business when in reality, they are entering an extremely competitive service business.

Because they assume broadband is an infrastructure business, they believe the model will follow the classic utility: high upfront construction costs, followed by high yield revenues that pay back the investment, while the installed plant can be routinely maintained as it depreciates on a long schedule. As with a classic utility, customer acquisition costs are believed to be low and incremental.

The shock comes when they learn, usually within two years of start-up, that technology cycles in broadband are short. Equipment can't be "maintained" over a decade; it often has to be upgraded or replaced every two to three years. An even bigger shock comes when cities discover how much they must spend year-to-year to build and maintain viable market share. This is when municipalities realize that it's not the speed of its Internet connections, but the quality, breadth and competitiveness of its cable TV service that drives revenues.

This paper examines one of the largest and most publicized municipal broadband projects in the U.S.: the $160-million fiber-to-the-home (FTTH) project launched by Lafayette Utilities Service (LUS) in Lafayette, Louisiana.

Six years into the operation, LUS Fiber is:

- 30% short of its revenue projection as set out in its business plan
- More than $160 million in debt

- As of last year was losing $45,000 a day, according to the Lafayette's independent auditor
- Struggling to compete with cable, telephone, wireless and satellite service providers in terms of price, performance and service options.

Reason chose to profile LUS Fiber because it is often held up as a policy success. Groups such as the Institute for Local Self-Reliance, which profiled the operation last year in a report titled *Broadband at the Speed of Light: How Three Communities Built Next-Generation Networks,* say it is a model to be followed. It has drawn national coverage from prominent journalists Bill Moyers and Tom Friedman. Susan Crawford, former telecom advisor to President Obama, devotes several pages of her new book, *Captive Audience: The Telecom Industry and Monopoly Power in the New Gilded Age,* to LUS Fiber's story.

Both progressive analysis and mainstream news reports tend to play up the benefits of fiber optics as well as the compelling story of a small town taking on the huge, impersonal telephone and cable companies. These reports also further reinforce the erroneous notions that broadband is a monopoly that can be effectively countered through government alternatives.

In reality the situation is much more complex. This paper will spell out those complexities, which are either glossed over or dismissed outright by the municipal proponents and the media. They represent risks and realities that should be understood by any municipality before it moves ahead with a public broadband project.

For all the enthusiasm about municipal broadband, one fact remains: A great majority of systems fail. Those that survive end up falling short of their promised goals of lower prices, better service and ubiquity. One high-profile project after another—Ashland, Oregon; Provo, Utah; Tacoma, Washington—have leveraged their taxpayer funding, only to fall short of goals and end up facing a mountain of debt.

In some cases, the city recovers its investment through sale of assets, or by converting a partially completed network into a system exclusively serving the local government agencies. Compared to those past projects, LUS Fiber is in better shape, but it is far from secure. Whether LUS Fiber will truly be a success remains to be seen. But as of early 2013, it is still short of its financial and competitive goals. As this report was going to press, LUS Fiber's management was predicting that the operation would be self-supporting by 2016. But it is turning to its own municipal parent, LUS, for more revenues. The 2013–14 budget for the Lafayette Consolidated Government calls for $1.3 million in LUS purchases from LUS Fiber for the next fiscal year, a 185% increase over the $454,000 projected for the current fiscal year, which will end October 31.

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Part 1

Introduction

Municipal broadband is a high-risk proposition. Cities considering such projects, which can entail the borrowing of more than $100 million, must understand the complex market they would be entering.

A number of influential voices in policy and media, including President Obama's former telecommunications policy advisor, Susan Crawford, say that municipalities should offer broadband service. They say that for some communities, a municipal broadband system may be the only way to ensure their residents and businesses enjoy the benefits of a high-speed link to the digital economy. They fear that because of their size or low per capita income, these communities will be passed over by commercial service providers for whom high revenues and profit are a priority.

At the same time, the national media tends to hype large-scale municipal projects in a handful of cities and towns, such as Chattanooga and Bristol, Tennessee and Lafayette, Louisiana, portraying these communities as determined Davids successfully overcoming the broadband intransigence of incumbent telephone and cable TV Goliaths.

But while focusing on a few apparent successes, those news stories and reports overlook the hundreds of municipal systems that have struggled financially or failed outright. While proponents don't attempt to play down the costs of municipal broadband, they often present it as something that cities can easily do.

The principal rationale for municipal broadband is a contention that broadband service works like a utility, akin to electricity or water, which leans toward natural monopoly. Indeed, Crawford makes this assertion the basis of her 2013 book *Captive Audience: The Telecom Industry and Monopoly Power in the New Gilded Age*. Among other policies, the book endorses municipal broadband as a viable means for expanding Internet access.

Municipal provision, Crawford claims, can be an effective and fiscally responsible way to deliver broadband. It can serve previously unmet consumer needs in a community and generate community economic development. Hers is just the latest in a series of calls from organizations such as FreePress and Institute for Local Self-Reliance (ILSR), as well as media figures such as Tom Friedman and Bill Moyers, that have been promoting municipal broadband policy for more than 10 years. This study aims to evaluate these claims by examining the largest municipal

broadband system to date, LUS Fiber, the fiber optic network operated by Lafayette Utilities System in Lafayette, Louisiana.

Crawford devotes several pages to Lafayette in her book, and ILSR featured it prominently in its own research paper published in 2012. According to these accounts, LUS Fiber is a success. But is it really?

This brief will examine LUS Fiber's history, performance and future, in the hope of painting a more balanced and accurate picture of municipal broadband's risks and challenges than is provided by the media and consultants. This brief hopes to offer an additional resource to mayors, city councils and managers of municipal utilities who are assessing whether municipal broadband is the correct path for their communities.

Part 2

The Push for Muni Broadband

Municipal supply of telecommunications is not new. In the early 20th century, many rural towns set up municipally owned companies or cooperatives to offer telephone service. In the 1960s and 70s, some towns tried the model with cable TV. These operations served their purpose, especially in more remote areas, but by the close of the century, most of these relatively tiny municipal operations had been acquired by commercial cable companies who were able to invest in system upgrades, such as HDTV and faster Internet speeds, as well as compete better against satellite TV services.

As the Internet took off in the 1990s, some cities tried to apply the municipal supply model to Internet access. At first, these were in rural areas without broadband service. But as interest in municipal broadband continued to grow, larger cities with residents already served by phone and cable companies began to mull over the idea of building broadband systems of their own. Policy advocates suggested cities invest in new network platforms, particularly fiber-to-the-home (FTTH) or large-scale WiFi wireless. Advocates make four main arguments for municipal broadband:

1. Municipal broadband fits the tradition of municipal utilities.

Broadband is a capital-intensive, facilities-based service. In other words, it is a "utility." As such it should be possible for a city government to deliver broadband in much the same way that cities have run gas, electric, water and telephone utilities.

2. Municipal broadband creates true competition.

Cable and telephone companies form a coercive duopoly that can dictate prices, technologies and service packages—and get away with poor customer service. Municipal broadband systems, by contrast, can offer lower prices and consumer-friendly choices, such as unbundled Internet and a la carte cable programming.

3. Municipal broadband addresses unmet needs.

Commercial service providers are not interested in serving entire communities—only middle- to upper-income households with enough disposable income to generate average monthly revenues of

$100 to $200. Municipal broadband would offer high-speed Internet to low-income households, enabling them to access the educational, commercial and social benefits of the digital economy. For example, during a debate over Philadelphia's proposed citywide municipal WiFi network, Dianah Neff, the city's chief information officer, said she was convinced that local private providers were not deploying broadband services fast enough to poor or underserved areas of Philadelphia.[1]

4. Municipal broadband boosts local economic development.

Municipal broadband allows communities to take charge of their local broadband development. It allows them to control the timetables for commercial deployment. Investment in platforms that commercial providers have eschewed, such as FTTH, offer a way to attract businesses and employers to the area and for high-tech entrepreneurs to remain local. For example, here's how the Institute for Local Self-Reliance described the municipal broadband system operated by Chattanooga's Electric Power Board (EPB):

> *EPB caters to the whole community, not just a few big employers. This is a key point for communities who aren't likely to attract companies the size of Volkswagen. EPB Fiber Optics allows small [local online] startups like Retickr to compete globally at affordable rates, and allows individuals to pursue dreams of starting sole proprietorships from their homes.*[2]

Apparently persuaded by these arguments, the governments of a number of small- to medium-sized cities launched municipal network overbuilds that would compete head-to-head with local incumbent service providers. These included Tacoma, Washington (wireless); Ashland Oregon (FTTH); Lebanon, Ohio (coaxial cable); Kutztown, Pennsylvania (FTTH), and Provo, Utah (FTTH).

The biggest of these projects was launched in 2007 in Lafayette, Louisiana. Three years earlier, Lafayette Utilities System (LUS), the municipal utility company in Lafayette, a Gulf Coast city of 121,000 located about 50 miles west of Baton Rouge, proposed a $110 million plan to build a broadband FTTH network. The sheer scale of the project attracted and galvanized consumer activists and progressive organizations both in Lafayette and nationwide. LUS was buoyed by a feasibility report it had commissioned from CCG Consulting, a specialist in municipal broadband planning, which predicted that LUS Fiber would break even by its fifth year of operation and could ultimately win 50% of the cable and telephone market in Lafayette. Some city council members questioned the risk posed by the high cost of the plan, and asked whether Lafayette needed a municipal overbuild. Yet the popularity of the idea was undeniable. The plan even sparked the creation of a community organization, Lafayette Coming Together, which campaigned energetically for the measure. After considerable debate, LUS carried the day. In a special election, the municipal broadband bond issue won 62% of the vote.

Part 3

LUS Fiber's Financial Situation

Terry Huval, director of Lafayette Utilities System, continues to state in public forums that LUS Fiber is on sound financial footing and will ultimately break even. In a city council budget meeting in August 2013—as this report was going to press—Huval said LUS Fiber would be fully self-supporting by 2016.[3] Earlier in the year, in response to a series of email questions, Mr. Huval wrote:

> *Beginning in February 2012 (only three years after serving its first customer) LUS Fiber achieved a "cash positive" position. Reaching a "cash positive" status means LUS Fiber is earning enough telecom revenues to pay all of its operations and maintenance costs, in addition to making its annual bond payments—a significant milestone in the growth of a new business. The system is showing consistent net growth in customers and its revenue growth increasingly outpaces its operating costs. So…the bottom line is the system is already successful and is becoming more and more successful every day.*[4]

But the published accounts paint a different picture. LUS Fiber had a net loss before contributions and transfers of $11.9 million for the fiscal year ending October 31, 2012. It had a net deficit of $40.7 million, largely driven by the accrual of interest payable on its $140.7 million in loan liabilities. Both come in spite of operating revenues of $24 million, which represented a 41% increase over the $17 million revenues for fiscal year 2011. Expenses, however, continue to grow. Operating and non-operating expenses in 2012 were a total of $35.9 million, up from $33.5 million in 2011 and $20.4 million in 2010. The 2012 results continue a trend at LUS Fiber that dates back to launch. Revenues do not seem to be able to keep up with tenacious growth in costs (see Table 1). As the losses compound, so do the deficits (see Table 2). Selected data appears in the tables below. A complete statement of audited annual results compared to the original plan can be found in Appendix A.

While losses can be expected in the first years of operation, the persistent losses experienced by LUS are becoming problematic. The FTTH Feasibility Study Report prepared for Lafayette by CCG Consulting Inc. in 2004 did a fairly accurate job at predicting costs. Net expenses for Year 4 (2010) were forecast to be $24.9 million, a figure LUS Fiber actually beat. The plan's projection for Year 6 (corresponding to 2012) was $34 million; LUS's actual expenses for the year were close, at $36 million. The plan's projection for Year 5 (2011) was $29.5 million. LUS Fiber actual number was only $4 million higher. Spending also was close to plan in 2010.

Table 1: LUS Fiber Plan vs. Actual Performance 2007–2012 ($000s)			
Year		Plan	Actual
2012	Operating Revenues	33,970	24,041
	Net Expenses	33,968	35,953
	Surplus/Deficit from Operations	6,584	6,984
	Net Income/Loss	2	-11,912
2011	Operating Revenues	29,124	17,011
	Net Expenses	29,505	33,530
	Surplus/Deficit from Operations	5,861	2,256
	Net Income (Loss)	-381	-16,519
2010	Operating Revenues	20,011	9,415
	Net Expenses	24,880	20,460
	Surplus/Deficit from Operations	53	-462
	Net Income/Loss	-4,869	-11,045
2009	Operating Revenues	10,361	4,061
	Net Expenses	15,295	9,427
	Surplus/Deficit from Operations	1,545	-3,018
	Net Income/Loss	-4,934	-5,366
2008	Operating Revenues	2,173	2,120
	Net Expenses	9,262	4,632
	Surplus/Deficit from Operations	-3,138	-1,837
	Net Income/Loss	-7,809	-2,511
2007	Operating Revenues	1,048	0
	Net Expenses	2,406	-1,649
	Surplus/Deficit from Operations	-893	-32
	Net Income/Loss	-1,358	1,649

Sources: Lafayette Consolidated Government Audit Reports 2007–12 and CCG Consulting Feasibility Study for LUS Fiber

Table 2: LUS Fiber Deficit Growth 2007–2012 ($000s)						
	2007	2008	2009	2010	2011	2012
Total Assets	120,323	135,761	131,557	126,900	111,934	112,475
Total Liabilities	118,674	136,624	132,837	139,225	140,779	153,189
Net Surplus/Deficit	1,649	-863	-1,280	-12,325	-28,845	-40,714

Sources: Lafayette Consolidated Government Audit Reports 2007–12

Revenues were a different story. LUS Fiber's revenues were 53% below its goal in 2010 (see Table 2). In 2011, they were 41.6% below its goal. Its 2012 revenues of $24 million were 29% below the plan's stated goal of $34 million. And although the gap between planned revenues and reality has been shrinking in percentage terms, in cash terms the variance is getting bigger: LUS Fiber fell $6.3 million short of its goal in 2008; by 2012 that variance had increased to $10 million.

The shortfall is reflected in the bottom line. This is where variance becomes truly troubling. The CCG business plan projected a slight surplus of $2,000—virtually break-even—for Year 6 (2012). The actual loss, as noted above, was $11.9 million. The plan has also called for net losses to peak in Year 3, at $4.9 million, then level off and move into surplus. In reality, Year 3 was when LUS Fiber's losses were just getting started. LUS Fiber's losses doubled in Year 4 (2010), and increased 50% in Year 5 (2011) before dropping back to 2010 levels.

Revenue shortfalls have induced more borrowing. Before groundbreaking, LUS Fiber realized it would need the full $125 million authorized in the bond issue, not the $110 million it had originally aimed for. In 2008, LUS Fiber needed a $55 million loan from its parent, LUS, to complete construction. Most of that loan has been repaid, according to Huval. Nonetheless, LUS Fiber felt its financial situation was tenuous enough that in 2009 it applied for two grants under the American Recovery and Reinvestment Act, commonly known as the Stimulus, but neither was approved.[5]

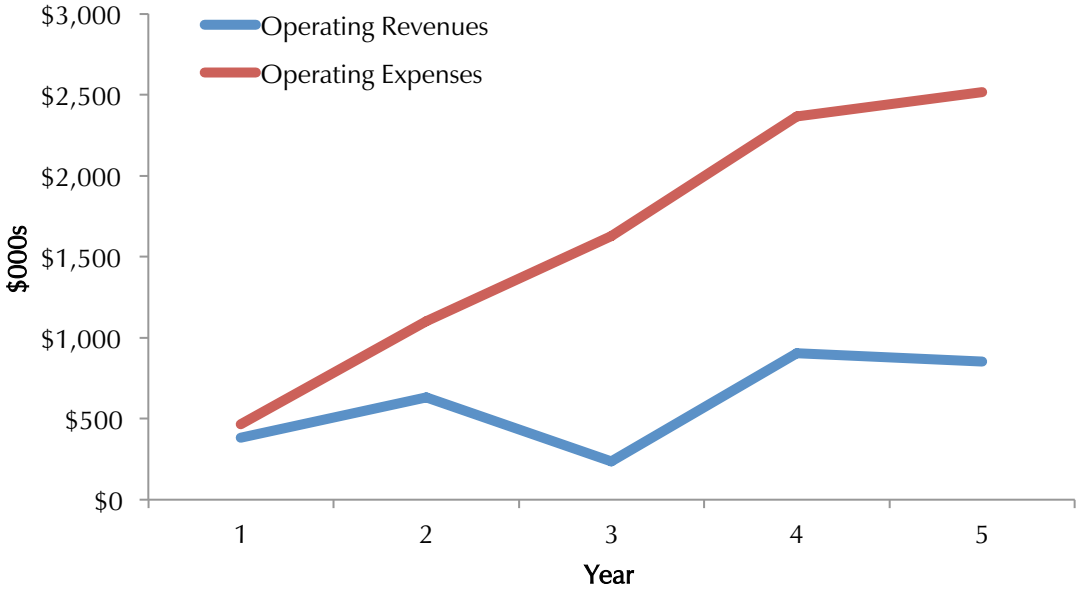
This pattern of costs accelerating relative to revenues seems to be endemic to municipal broadband. Every municipal broadband system, whether using traditional coaxial cable, wireless or fiber as base infrastructure, has run into this problem.

By way of comparison, we can graph LUS Fiber's performance against two earlier attempts to implement municipal broadband, iProvo in Provo, Utah and Alameda Power and Telecom (APT) in Alameda, California. iProvo's revenues leveled off in its fourth year of operation (2004) at $945 million, and actually dropped in Year 5. Expenses, however, continued to rise, reaching $2.36 million in 2004 and $2.5 million in 2005 (See Fig. 1).[6] APT's operating revenues also were leveling off by its fifth year, while costs continued to escalate (see Fig. 2).[7] Lafayette, readers might note, is performing better in terms of revenues (see Fig. 3), which have been strong enough to provide a positive cash flow, as Huval has touted. Yet cash flow alone misinterprets the true financial situation. Because it omits the cost of non-operating expenses, particularly interest, depreciation and amortization, it is more correctly read as a short-term snapshot, and less as an indicator of long-term financial performance.

In testimony in May 2011 to the Lafayette City Council, auditor Burton Kolder summed up the precarious state of LUS Fiber's finances.

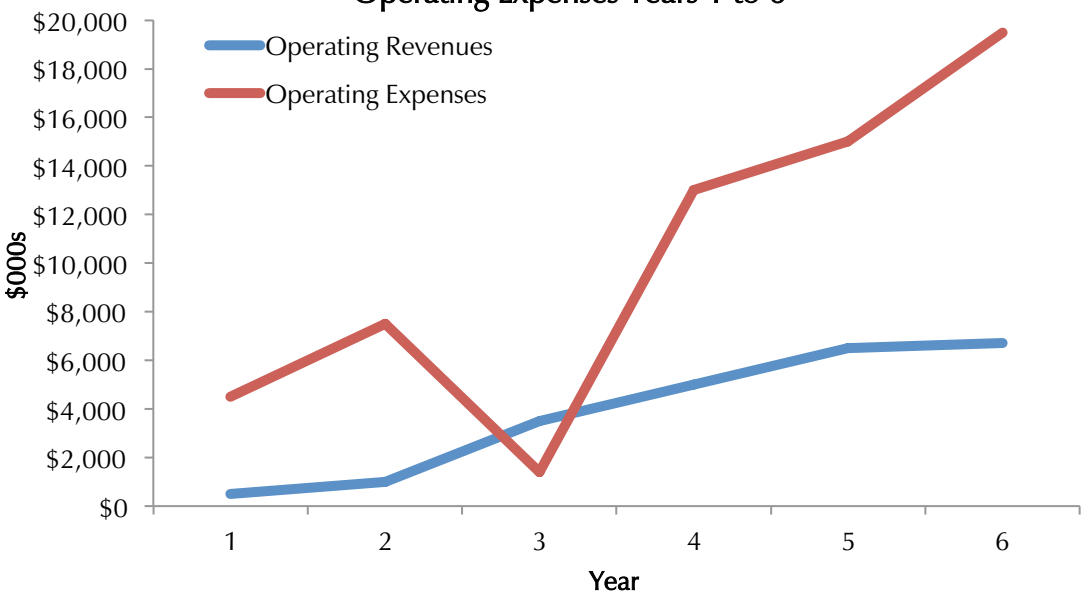
> *The bottom line, operations of this fund was at $11,045,000 loss last year and it's now $16,519,000 for the current year. So, looking at it from a cash flow standpoint, obviously the depreciation and amortization would be added back, but you could see that you would still have a deficiency even by adding that back, of approximately $6 million. Just to put it in perspective, on a daily basis, that $16 million loss equates to a loss of $45,000 a day. Last year, the loss was $30,261 per day. That's including all costs and also depreciation.*[8]

Figure 1: iProvo Operating Revenues vs. Operating Expenses Years 1 to 5

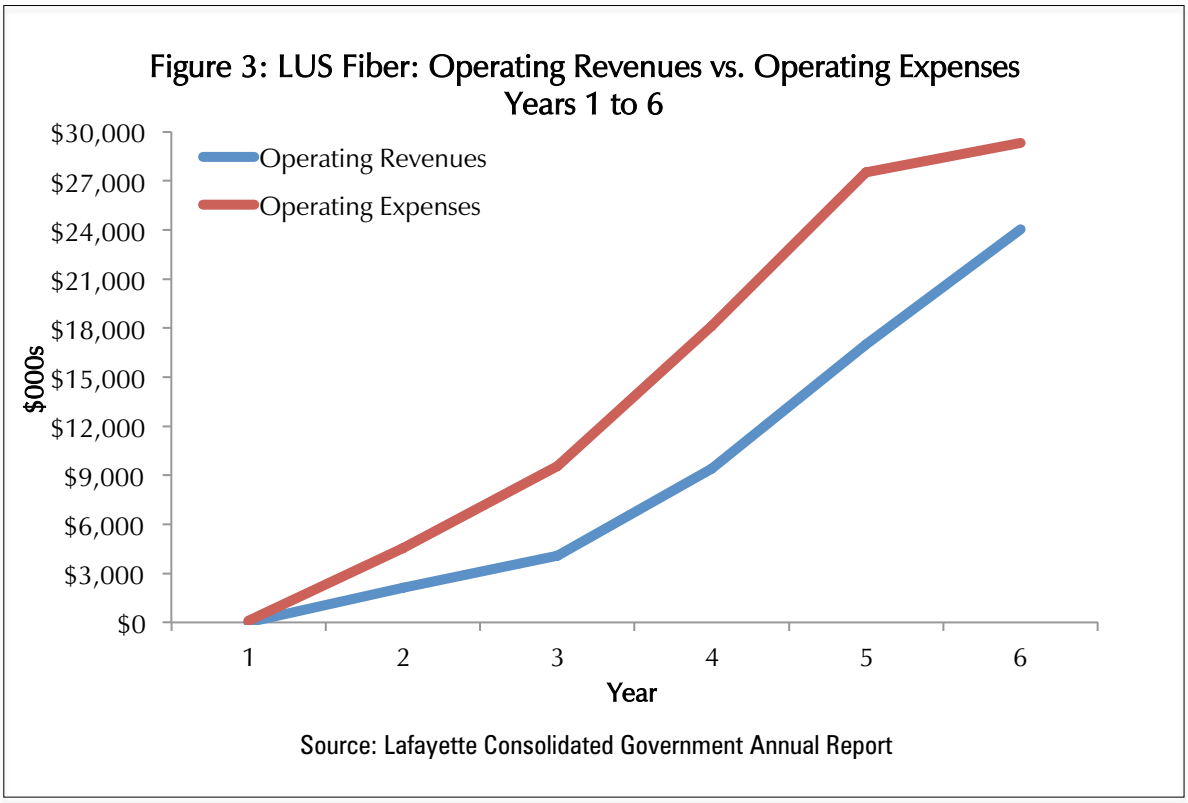


Source: City of Provo, Comprehensive Annual Financial Reports, 2001-2005

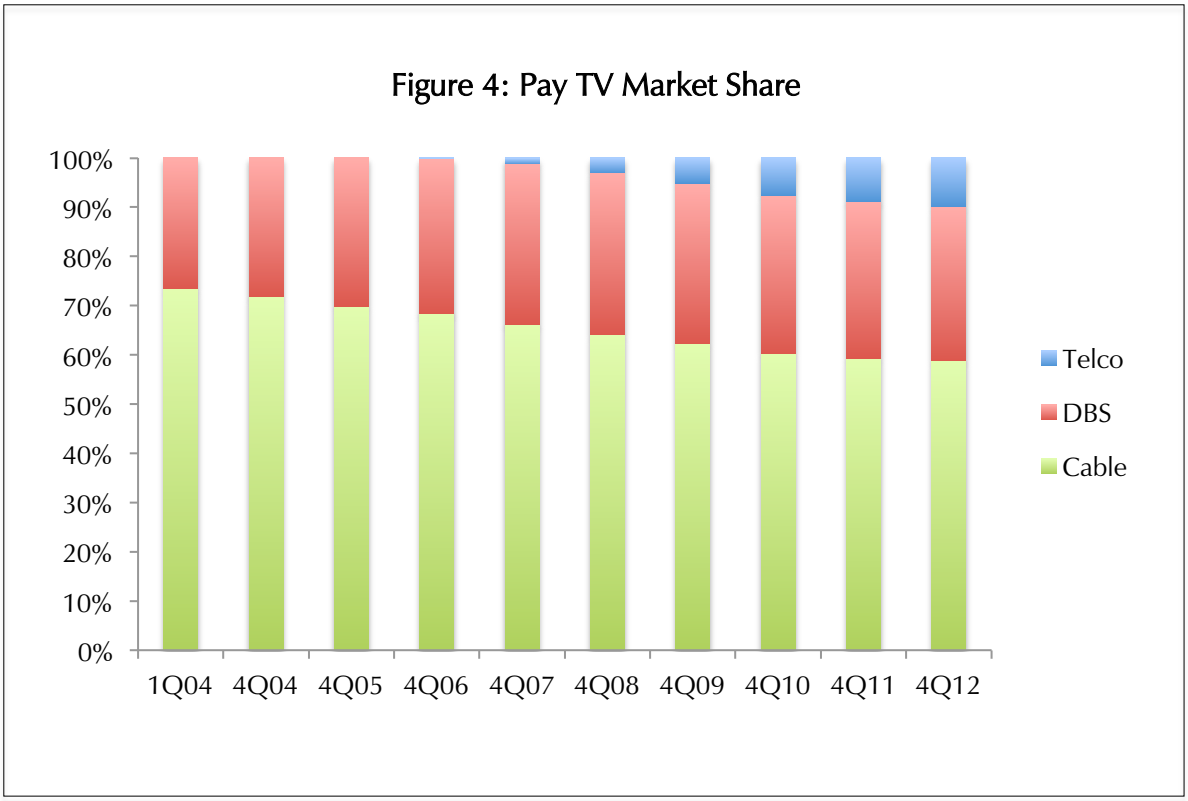
Figure 2: Alameda Power and Telecom Operating Revenues vs. Operating Expenses Years 1 to 6



Source: Alameda Power & Telecom 2006 Annual Report



Source: Lafayette Consolidated Government Annual Report



Part 4

Broadband Is Not a Utility

Most of LUS Fiber's financial difficulties are rooted in the fact that it is trying to gain traction in a market far more competitive than its business plan acknowledged. When LUS wired the city for electricity a century ago, it was the first and only electric company in the area. Every sign-up was a first-time customer. It was a classic utility: supplying essentially one good to a captive audience.

Utilities typically served only one purpose—as was the case with early forms of telecommunications, e.g., telegraph, telephone. But that has not been the case even for copper wires for several decades (at least since the introduction of the telex) and certainly is not true for broadband. Unlike water and electricity, which continue to have a relatively small number of uses and demand for which seems to grow at relatively slow and predictable rates, the uses to which broadband may be put are many and rapidly increasing. At base, broadband demand stems from individuals and companies seeking to share information—and demand for such information-sharing seems to rise in proportion to the available means of sharing it. In the early 1990s, 19.2 kb/s was useful for exchanging text documents. By the late 1990s, bandwidth was good enough to handle color photos and graphics. Today, domestic consumers demand connections that can stream three-hour movies in high-definition.

Service providers have responded by developing increasingly effective and increasingly high bandwidth services for both fixed line and wireless connections. Technology cycles are reflected in the capital expenditures the private sector is making. Between 2004 and 2011, Verizon invested $130 billion—an average of $16 billion a year—in broadband infrastructure (predominately FTTH and wireless). For AT&T those numbers were $117 billion and $14.6 billion. For Comcast, the numbers were $39 billion and $4.8 billion.[9]

Almost every market in the U.S. is served by at least one cable TV company and one phone company. Satellite service, by its nature, is available everywhere. Wireless service, while not as high-bandwidth, can support reasonably fast Internet connections, and its robustness and speed are improving as 4th Generation (4G) networks are deployed.

The rapid increases in demand for services and consequent significant ongoing investment in infrastructure upgrades, not to mention the existence of competition, suggest that broadband is far from being a "utility." This not only contradicts one of the key premises of the proponents of municipal broadband, it specifically undermines LUS Fiber's business plan, which was predicated on the utility model. Although CCG Consulting's feasibility study identified two extant

competitors—Cox and BellSouth (now AT&T)—in LUS Fiber's proposed service area, it did not mention the wireless providers serving Lafayette (at least four at the time), nor the two satellite TV companies providing multichannel TV service. Yet the CCG feasibility plan forecast that LUS Fiber could attain 50% market penetration in telephone and cable TV.[10]

Moreover, at the time the report was prepared, investment analysts were warning that satellite service posed the biggest threat to cable company market share. One March 2003 study found satellite TV penetration in U.S. households was 20.9%, up from 19.2% a year earlier.[11] At the same time, research was predicting that households with DBS service would increase from approximately 20.7 million at the end of 2003 to 27.1 million by 2007.[12]

These numbers have been borne out. As Fig. 4 shows, satellite's share in the pay TV market had grown to 31.3% by the fourth quarter of 2012 from 28.1% at the end of 2004. Telephone companies have further eroded cable TV market share. Overall, cable's share of the pay TV market was 58.8% fourth quarter 2012.

More recently, Internet Protocol television (IPTV) services have begun to cut into cable revenues further. IPTV, in which television programming is delivered directly to viewers over the Internet via services like Netflix, Hulu, YouTube and AppleTV, is becoming increasingly popular. While they do require a broadband Internet connection, their services, which often come at a fee, siphon revenues from the cable TV's pay-per-view and video-on-demand offerings. One study predicts IPTV will account for 7.3% of TV households by 2016.[13]

Lastly, even though LUS Fiber banked on the shift to Voice over Internet Protocol (VoIP) platforms that 10 years ago were gutting phone companies' traditional landline revenue, it failed to foresee that the VoIP market would be dominated by third parties such as Skype. Nor did it foresee the outright "cord-cutting" resulting from wireless services. So, unsurprisingly, LUS Fiber's own VoIP telephone services have not generated anywhere near the revenue expected in the feasibility study, which projected LUS Fiber would win 30% of the telephone market.

Moreover, the fact is that when LUS Fiber launched in 2007, it was actually entering a mature market. Multichannel TV—one of the three service sectors LUS Fiber had chosen to enter—had reached between 80 and 85% penetration nationwide. Likewise, telephone service—a second sector—was being overtaken by wireless alternatives, which by 2007 had also reached about 85% penetration. While total broadband household penetration had reached about 50% nationwide by 2007, a more significant number is that, among households that had PCs, broadband penetration had reached 65% and was expect to reach 70% by 2008.

Lafayette's population and per capita income profile is above national averages, so it is reasonable to assume that cable and wireless penetration were also at or above the national average. This means that LUS Fiber's least costly sales—to households purchasing broadband for the first time—represented a far smaller portion of the total market than was the case when LUS was first

installing electricity. Switching other customers from incumbents would turn out to be far more costly.[14]

Fierce and established competition was not the only problem. When LUS was being proposed, the speed of fiber connections was touted as a winning advantage. Even today, proponents of municipal broadband center their arguments on fiber's bandwidth capabilities. True, fiber has the capability to deliver higher speeds than coaxial cable and wireless, and LUS Fiber did have an advantage in speeds, with a top offering of 100 Mb/s, largely aimed at businesses. But Cox surpassed this bandwidth on download in February this year. For most consumers, as long as fiber-like download speeds can be delivered, the delivery mechanism likely does not matter. (Few domestic consumers require upload speeds to be as high as download speeds.)[15]

Having assumed in its business plan that it was going to have to beat back demand, LUS Fiber found that it cost up to $200 to acquire a new customer.[16] (These costs come in promotion, advertising, discounts, installation, set-top box leases and other ancillary costs.) That makes customer retention almost as important as acquisition. For a service provider, it's a net loss if a subscriber drops service before the cost of acquisition is recouped. That's why a high "churn" rate can be devastating financially. Unsurprisingly, service providers are likely to make aggressive counter-offers to customers who call to drop service. The cost of the extra discount trumps the costs of replacing the customer outright. Once LUS Fiber launched, Cox responded aggressively by cutting prices and offering new triple-play packages. According to the ILSR report on Lafayette's municipal broadband, if a Cox subscriber threatened to switch, Cox would counter-offer with a more attractive offer, such as extending a discount or adding a service tier.[17]

For competitive reasons, LUS Fiber, like all broadband providers, will not disclose its churn rate. There is no doubt it understands its significance; the terms of the triple-play packages LUS offered until late last year required customers to pay early termination fees (ETF) of $150 to $300 if they drop service before the contract period elapses. This is ironic given that private service provider ETFs have long been attacked as unfair by supporters of public broadband. LUS Fiber made no promises at the outset, but many municipal broadband supporters claim that public broadband—because it is not beholden to shareowners and profits—will not need to rely on ETFs. The realities of the high-cost customer acquisition prove otherwise.

The only real similarity between broadband and classic utilities is that the underlying infrastructure is expensive to build. Even here, however, superficial similarities mask a crucial difference. Utilities require high investment up front, low investment thereafter combined with lengthy amortization of infrastructure. As LUS's experience demonstrates, broadband requires not only high investment up front but ongoing significant investment thereafter (see Table 1).

Unlike water and power, broadband technology cycles are rapid and require wholesale network upgrades and changeouts. To be sure, water and power systems are repaired and upgraded regularly, but they are not replaced by entirely new technology platforms every decade. This makes for a more capital-intensive industry. Each time, old network technology had to be replaced.

Copper gave way to coax; coax is giving way to fiber. Between 1984 and 2012, wireless networks went from analog radio to its fourth generation of digital technology. That averages to a major network changeout every seven years.

The telecommunications industry, through its constant investment and development in new technology, has reached the point where it can support a range of broadband delivery mechanisms that possess a number of qualitative differences. Unlike water and electricity, which the utility controls at the front end, broadband providers are part of a supply chain. They facilitate the transmission and interaction of differentiated content and applications that have various degrees of value.

What's more, different platforms are constantly leapfrogging each other. Cellular service is superior to yesterday's wireline, copper-based dial tone. WiFi data is superior to cellular data, at least today. Tomorrow that might not be true. Then, new technologies like WiMax might mean more improvement. Competition, combined with rapid technology cycles, presents problems to any subsidy scheme, because at any moment, that subsidized platform, and all its associated sunk costs, can be circumvented.

The takeaway for cities considering municipal broadband is that they will not just be competing against a cable company and a weaker phone company DSL entrant. Municipal broadband operations will enter an unpredictable market that is under attack on several fronts—including wireless and satellite services. Meanwhile, many of the ancillary services offered by landline providers, such as telephony and television, are also subject to competition. Thus, while broadband revenues are increasing year to year, landline operators, of which municipalities will count themselves, will be fighting over decreasing market share. For competitive reasons, LUS Fiber does not disclose market share (neither do Cox or AT&T), but even if it reached its goal of 50% of the cable TV market share in Lafayette, because its original plan never accounted for competition from anything other than wireline broadband, its revenues would still be less than expected because a sizable percentage of the overall market will have been captured by satellite and IPTV.

To sum up, it is clear that despite what pundits such as Susan Crawford say, most local broadband markets are hugely competitive. Broadband is not a utility. In remote rural areas with lower penetration rates, municipal systems would likely have lower marketing costs, though the costs of cabling would be higher (but some communities may be willing to pay these higher costs). In medium and large cities, penetration rates are higher and municipalities will find themselves competing with incumbents who have already sunk significant resources into developing their customer base and who are willing to continue to make investments to improve their services and cut costs. Ultimately, competition from other landline operators as well as services using alternative delivery platforms (cellular, satellite) will make it a challenge for municipal broadband operations like LUS Fiber to achieve the revenue levels needed to meet infrastructure expenses.

Part 5

Does LUS Fiber Serve Unmet Needs?

Independent of the claim that broadband is a utility, proponents argue that municipal broadband is necessary to provide affordable high-speed Internet access to underserved communities, especially low-income households. Indeed, this is muni broadband's primary raison d'etre. But is it achieving it?

In the case of Lafayette, it could plausibly be argued that LUS Fiber's entrance into the market helped drive down prices—at least in the short term. Shortly after LUS entered the broadband market, Cox cut its rates and has kept them competitive with LUS ever since. (Paradoxically, Cox's aggressive response made it difficult for LUS Fiber to hold to its goal of keeping rates 20% lower. But that should not be held against LUS Fiber: if its presence drove Cox to lower its rates, then it can hardly be accused of failing to lower rates.)

But Cox has now introduced 150 Mb/s download service in regions of the country, including Lafayette, at prices substantially less than LUS Fiber's.[18] This suggests that any effect LUS Fiber had on prices was short term: in the medium to longer term, the much larger and more innovative private company was always going to improve its offering and drive down prices in order to remain competitive with other providers.

And what about those lower end customers? In its first years of operation, LUS Fiber attempted a $19.95 Internet only plan, but found that it could not afford the cost of running fiber to a residence that was going to generate revenue that low. It then offered a 3Mb/s connection at $19.95 for an introductory period, but that required purchase of a larger triple-play package. LUS ultimately ended the introductory offer in August 2012. The cheapest Internet-only rate LUS Fiber offered was $34.95 for a 15 Mb/s.

For whatever reason—most likely, the commercial realities discussed above—LUS Fiber has decided not to offer a low-cost high-speed Internet service to poor households. At the end of 2012, it stopped offering triple-play packages combining TV, phone and Internet. Instead, it has chosen to offer a range of services that are broadly comparable to those already offered by private providers, competing with them for market share.

LUS Fiber's rates are not significantly cheaper than Cox. While LUS offers a $19.95 per month Internet rate for 3 Mb/s up- and download, customers must purchase a cable TV or phone package

to be eligible for the deal. LUS Fiber's lowest cable rate is $20.49 for a paltry 20 TV channels. Its lowest phone rate is $15.95 a line with long distance at 5 cents per minute.[19]

With no triple play, the cheapest assembly of services a would-be customer can put together, based on LUS Fiber's rates as of July 2013, would cost $56.39 a month.

Cox's a la carte rates are higher, but available without restrictions and offer better value. While its lowest priced cable package is $34.99 a month, it includes 180 basic cable TV channels. Its lowest Internet rate is $43.99, which offers 5 Mb/s downstream. Its most economical phone package is $15.95. This adds up to $90.97.

As of July 2013, however, Cox's lowest price triple-play package was being promoted at $99.99 for first 24 months, with a $142.97 rate thereafter. This package includes 230+ TV channels with HD, digital music, an on-demand service, 25 Mb/s Internet, and local phone service with features including call waiting, caller ID and busy line redial.[20]

By contrast, a comparable package from LUS Fiber, which would have to be assembled a la carte as it no longer offers triple-play packages, would cost $151.89 a month. This breaks out to:

- $80.99 for 280 digital cable channels, including HD channels, digital music channels and access to Video On Demand and Pay-Per-View;
- $34.95 for 15 Mb/s Internet (download & upload)
- $35.95 for local and long distance phone service plus a selection of calling features

More pricing data can be found in Appendix B. While there are differences in Internet speeds and cable channel packages, it is difficult to find much difference in pricing. LUS Fiber is falling short of delivering phone, cable and Internet at substantially less than established market prices.

Programming Acquisition Costs Are Significant

Another commercial reality faced by LUS Fiber is the cost of television programming acquisition—the money cable companies pay to broadcast and cable networks for the rights to carry their television shows. This remains the most volatile cost in the cable industry today and the biggest factor in rate increases.

At the time the LUS Fiber feasibility study was prepared, Cox Cable, Lafayette's incumbent, was reporting that its programming acquisition costs were increasing 11% annually. Charter Communications reported 8%. Comcast, the nation's largest company, and presumably with the size to negotiate the best terms, was reporting annual increases of 6.1%.[21]

Despite these real-world numbers, LUS Fiber put its faith in a plan that predicted just 4% annual growth in programming costs. Hence, when LUS Fiber began attributing rate increases to "unexpected" increases in programming costs, it should not have been so shocked.

Part of the cost problem was that LUS Fiber had banked on joining the National Cable Television Cooperative (NCTC), a coalition of small cable television companies that have banded together to use their collective buying power to negotiate lower prices with cable networks. LUS Fiber, however, was denied entry. The NCTC gave no reason, but supporters of municipal broadband suggest their membership was blocked by Cox and Charter Communications, who are also NCTC members. As a result, LUS Fiber had to negotiate individually with cable and broadcast networks, which likely led to higher costs than if they had been part of NCTC.[22]

But this excuse only goes so far. Anticipated programming costs in LUS Fiber's business plan were nonetheless set too low. If, as members of NCTC, Cox and Charter were seeing annual increases of 11 and 8%, what made LUS Fiber believe it could expect 4%? It would have faced higher-than-expected costs one way or another.

The takeaway is that municipal broadband consultants and enthusiasts routinely play down the cost of programming acquisition. These costs are the most difficult for cable and satellite companies to control. Programming acquisition costs are behind the occasional brinksmanship that occurs in the industry, such as when Dish Network pulled AMC Networks from its channel line-up, and when NFL Networks protested over the decision by a number of cable companies to place the channel in a higher-priced tier.

Municipalities ignore this inflation at their peril. Ashland Fiber Networks, the municipal broadband network in Ashland, Oregon, also underestimated its programming costs. To make up these costs, it had to place popular channels ESPN, FX and TNT into a higher-priced tier, competitively hurting itself against its cable, satellite and DSL competitors, which kept them in their expanded basic plans.[23]

Part 6

Community Economic Development

So, if broadband is not a utility and municipal broadband is not offering a special service to disadvantaged communities, how can its status as a non-commercial enterprise run by local government be justified? Does muni broadband deliver additional economic benefits to the community that justify its taxpayer support?

To date, LUS has not offered any objective yardstick against which any community economic benefits could be evaluated. So, we are left to ponder what those benefits might be.

One possibility is that LUS Fiber is intended to attract business to Lafayette. It may well have served that purpose. Indeed, two companies have directly linked their decision to locate in Lafayette to LUS Fiber. Pixel Magic, a special effects company, set up an operation in Lafayette to support film and TV productions going on in the southeast U.S, bringing 100 to 200 jobs. And Tapes Again, a 20-year old Boulder, Colorado company that does CD and DVD duplication, announced a move to Lafayette in February 2013 (the number of potential jobs the business represents was not disclosed).[24]

Proponents have made attempts to associate other examples of local business development to LUS Fiber. For example, in its discussion about the economic benefits of fiber to the community, the ILSR report mentions a decision by NuComm International to relocate to Lafayette, bringing 1,000 new jobs. However, further examination shows NuComm made the decision in 2006, before ground had broken on LUS Fiber and while there were still legal questions as to whether it would launch at all. Gov. Kathleen Blanco also committed $1 million from the state's Rapid Response fund to lure the company to Louisiana, which may have been a more significant factor in NuComm's location decision. Indeed, the NuComm statement released at the time makes no mention of the FTTH network being a factor in the decision.[25]

Moreover, while LUS Fiber and its supporters like to take credit for the city's recent uptick in population, jobs and employers, there are other factors at work, including the current oil and gas boom and the general economic growth occurring in the South, particularly along the Gulf Coast. Urban development expert Joel Kotkin found that the population of the coastal states from Texas to Florida grew by 14% over the past decade, more than twice the national average. Although the major cities in the corridor, Houston, Tampa and post-Katrina New Orleans (135 miles east of

Lafayette) saw the most growth, Kotkin identifies Lafayette as among the smaller cities in the region that, as part of this economic boom, are growing much faster than the national average.[26]

Drilling down, we find that Lafayette's 2009 population of 121,000 had grown 9.7% since 2000. Median household income in 2009 was $44,977, compared to the state average of $42,492, and a 25% increase since 2000. Over the same nine-year period, median home values grew to $166,800 from $99,800.[27] This is despite the impact of Hurricanes Katrina and Rita in 2005.

These figures match those for similar-sized cities in the region. For example, Beaumont, Texas, a city of similar size 120 miles west of Lafayette, is seeing nearly identical economic growth without the "benefit" of investment of municipal FTTH.

Beaumont's and surrounding Jefferson County's 2009 population was 118,000, up 4% from 2000. Median age is 34 compared with Lafayette's 33. Over that time, median household income grew 24% to $40,435 from $32,559, and home values grew by more than 50%, to $98,000 from $62,000.[28]

To the east of Lafayette, Tallahassee, Florida, another mid-sized city in the Third Coast corridor, and surrounding Leon County saw population grow by 20% to 181,000 between 2000 and 2011. Median household income grew 12% over the same period to $34,400 (reflecting the lower age median of 26) and home prices nearly doubled to 186,000 from $98,000.[29]

Far from a rural backwater reborn because of its broadband foresight, Lafayette's growth is tied to a regional economic engine powered by the growth of basic industries: manufacturing, agriculture and, most significantly, energy.

> *The American economy, long dominated by the East and West Coasts, is undergoing a dramatic geographic shift toward this area. The country's next great megacity, Houston, is here; so is a resurgent New Orleans, as well as other growing port cities that serve as gateways to Latin America and beyond. While the other two coasts struggle with economic stagnation and dysfunctional politics, the Third Coast — the urbanized, broadly coastal region spanning the gulf from Brownsville to greater Tampa — is emerging as a center of industry, innovation and economic growth.*[30]

Cited by Kotkin, the magazine *Site Selection* ranked Louisiana seventh among the 50 states in terms of attractiveness to investors and third in terms of where new plants were being built.[31]

In other words, there are plenty of factors that are responsible for economic growth in Lafayette.

In addition, it is arguably a reach to use the site selection decision of two small companies as justification for a $125 million fiber optic system. LUS Fiber never disclosed the terms of the Pixel Magic contract, but Pixel Magic agreed to link its name with LUS Fiber and endorse the municipal service. In the business world, such promotional arrangements usually involve some level of consideration, such as a discount or rebate, as they give a marketing boost to the service provider.

So, while LUS Fiber lays claim to bringing two employers to Lafayette, it is far from clear that those benefits exceeded the costs that have been and will be paid by local taxpayers. Moreover, there are adverse distributional effects. While a few people will get jobs and some parts of the local economy will experience an uptick in activity, most local taxpayers will not benefit at all from Pixel Magic, Tapes Again or NuComm. In other words, a few people will benefit at the expense of the many. That seems antithetical to the community development objective.

Part 6

The Future of LUS Fiber

Nine years later, the idea that competitive broadband services fits easily into a municipality's scope of operations, if anything, has become more difficult to defend. After five years of operation, while LUS Fiber has completed construction and is currently cash flow positive, it still faces a mountain of debt on which payments become due in 2014. This reckoning will only compound the financial and service issues that already have surfaced.

- Lafayette's city financial report for 2012, released May 2013, showed that LUS Fiber was significantly behind its five-year business plan in terms of revenues and assets.
- For fiscal year 2012, its sixth year of operation, LUS Fiber's operating expenses exceeded operating revenues by $5.3 million. Its net loss was $11.9 million. Its net deficit (assets against liabilities) was $40.7 million. LUS Fiber's original plan called for it to break even in its sixth year and have a net surplus from operations of $6.6 million.
- LUS Fiber's cable TV service is not as competitive with private sector offerings; it offers fewer high-definition channels, does not offer portable viewing options such as HBO Go, and has no applications that integrate smartphone and other wireless devices with cable set-top boxes.
- LUS Fiber programming acquisition costs are tracking with the industry average of between 6% and 11% a year, not 4% as predicted in its business plan.
- While LUS Fiber for several years offered faster Internet speeds than Cox Cable, Cox recently began offering faster download speeds and lower prices than LUS.
- LUS Fiber has not been immune from the quality of service issues that affect commercial cable providers.

LUS Fiber, like its commercial competitors, faces an uncertain future as satellite providers and "over-the-top" (OTT) Internet Protocol TV (IPTV) eat into incremental revenues. Despite a series of surprises and setbacks, LUS Fiber still has a few things going in its favor. It has completed its network, it is cash flow positive and its revenues are still climbing. Its future depends on whether it can continue to increase revenues while getting expenses under control. As we have seen, this will not be easy.

Applications and content providers such as Google, Facebook, Apple, Amazon and Netflix, not to mention scores of smaller companies, have truly begun to monetize their services. When LUS

Fiber was launching, there were still legitimate questions about how these content companies would actually use the Internet to make money. For the most part, they've cracked that nut.

For LUS Fiber, this is a double-edged sword. On the one hand, it can rightfully brag that its FTTH system is better suited for multistream IP video. On the other hand, IPTV directly competes with cable TV on streaming and video-on-demand offerings, yet LUS Fiber gets no compensation when OTT services use its resources.

What private sector broadband service providers find troubling is that the business models of these companies seem to be predicated on their riding the broadband infrastructure for free, or at best, at minimal cost to themselves, hoping that political and market pressure forces service providers to transfer that cost elsewhere.

To some extent, this is working. The network neutrality policy favored by former FCC Chairman Julius Genachowski prohibits telephone and cable companies from charging heavy content providers extra for network management or other quality of service enhancements. Consumers, on the other hand, react unfavorably when service providers try to institute bandwidth caps or phase out price packages that allow unlimited bandwidth.

So do many supporters of municipal broadband, which puts municipal operations like LUS Fiber in a difficult position. Groups like Lafayette Coming Together tout municipal broadband as socially progressive. Because they are not profit-driven corporations, government broadband, they say, will happily endorse network neutrality and other "free and open access" policies that they regard as pro-consumer but that the private sector resists.

Already LUS Fiber has introduced early termination fees (ETFs). While its management never officially endorsed network neutrality, it's clear its most vocal community supporters expect it to honor the concept. As will be discussed in the next section, that may not be possible.

What are some likely outcomes for the future of LUS Fiber?

A. LUS Fiber Becomes What It Has Beheld

Municipal broadband projects like those in Lafayette are launched with the moral fervor of a revivalist meeting. In addition to promising low rates and ubiquitous service, the progressive groups say that municipal operations stand for consumer "rights" against the corporate greed of the cable and telephone companies.

But to be sustainable, LUS Fiber, like its commercial counterparts, will have to come to terms with the way services such as YouTube and Netflix have monetized their content delivery by passing the cost of their bandwidth management onto service providers.

Cable companies have proposed ending traditional unlimited "all you can use" pricing and, on a trial basis, have introduced bandwidth caps. Consumer reaction is negative, so it remains to be seen how much traction they have. The FCC has even threatened to ban the practice. Notwithstanding these problems, LUS Fiber might soon find itself joining the very cable industry it was created to fight in an effort to gain more freedom over its ability to price service and collect fees from content delivery.

Political aspects aside, this would raise governance questions as well. What happens when a municipal operation's business practice becomes no different than the incumbent? Remember, the justification for public funding is based on the idea that municipal broadband would be different—something of an anti-cable company. That justification gets shaky if the municipality begins operating just like another Cox or Comcast, with little difference in business strategy or model. However, it might be the only way LUS Fiber can achieve long-term viability. Yet, at the same time it will always have the moral hazard that comes with the crutch of taxpayer support. Private cable companies rely on investor capital, and those shareowners expect return on their risk. Municipal companies have no such limit on funding, nor any such level of accountability to owners.

B. LUS Fiber Shifts its Marketing Focus to Local Businesses

Using its FTTH network to attract and keep businesses was always part of LUS Fiber's mission, but it was presented as a secondary goal to its primary focus on providing a high-speed, less expensive alternative to incumbents Cox and AT&T. Business sales, however, can provide higher revenues with less expense. While an average household may mean $50 to $75 a month for LUS Fiber, minus upfront costs, a small business can deliver twice as much revenue at equal or less upfront cost. A large customer with heavy bandwidth needs, such as Pixel Magic, is a windfall. That's why it can be a tempting path to shift more resources into attracting large accounts. Revenues will grow and expenses will stay even or drop.

On the surface, there is nothing wrong with this strategy. In fact, in the private sector, it's business-as-usual. The rationale for municipal broadband, however, is that it's not about business-as-usual. Municipal broadband is sold on the idea of reaching consumers and small businesses that the private sector is said to be ignoring or who can't afford commercial broadband rates. At the same time, a company such as Pixel Magic, which needs to transfer high bandwidth files to offices in California and elsewhere through the day, would attract bids from all major service providers in Lafayette, and perhaps some national Internet Service Providers such as Verizon and Sprint. Local ISPs in Lafayette may have also been in the running. All of these providers would have offered the required fiber connection—so it isn't clear how a publicly owned provider adds economic value.

A second problem when it comes to the pursuit of this type of business is that LUS Fiber can rely on tax subsidies to underprice competitors and win business. Once the customer is captive, it can later adjust rates. It can also use big taxpayer subsidized wins to build credibility in the market. And while consumer rates are published, large business accounts can be negotiated. City

government, cities and competitors don't know how much—or how little—a large business might be paying.

When a government-funded broadband operation is under financial pressure, there's a temptation to throw all effort into landing a handful of large accounts. In the short term, it shows a spike in revenues on the balance sheet. In the long term, the hope is that the sales can be leveraged to create a more sustainable revenue stream. The Utah Telecommunication Open Infrastructure Agency (UTOPIA), a statewide government-operated fiber optic network in Utah, yielded to this temptation as its own losses began piling up. To anchor service in a given area, an audit showed that UTOPIA offered its largest customer(s) deep discounts. The peril is, as UTOPIA learned, if you can't build additional business off your initial discounting, you continue to lose money.

Look for LUS Fiber to put more resources into business sales. There are signs it is already putting less effort into retail marketing. LUS Fiber no longer offers triple-play packages that combine cable TV, Internet and phone service into an economic bundle. Meanwhile, basic marketing tasks are being neglected. At the time this study was researched in early 2013, the triple-play offers were still on the LUS Fiber website, even though they had expired in May 2012. They have since been removed.

C. The City Government Props Up LUS Fiber, While Cutting Corners and Transparency

Even as LUS Fiber boasts about increasing revenues, more of those revenues are coming directly from the city treasury.

While the LUS electric utility is not allowed to use its resources to subsidize LUS Fiber, there are indications that it might be bending the rules. For the upcoming 2013–14 fiscal year, Lafayette Consolidated Government's Utilities Department—that is, LUS Fiber's parent LUS—is budgeting $1.3 million for telecom services from LUS Fiber. This compares to LUS's $484,000 in telecom spending projected for the current fiscal year ending October 31.[32] The proposed 185 percent increase outpaces all other non-personnel line items, most of which remain flat or decrease. While the parent LUS utility can be viewed as a legitimate telecommunications customer, and it might be desirable for the city to purchase services from its own enterprise, the size of the increase raises questions as to how what services LUS will be paying for, why the purchasing is so much higher than the previous year, and if the city could have received a better deal from the private sector.

The hefty increase in purchases becomes even more questionable because LUS Fiber owes $35 million to LUS. At the very least it creates the perception that LUS—a government entity, remember—is inflating its purchases to offset LUS Fiber's debt.

In addition, there are other more subtle ways LUS Fiber might be piggybacking on its parent. For example, the LUS electric utility includes LUS Fiber promotional material with monthly bills, substantially reducing, if not eliminating, LUS Fiber's direct mail costs. Over time, this government subsidy provides LUS Fiber a significant advantage over the private sector.

Does LUS Fiber pay an appropriate portion of its website support, programming and customer payment processing? How are employee resources allocated? Last year LUS Fiber consolidated its customer service centers and co-located them with electric utility service and payment centers. Does LUS Fiber compensate the electric utility for use of this space?

Admittedly, some of this is difficult or even impossible to account for or audit. That in itself creates a temptation. Municipal proponents may claim these observations are picky or insignificant. Yet they are all costs that private sector competitors must pay. To be fair, the transparency of LUS Fiber, along with the entire Lafayette Consolidated Government, is commendable. Yet because municipal broadband is closely tied to other municipal utility operations, there will always be transparency issues. That's just another reason to be wary of municipal broadband.

D. LUS Fiber Sells Assets

If it can't get expenses under control, the most viable exit strategy for LUS Fiber would be sale. An advantage here is that the network is complete. The total number of customers and average revenue per user, a number known only to LUS Fiber, would also factor in its overall value. The city of Lafayette would stand to recover most, if not all, of its investment under this scenario.

Provo, Utah took this path when it realized that iProvo was never going to reach its financial goals. In April 2013 the city sold the network, which had cost $39 million to build, to Google for $1. While Google has agreed to complete the network within five years at an expected cost of $30 million, it did not assume the city's debt. Provo taxpayers will still be paying that off.

While there may be some benefit to Provo residents, the Provo outcome also shows how the financial consequences of municipal broadband can lead to an uneven playing field in the private sector. Provo's goal was to provide a publicly funded nonprofit alternative to commercial service providers, a notion that raises questions of unfair competition in and of itself. While the municipal network is now in private sector hands, the cost of construction, as well as acquisition of current customers, were all underwritten by Provo residents. In essence, Google is launching operations in Provo free of $39 million in sunk costs. Its broadband competitors have no such advantage.

E. LUS Fiber Sustains Outright Failure

It's fair to say that LUS Fiber has thus far avoided a reckoning that cities such as Ashland, Lebanon, Marietta and Dalton, Georgia have faced. The operation is not about to go belly-up leaving city taxpayers with a huge bill and little else.

But that's not to say management won't be sweating the next few years. It is imperative that LUS continues to grow revenues while bringing its costs under control. If it cannot do that, it will eventually face a reckoning.

Part 7

Conclusion: Implications for Municipal Fiber Projects

While LUS was ramping up, a number of cities had already launched systems. The first were in smaller towns—Marietta, Georgia; Kutztown, Pennsylvania; Lebanon, Ohio—where the incumbent cable companies had a poor reputation for service. These were followed by larger and more expensive projects in cities such as Tacoma, Washington; Ashland, Oregon; and Provo, Utah. Clocking in with an initial budget of $110 million, LUS Fiber in Lafayette in 2004 was to be the largest and most ambitious municipal broadband system in the U.S. to date.

Yet as city managers were selling the project to Lafayette voters,[33] problems with municipal broadband were beginning to surface elsewhere. The municipal systems that had been launched began to fall further and further behind on their plans, failing to garner the revenues needed to continue construction and pay debt. The number of failures began to grow; Marietta, Georgia sold its municipal fiber network at a $24 million loss after signing up just 180 customers in eight years of operation.[34]

Other municipal problems have been well documented. Lebanon, Ohio sold its municipal system to Cincinnati Bell. Ashland, Oregon suspended construction when its debt hit $15.5 million, forsaking the low-income neighborhoods it had been financed to serve and instead chose to compete only in upscale parts of the city—and still failed to gain traction.[35] Provo's FTTH network, iProvo, never got near its break-even point. The city sold the network to Google for $1, while retaining liability for its $39 million cost. Faced with accelerating costs, Corpus Christi, Texas halted construction of a municipal wireless network and converted existing infrastructure into a specialized wireless network serving city services only.

Larger metropolitan areas such as Houston, Chicago, New York, San Francisco, San Jose and Philadelphia shelved plans for municipal wireless networks after determining they were cost-prohibitive and redundant, especially given the number of free WiFi hotspots that were being set up in libraries, coffee shops, hotel lobbies, bars and restaurants. Other cities, like Addison, Texas, claimed to have successful municipal wireless deployments. But on examination it turns out that these networks are concentrated in small downtown areas, malls and convention and meeting centers; few deliver quality residential or business service.

Meanwhile, state legislatures around the country, watching sub-divisions hemorrhage money on the projects and fearing taxpayers statewide would be stuck with the bill, have proposed laws that would place limits and conditions on municipal broadband projects, if not ban them outright.

Proponents, however, maintain that most of these past failures were due to political maneuverings by cable and telecommunications companies, or poor implementation of otherwise sound plans. Municipal broadband, they argue, could still be a successful and cost-effective way to deliver broadband.

Compared to FTTH projects of the past, LUS Fiber is in good shape. It has thus far navigated many of the same challenges that have faced previous efforts, while completing its build-out and achieving positive cash flow. It is not in imminent danger of collapse. But it still faces high debt and a market much more volatile and competitive than it expected. Reports that praise LUS Fiber gloss over the significance of these challenges, but cities should give them serious consideration.

To review: The presumption that broadband is a utility that leans toward a natural monopoly simply doesn't hold. There are clearly many competing technologies and new ones are being developed all the time. In large part, these facts explain why municipal broadband has been a failure just about everywhere it has been tried.

In Lafayette, municipal broadband has done little to improve access for consumers. More importantly, it has not delivered on its promise of high-speed Internet access at rates significantly lower than cable or phone companies. While there may be latent demand for additional competition, municipalities are not well placed to provide it. Indeed, it appears that most consumers prefer the offerings of unsubsidized competitors.

A far better way to increase competition and choice in municipalities that currently have only one wired broadband provider is to reduce or remove any barriers that keep private sector providers from building infrastructure. These include exploitive franchise fees, unnecessary regulatory red tape pertaining to the approval of cable rights-of-way and construction, and burdensome rules designed to inhibit construction of cell towers or WiFi antennas.

While some businesses may benefit from subsidized broadband access, they do so at the expense of other businesses and consumers who don't require the higher speeds offered. In the long run, these subsidies reduce or negate any economic gain that might come from new business.

Finally, it is important that policymakers remember consultants who specialize in creating municipal broadband business plans have a vested interest in seeing these projects move forward. They tend to present municipal broadband in its most optimistic and favorable light and emphasize technology and applications. Since many of municipal broadband's pitfalls lie in more mundane areas of operational costs, customer retention and competitive marketing, skeptical officials often lack the background or knowledge needed to raise relevant questions about a business plan. Officials looking to do greater due diligence should consider the following questions as a starting

point for a deeper examination into whether municipal broadband is the correct course for their community:

1. Do you see broadband as an infrastructure business or a service business? Does its value proposition lie in its 100 Mb/s all-fiber connections, or the delivery of quality cable, phone and high-speed Internet service?

2. In an Oct. 2011 financial analysis of the cable/satellite TV industry by International Strategy and Investment Group, authors wrote that cable TV continues to face "margin headwinds" because costs are increasing 6–8% annually while average revenue per user is growing only at 3–4%. Do you agree? Does your business plan reflect these trends? If not, what is your opinion on cost trends?

3. The same report says the cable TV market is largely saturated and that subscriber growth is mostly zero sum, that is, it comes down to poaching customers from competition. Do you agree? What percentage of your customers will be first-time to broadband services? How many must you lure from cable, telco and satellite to be competitive?

4. The same report also says DOCSIS 3.0 technology materially improves HSI (high-speed Internet) by up to 10–15 times, enabling the cable operators to compete with sophisticated FTTH offerings for at least the next five years. Do you agree? Why or why not? How will this affect your positioning as an FTTH provider?

5. The LUS Feasibility Study bases its plan on reaching a 50% share of the cable TV market in Lafayette. In retrospect, was this goal overly optimistic? Would you be confident in urging cities considering municipal broadband plans to set this goal? If not, what is a realistic goal?

6. Municipal broadband proponents say FTTH attracts businesses and jobs. Does the economic value it creates justify the expense? Do you have any metrics that can accurately measure the economic value FTTH brought to their communities?

7. Will the operation be able to afford to offer value-added services such as video-on-demand services for mobile and portable devices? Will it be able to deliver applications that allow customers to program DVRs from their phones and tablets? Do you believe these features are important to maintaining a competitive service?

8. The Cable TV industry is wrestling with competition from so-called "over-the-top" (OTT) providers such as Netflix and Hulu, which cut into on-demand revenues. Commercial cable companies have broached the idea of tiered service rates and bandwidth caps, in part to recoup costs from OTT. Is this something your operation must be prepared to do? Will there be pushback from one-time supporters who believe that bandwidth caps go against the spirit of public broadband?

Appendix A

Appendix A: LUS Fiber Financial Performance Compared to 2004 Feasibility Study

Data in the tables below are taken directly from Lafayette Consolidated Government's annual audit reports, as prepared by Burton Kolder, Kolder, Champagne, Slaven & Company LLC, and from the *Feasibility Study Report: Fiber to the Home for Lafayette, Louisiana* by Dough Dawson of CCG Consulting Inc.

Table A-1: LUS Fiber Actual Financial Performance vs. Plan 2012			
Actual		**Plan**	
Operating revenues	24,041,236	Operating revenues	33,970,000
Operating expenses	29,330,826	Operating/non-operating expenses	33,968,000
Operating loss	(5,289,590)	Net income	2,000
Net non-operating revenues (expenses)	(6,622,071)	Income available for debt service	15,388
Net loss before contributions and transfers	(11,911,661)	Cash balance beginning of year	658,000
Cash flow from operating activities	6,927,545	Bond draw	-
Cash flow (used) from non-capital financing activities	(265,844)	Surplus/deficit from operations	6,584,000
Cash flow (used) from capital financing activities	(2,603,431)	Assets constructed	(4,421,000)
Cash flow from investing activities	12,103	Cash balance end of year	2,821,000
Net increase (decrease) in cash and cash equivalents	4,070,373		
Balance beginning of year	10,581,851		
Balance end of year	14,652,224		
Current assets	4,034,220		
Restricted assets	12,919,401		
Capital assets	91,682,754		
Deferred debits	3,838,913		
Total assets	112,475,288		
Current liabilities	3,552,001		
Non-current liabilities	149,637,408		
Total liabilities	153,189,409		
Net deficit	40,714,121		

Table A-2: LUS Fiber Actual Financial Performance vs. Plan 2011			
Actual		**Plan**	
Operating revenues	17,010,937	Operating revenues	29,124,000
Operating expenses	27,531,905	Operating/non operating expenses	29,505,000
Operating loss	(10,520,968)	Net income	(381,000)
Net non-operating revenues (expenses)	(5,998,335)	Income available for debt service	14,662,000
Net Loss before contributions and transfers	(16,519,303)	Cash Balance Beginning of Year	8,084,000
Cash flow from Operating Activities	2,256,274	Bond draw	-
Cash flow (used) from non-capital financing activities	158,884	Surplus/Deficit from operations	5,861,000
Cash flow (used) from capital financing activities	(13,135,413)	Assets constructed	(13,287,000)
Cash flow from investing activities	18,934	Cash Balance End of Year	658,000
Net increase (decrease) in cash and cash equivalents	(10,701,321)		
Balance beginning of year	21,283,172		
Balance end of year	10,581,851		
Current assets	2,579,972		
Restricted assets	9,626,911		
Capital assets	96,131,312		
Deferred debits	3,596,024		
Total assets	111,934,219		
Current liabilities	5,003,618		
Non-current liabilities	135,775,238		
Total liabilities	140,778,856		
Net deficit	28,844,637		

Table A-3: LUS Fiber Actual Financial Performance vs. Plan 2010			
Actual		**Plan**	
Operating Revenues	9,415,222	Operating Revenues	20,011,000
Operating Expenses	18,133,890	Operating/Non Operating Expenses	24,880,000
Operating Loss	(8,718,668)	Net income	(4,869,000)
Net non-operating revenues (expenses)	(2,326,480)	Income available for debt service	8,179,000
Net Loss before contributions & transfers	(11,045,148)	Cash Balance Beginning of Year	23,957,000
Cash flow from Operating Activities	(462,491)	Bond Draw	-
Cash flow (used) from non-capital financing activities	899,572	Surplus/Deficit from operations	53,000
Cash flow (used) from capital financing activities	(21,018,981)	Assets Constructed	(15,926,000)
Cash flow from investing activities	13,451,133	Cash Balance End of Year	8,084,000
Net increase (decrease) in cash and cash equivalents	(7,130,767)		
Balance beginning of year	28,413,939		
Balance end of year	21,283,172		
Current Assets	3,862,432		
Restricted assets	19,252,620		
Capital Assets	100,018,053		
Deferred debits	3,766,865		
Total Assets	126,899,970		
Current Liabilities	8,417,198		
Non-current liabilities	130,808,006		
Total Liabilities	139,225,204		
Net Deficit	12,325,234		

Table A-4: LUS Fiber Actual Financial Performance vs. Plan 2009			
Actual		**Plan**	
Operating Revenues	4,061,048	Operating Revenues	10,361,000
Operating Expenses	9,572,770	Operating/Non Operating Expenses	15,295,000
Operating Loss	(5,511,722)	Net income	(4,934,000)
Net non-operating revenues (expenses)	146,017	Income available for debt service	1,545,000
Net Loss before contributions and transfers	(5,365,705)	Cash Balance Beginning of Year	38,430,000
Cash flow from Operating Activities	(3,018,092)	Bond Draw	-
Cash flow (used) from non-capital financing activities	(1,778,220)	Surplus/Deficit from operations	1,545,000
Cash flow (used) from capital financing activities	(47,506,203)	Assets Constructed	(16,018,000)
Cash flow from investing activities	32,829,283	Cash Balance End of Year	23,957,000
Net increase (decrease) in cash and cash equivalents	(19,473,232)		
Balance beginning of year	47,947,171		
Balance end of year	28,413,939		
Current Assets	3,314,429		
Restricted assets	41,002,808		
Capital Assets	83,281,496		
Deferred debits	3,958,307		
Total Assets	131,557,040		
Current Liabilities	8,181,647		
Non-current liabilities	124,655,479		
Total Liabilities	**132,837,126**		
Net Deficit	1,280,086		

Table A-5: LUS Fiber Actual Financial Performance vs. Plan 2008			
Actual		**Plan**	
Operating Revenues	2,120,277	Operating Revenues	2,173,000
Operating Expenses	4,539,268	Operating/Non Operating Expenses	9,262,000
Operating Loss	(2,418,991)	Net income	(7,089,000)
Net non-operating revenues (expenses)	(92,765)	Income available for debt service	(3,138,000)
Net Loss before contributions and transfers	(2,511,756)	Cash Balance Beginning of Year	89,695,000
Cash flow from Operating Activities	(1,836,668)	Bond Draw	-
Cash flow (used) from non-capital financing activities	409,595	Surplus/Deficit from operations	(3,138,000)
Cash flow (used) from capital financing activities	(25,086,527)	Assets Constructed	(48,128,000)
Cash flow from investing activities	50,271,262	Cash Balance End of Year	38,429,000
Net increase (decrease) in cash and cash equivalents	23,757,662		
Balance beginning of year	24,189,509		
Balance end of year	47,947,171		
Current Assets	6,214,714		
Restricted assets	88,113,232		
Capital Assets	37,264,879		
Deferred debits	4,168,559		
Total Assets	135,761,384		
Current Liabilities	11,309,771		
Non-current liabilities	125,314,229		
Total Liabilities	136,624,000		
Net Deficit	862,616		

Table A-6: LUS Fiber Actual Financial Performance vs. Plan 2007			
Actual		**Plan**	
Operating Revenues	-	Operating Revenues	1,048,000
Operating Expenses	98,526	Operating/Non Operating Expenses	2,406,000
Operating Loss	(98,526)	Net income	(1,358,000)
Net non-operating revenues (expenses)	1,747,666	Income available for debt service	(893,000)
Net Loss before contributions and transfers	1,649,140	Cash Balance Beginning of Year	-
Cash flow from Operating Activities	(32,232)	Bond Draw	110,535,000
Cash flow (used) from non-capital financing activities	-	Surplus/Deficit from operations	(893,000)
Cash flow (used) from capital financing activities	112,360,504	Assets Constructed	(19,947,000)
Cash flow from investing activities	(88,138,763)	Cash Balance End of Year	89,695,000
Net increase (decrease) in cash and cash equivalents	24,189,509		
Balance beginning of year	-		
Balance end of year	24,189,509		
Current Assets	5,720,467		
Restricted assets	109,410,183		
Capital Assets	893,401		
Deferred debits	4,298,938		
Total Assets	120,322,989		
Current Liabilities	2,083,856		
Non-current liabilities	116,589,993		
Total Liabilities	118,673,849		
Net Surplus	1,649,140		

Appendix B

Appendix B: Comparison of LUS and Cox Services and Rates

A. LUS Video Service Tiers & Options July 2013[36]

Basic – **$20.49**: 20 channels including local channels and The Weather Channel

Expanded Basic – **$59.99**: 80+ channels

Digital Access – **$61.99***: 210+ digital channels including all Expanded Basic channels in digital format, Basic and Expanded Basic High Definition (HD) channels, digital music channels and access to Video On Demand, Pay-Per-View, Interactive Program Guide and more. HD Digital Receiver rental required.

Digital Plus – **$80.99***: 280+ digital channels including all Expanded Basic channels, an additional 60+ channels, 40 HD channels, digital music channels and access to Video On Demand, Pay-Per-View, Interactive Program Guide and more. HD Digital Receiver rental required.

Digital Hispanic Tier – **$85.99***: 290 channels that include nine Spanish-only channels and Latin music channels plus HD, Video On Demand, Pay Per View, Interactive Program Guide and more. HD Digital Receiver rental required.

Premium Move Suites: HBO – **$16.99**; Cinemax – **$11.99**; Showtime – **$13.99**; Starz! / Encore – **$11.49**. Subscription requires Digital Access or Digital Plus service.

Equipment Rental: HD Digital Receiver (required for Digital Access & Digital Plus service) – **$7.99**; HD / DVR Digital Receiver (requires DVR Service) – **$7.99**.

Digital Video Recorder Service: Whole Home DVR Service – **$9.95**. Set and access recordings from any TV in the house with an HD/DVR Digital Receiver PLUS manage recordings online with RemoteDVR. Requires subscription to Digital Access or Digital Plus.

*Video tier prices are cumulative. Monthly rates shown are available to residential customers only and do not include required taxes or fees.

B. LUS Internet Rates, Speed Levels & Details[37]

3x3 (3 Mbps download & upload) – **$19.95 (**Only offered as part of Introductory Combos with Phone or Basic cable. According to LUS website, this offer expired August 31, 2012.[38])

15x15 (15 Mbps download & upload) – **$34.95**

40x40 (40 Mbps download & upload) – **$49.95**

75x75 (75 Mbps download & upload) – **$99.95**

100x100 (100 Mbps download & upload) – **$199.95**

All Internet service packages include:

- Up to seven email accounts with two GB storage each
- Webmail access that includes personal calendaring, IM capabilities and file sharing
- Personal Web space up to 70 MB
- Access to the 100 Mbps Peer-to-Peer Community Intranet
- Direct Ethernet connection (no modem needed)
- ZoneAlarm Security Suite including virus protection, spam filter, pop-up blocker and more

Monthly rates shown are available to residential customers only and do not include required taxes or fees. Internet bandwidth that the customer receives is not guaranteed and is best effort.

1. LUS Phone[39]

Digital Telephone

Basic Line – **$15.95 / line**

Includes 3-Way Calling, Call Waiting, Cancel Call Waiting, Anonymous Call Rejection, Home Intercom and 5 cents per minute long distance (Continental US).

Calling Features

Basic Phone Features Package – **$5.00**

Adds: Automatic Callback, Automatic Recall, Various Call Forwarding, Do Not Disturb, Outgoing Call Blocking, Selective Call Rejection, Selective Call Acceptance, Speed Dialing.

Premium Phone Features Package – **$13.00**

Adds: All features listed in Basic Phone Features Package plus Voicemail, Caller ID and Call Waiting Caller ID.

Additional phone features are available individually, as well, to add even more flexibility and value to your phone. See the a la carte Features section for details.

Calling Plans

Unlimited Long Distance – **$15.00**

No per minute rate charge (Continental US)

International Long Distance

Over 700 locations worldwide, no monthly fee. Per Minute Rates Vary.

800 Service

800 Basic Plan – **$5.00**

800 Directory Listing – **$5.00**

Telephone Number Change Request – **$25.00**

Directory Listings

One standard white page directory listing is available free of charge. Additional and special listings are available at the rates listed below:

- Additional Listing – **$1.50**
- Cross Reference Listing – **$1.50**
- Alternate Listing – **$2.25**
- Non-listed Number – **$3.50**
- Non-published Number – **$5.50**

Monthly rates shown are available to residential customers only and do not include required taxes or fees. Subscriber to provide the correct equipment (caller ID display unit or phone with built-in display) to view caller ID data.

2. Cox Phone and Internet Bundles July 2013[40]

Advanced TV and Internet: **$79.99/mo.** for first 24 months ($105.98/mo. reg. price). 230+ TV channels, digital music, on-demand; HD and HD DVR. 5 Mb/s Internet. No phone service

TV Essential and Internet Preferred: **$108.99/mo.** for first 24 months ($119.98/mo. reg. price). 60+ TV channels. 25 Mb/s Internet. No phone service.

3. Cox Triple Play Packages July 2013

Bronze Bundle: **$99.99/mo.** for first 24 months ($142.97 reg. price). Local phone service with features including Call Waiting, Caller ID and busy line redial. 230+ TV channels, digital music, On-demand; HD and HD DVR included. 25 Mb/s Internet.

Silver Bundle: **$114.99/mo.** for first 24 months ($167.97 reg. price). Local phone service with features including Call Waiting, Caller ID and busy line redial. 290+ TV channels, digital music, on-demand, PPV; HD and HD DVR included. 25 Mb/s Internet.

Gold Bundle: **$129.99/mo.** for first 24 months ($186.97 reg. price) for next six months, current rates thereafter; Promotion valid to 3/31/13. Phone service with unlimited long distance and

features including Call Waiting, Caller ID and busy line redial. 290+ TV channels, digital music, on-demand, PPV; HD and HD DVR included. 50 Mb/s Internet.

Platinum Bundle: **$144.99/mo.** for first 24 months ($205.96 reg. price). Phone service with unlimited long distance and features including Call Waiting, Caller ID and busy line redial. 350+ TV channels, digital music, on-demand, PPV; HD and HD DVR included. 50 Mb/s Internet.

4. Cox Video Service Tiers & Options July 2013[41]

All packages include digital music, PPV sports, parental controls and HD channels:

Economy TV (180+ channels): **$34.99/mo.** ($24.99 for first 3 months)

Advanced TV (more than 230 channels): **$63.99/mo.** ($39.99 for first 3 months). Includes on-demand.

Advanced TV Preferred (more than 330 channels): **$73.99/mo.** ($49.99 for first 3 months). Includes on-demand and one "variety pak" package.

Advanced TV Premier (more than 350 channels): **$85.99/mo.** ($61.99 for first 3 months). Includes on-demand, PPV, and variety, movie and sports channel packages.

5. Cox Internet monthly rates[42]

Essential: 5 Mb/s down, 1 Mbps up @ **$43.99** (Jan. 2012: 3 Mbps/384 kbbs $39)

Preferred: 25 Mbps down, 5 Mbps up @ **$55.99** (Jan. 2012: 15/1.5 Mbps $53)

Premiere: 50 Mbps down, 10 Mbps up @ **$67.99** (Jan. 2012: 25/2.5Mbps $65)

Ultimate: 150 Mbps down, 50 Mbps up @ **$99.99** (Jan. 2012: 50/5Mbps $95)

6. Cox Phone Rates

Starter**: $15.99/mo.** Unlimited local calling; long distance $0.18 per minute.

Essential: **$22.99/mo.** Unlimited local calling and additional features including Call Waiting, Caller ID and busy line callback; long distance $0.18 per minute.

Premier: **$29.99/mo.** Unlimited local and long distance calling (U.S. and Canada) and additional features including Call Waiting, Caller ID and busy line callback and voicemail. Online access to voicemail and other phone management tools.

About the Author

Steven Titch is an independent telecom, Internet and technology policy analyst. He is also the former editorial director of *Telephony* magazine, where he covered the development of the broadband, wireless and IT industries at length.

Endnotes

[1] Roy Mark, "Muni Wi-Fi Aims to Close Digital Divide," Wi-Fi Planet, June 24, 2005, available at http://www.wi-fiplanet.com/columns/article.php/3515561/Muni-Wi-Fi-Aims-to-Close-Digital-Divide.htm.

[2] Christopher Mitchell, *Broadband at the Speed of Light: How Three Communities Built Next-Generation Networks* Washington, D.C., Institute for Local Self-Reliance, April 2012) p. 46.

[3] Richard Burgess, "LUS Fiber officials expect to meet financial targets," *The* (Baton Rouge, La.) *Advocate*, Aug. 18, 2013, available at http://theadvocate.com/news/acadiana/6792225-123/lus-fiber-officials-expect-to.

[4] Terry Huval, e-mail correspondence with the author, Feb. 1, 2013.

[5] Mitchell, *Broadband at the Speed of Light*, p. 24.

[6] Steven Titch, "*Spinning its Wheels: An Analysis of Lessons Learned from iProvo's First 18 months of Municipal Broadband,"* Reason Foundation, December 2006, p.8, based on data from iProvo.

[7] Sonia Arrison, Dr. Ronald Rizzuto and Vince Vasquez, *WiFi Waste: The Disaster of Municipal Communications Networks*, Pacific Research Institute, February 2007, p. 28, based on data from Alameda Power and Telecom.

[8] Remarks of Burton Kolder, Kolder, Champagne, Slaven & Company LLC, auditor, as recorded in transcription of Lafayette, La., city council meeting, May 22, 2012, at approximately 6:00 point.

[9] Based on information compiled from corporate annual reports.

[10] Doug Dawson, *Feasibility Study Report: Fiber to the Home for Lafayette*, Louisiana, CCG Consulting Inc., Oct. 18, 2004, p. 5.

[11] Centris Marketing Science, as cited by Radio Advertising Bureau, "RAB Instant Background Report For Satellite Television," Jan. 23, 2004, p. 3.

[12] Investor's Business Daily, as cited by Radio Advertising Bureau, "RAB Instant Background Report For Satellite Television," Jan. 23, 2004, p. 3.

[13] Florence Le Borgne-Bachschmidt and Alexandre Jolin, World Television Market: Terrestrial - Satellite - Cable - IPTV - Markets & Data 2008-2016 23rd Edition, IDATE, September 2012, as cited by ResearchandMarkets.com, available at http://www.researchandmarkets.com/research/8n3k9w/world_television

[14] Perhaps the vocal and enthusiastic passion Lafayette Coming Together brought to the effort led many in Lafayette's government to believe there was rampant dissatisfaction with incumbents that would lead to a fast ramp-up of new subscribers. We know from LUS Fiber's revenues that this hasn't been the case.

[15] Part of the reason cable companies are able to achieve this is that digital TV formats require less bandwidth than analog signals, freeing up bandwidth for high-speed Internet. And the DOCSIS 3.0 cable modem standard boosts speeds by 10 to 15 times. All of which enables cable operators to compete with even the most sophisticated fiber offering for now.

[16] Thomas W. Hazlett and Dennis L. Weisman, *Market Power in U.S. Broadband Services*, George Mason University Law and Economics, November 2009, p. 28.Available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1525568. The same paper also cites Bernstein & Co. research that Verizon's average customer acquisition cost for its own triple play FTTH service, FiOS, was $390.

[17] Presumably these responses benefitted consumers but the ILSR report regards these tactics as unexpected and implies they are unfair. See Mitchell, *Broadband at the Speed of Light*, p. 28.

[18] As of early February, for its top-end Internet speed, 150 Mb/s download and 50 Mb/s upload, Cox rate is $100 a month. This compares to a previous offering of 50 Mb/s down and 5 Mb/s up of $95 a month, roughly the same price. LUS Fiber charges $199.95 a month for a synchronous 100 Mb/s connection.

[19] For complete LUS pricing details, see http://lusfiber.com/index.php/internet/pricing-guide.

[20] For complete details on Cox pricing in Louisiana, see http://ww2.cox.com/residential/greaterlouisiana/internet/internet-packages.cox?campcode=gntile_r_internet_preferred; 2012-13

[21] Steven Titch, *Municipal Broadband: Optimistic Plan, Disappointing Reality*, Heartland Institute, June 2005, pp. 8-9, citing respective corporate annual reports.

[22] Mitchell, *Broadband at the Speed of Light*, p. 23.

[23] Titch, *Municipal Broadband*, p. 9.

[24] "Colorado Company Moving to Lafayette," *Lafayette Daily Advertiser*, Feb. 2, 2013, available at http://www.theadvertiser.com/apps/pbcs.dll/article?AID=2013302020303.

[25] NuComm International, "Largest NuComm International Location To Open In Louisiana," Press Release, Aug. 7, 2006, available at http://mw.newsblaze.com/story/20060807130012000003.mwir/topstory.html.

[26] Joel Kotkin, "The Third Coast," *City Journal*, Vol. 22, No. 4, Autumn 2012, available at http://www.city-journal.org/2012/22_4_gulf-coast.html.

[27] Citydata.com, available at http://www.city-data.com/city/Lafayette-Louisiana.html.

[28] Citydata.com, available at http://www.city-data.com/city/Beaumont-Texas.html.

[29] Citydata.com, available at http://www.city-data.com/city/Tallahassee-Florida.html.

[30] Joel Kotkin, "The Gulf Coast is America's New Economic Powerhouse," *The Dallas Morning News*, Dec. 17, 2012, available at http://www.manhattan-institute.org/html/miarticle.htm?id=8821#.UcHXM3co7IV.

[31] Ibid.

[32] Lafayette Consolidated Government, *Proposed Operating & Capital Budget 2013–2014*, City and Parish of Lafayette, La., August 2013, pp. 217–219, available at http://www.lafayettela.gov/pdf/Finance/Budget/proposed/2014proposedbudget.pdf

[33] Mike Stagg, "Provo Mayor Billings: Fiber Debate About Economic Future of Cities," Lafayette Pro Fiber (blog), Sept. 14, 2004, available at http://lafayetteprofiber.com/FactCheck/ProvoMayor.html. The article reports on Provo Mayor Lewis Billings visit to Lafayette and his endorsement of the city's municipal broadband plan.

[34] Brenden Sager, "Marietta, Ga., to lose millions in sale of internet company FiberNet," *The Atlanta Journal-Constitution,* Knight Ridder/Tribune Business News, July 29, 2004, available at http://www.accessmylibrary.com/coms2/summary_0286-8920029_ITM

[35] Steven Titch, "The Citywide Network that Never Was," Reason.org, Sept. 26, 2006, available at http://reason.org/news/show/the-citywide-wireless-network.

[36] Source: LUSFiber website, http://lusfiber.com/index.php/video/pricing-guide, access Jan. 8, 2013.

[37] http://lusfiber.com/index.php/internet/pricing-guide.

[38] http://lusfiber.com/index.php/internet/pricing-guide/4-internet/internet/164-introductory-combos.

[39] http://lusfiber.com/index.php/phone/package-guide .

[40] Available at https://store.cox.com/residential-store/ordernow.cox?campcode=splash_r_rb_q1_ecom_010713_shopbun-btn2_gla&cc=splash_r_rb_q1_ecom_010713_shopbun-btn2_gla

[41] Available at http://ww2.cox.com/residential/greaterlouisiana/tv/tv-packages.cox

[42] Available at http://ww2.cox.com/residential/greaterlouisiana/internet/internet-packages.cox?campcode=gntile_r_internet_preferred; 2012-13 price changes tracked by author.

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