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Municipally Owned Broadband Networks: A Critical Evaluation

(Revised Edition)

By Joseph L. Bast[1]

Introduction

This analysis finds the case for municipal ownership is even weaker than it was two years ago.

Two years ago, in 2002, I weighed in on the pros and cons of municipal ownership of broadband networks. I used as a case study a fiber-to-the-home (FTTH) plan that was the subject of a referendum in three suburban Chicago communities—Geneva, St. Charles, and Batavia, the so-called Tri-Cities. At the end of the 22-page analysis, I wrote:

> Generally speaking, municipal ownership of broadband networks is probably not in the best interests of residents and most businesses, even in communities not well served today by private providers. Access to broadband services in the Tri-Cities is more plentiful than advocates of municipalization claim or admit, suggesting the real issue is not availability but *price* and who should pay it.

I commended elected officials in the Tri-Cities "for moving cautiously so far" and discussing their options with companies in their area, studying other cities, and commissioning a study of the municipalization option. I warned, "they will need to greet the finished study with healthy skepticism, since the consultants have a financial interest in advocating municipalization, but the report should provide some valuable guidance nonetheless."

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[1] Joseph Bast is president of The Heartland Institute, a national nonprofit research organization based in Chicago. A brief biography appears on page 30. Neither the author nor The Heartland Institute has a financial interest in the outcome of this debate.

Despite what I thought was the moderate tone of my report, local officials were swift and harsh in their criticism of it.[2] As I predicted, the consultants produced an uncritical report calling for a taxpayer-financed broadband system. Rather than show the "healthy skepticism" I had recommended, local officials embraced the consultants' report. But voters, not consultants and city bureaucrats or even mayors, had the last word on this subject. They rejected the broadband initiative at the polls by a vote of 60 percent to 40 percent on April 1, 2003.[3]

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This year, the advocates of municipal broadband are back again, flogging another consultant's report and once again asking voters to approve the plan by referenda.[4] This time, the plan relies on a different funding mechanism, called certificates of participation, which its advocates claim will immunize the area's taxpayers from liability in the event of cost overruns or bankruptcy.

This analysis, revised and updated to reflect national and local changes since the original analysis, finds the case for municipal ownership is even weaker than it was two years ago. Broadband services that were scarce two years ago are now plentiful and reasonably priced. New data from communities that attempted to build and operate municipal broadband systems suggest taxpayers would be very much at risk, even under the new financing scheme. The Tri-Cities proposal continues to be a useful case study and precautionary lesson for other communities with similar plans.

Summary of findings

Advocates of fiber-to-the-home (FTTH) municipal broadband systems claim a long list of benefits would accrue to local businesses and residents, including "ubiquitous" access to higher speed and more reliable broadband services, lower prices, more efficient operation of municipal utilities, and a boost to local economic development efforts. However, this analysis finds little proof to support those claims and considerable evidence in support of the following conclusions:

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[2] See Tona Kunz, "Municipal cable service knocked by think tank," *Daily Herald*, November 2, 2002; Brenda Schory, "Report: Broadband Will Not Work," *Kane County Chronicle*, October 31, 2002; Brenda Schory, "Geneva Officials Set Private Broadband Meeting," *Kane County Chronicle*, November 17, 2002.

[3] Brenda Schory, "Voters Reject Broadband, Broadband Goes Down in Flames," *Kane County Chronicle*, April 2, 2003.

[4] Approval of the referenda is required, but each city council must also take action to authorize the creation of the new utility. Oddly, voters in the city of Geneva face three referenda, none of which uses the words "broadband," "fiber optic," or "Internet." Instead, they ask voters to authorize a "community antenna television system," "a public utility for telephone service," and/or "operate for hire a public telephone service."

- Broadband services sufficient to meet the needs of residents and business are now available to nearly every residence and business in the U.S., including previously under-served areas such as the Tri-Cities.

- The speed of broadband services is rising and the price is falling, revealing the presence of fierce competition, major new investments, and continuous technological change.

- There is no evidence showing municipal investments in broadband lead to faster economic growth or higher personal incomes.

- Very few cities attempt to build and own broadband telecommunications networks, and those that have taken the plunge report higher than expected costs and large operating losses borne by taxpayers.

- Municipal broadband networks are very risky ventures owing to the cost and time required to construct the systems, legal restrictions on subsidies from other utilities, inaccurate projections of the number of consumers, and other common errors.

Generally speaking, municipal ownership of broadband networks is probably not in the best interests of residents and most businesses.

- Certificates of participation offer an alternative form of financing for municipal FTTH networks that appears to reduce the risk faced by taxpayers, but this method of financing has problems and risks of its own.

- Generally speaking, municipal ownership of broadband networks is probably not in the best interests of residents and most businesses.

1. A municipal broadband proposal

In May 2002, city officials from the Tri-Cities agreed to pay $97,500 to United Telesystems Inc. (UTI), a Georgia-based consulting firm, to study the feasibility of the municipalities constructing and managing their own broadband infrastructure system.[5] As expected, the UTI report called for the Tri-Cities to capitalize, construct, and operate a fiber-to-the-home ("FTTH") broadband network to provide the following services:

- Broadband Video Services (Cable Television)
- High Speed Broadband Internet Access
- Competitive Local Exchange Carrier Telephone Service
- Long Distance Telephone Service

[5] Tona Kunz, "Tri-Cities to Study Plan to Create Its Own Cable Company," *Daily Herald*, May 7, 2002.

- Local and Wide Area Telecommunications Networking
- Fiber Optic Transport
- Utility Management[6]

In Batavia, for example, UTI called for running 117 miles of cable past 10,098 potential residential and business customers and predicted 5,258 would become actual customers. UTI predicted most potential residential customers would sign up for TV (34 percent), while 13.1 percent would sign up for high-speed data and 7.5 percent for telephone service. Seventeen-and-a-half percent of potential commercial customers would sign up for high-speed data services and 11.3 percent for telephone service. UTI predicted 41.5 percent of potential residential consumers and 23.3 percent of commercial units would subscribe to at least one service.

Building the new utility would cost $62 million. The "total projected capital per customer service unit" for Batavia would be $3,539.

Also according to the UTI proposal, building the new utility would cost between $57 million and $62 million. The "total projected capital per customer service unit" for Batavia would be $3,539. The operating cash flow statement for Batavia projected positive EBITA (earnings before interest, taxes, depreciation, and amortization) starting in the second year and continuing through the tenth year. Total fund equity (total assets minus liabilities), however, would be negative for the entire 10-year period.

Since the last referendum was defeated in April 2003, the organization campaigning for municipalization, Fiber for Our Future,[7] has revised the plan to address what seemed to be referendum opponents' strongest argument, that local taxpayers would be at risk should the utility prove unable to compete with private broadband service providers.

While the UTI proposal appears to remain the plan under consideration, a new consultant, Aggregate Networks LLC, was asked to come up with an alternative financing vehicle. Aggregate Networks is a small business located in Lisle, Illinois that advises private and public entities and brokers financing for broadband networks and initiatives. Instead of relying on general obligation bonds, Aggregate Networks says the plan could be financed privately by certificates of participation,[8] an unsecured debt instrument in which the lender typically retains title to the asset while the lease is paid down by the municipality on an agreed-upon schedule. The asset itself serves as collateral.

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[6] United Telesystems, Inc., "Broadband Network Initiative," September 20, 2002.

[7] See www.tricitiesbroadband.com for various position statements posted by Fiber for Our Future.

[8] Rick Kaufmann, cofounder of Aggregate Networks, remarks on July 7, 2004 at a briefing sponsored by Fiber for Our Future held at the Batavia City Hall. His recorded presentation is available at www.tricitiesbroadband.com.

2. Why consider municipal ownership?

According to the Web site of The Merton Group, a subsidiary of Merton Capital, a corporation that has arranged financing for FTTH networks in several communities in the United States, municipalities "should consider building and operating their own broadband infrastructure because broadband access to homes has not been met [sic] in suburban/rural America and is not likely to be met in the near future by incumbents primarily due to the following reasons:

- "The current economic environment and incumbent health, especially as regards to telecom, makes such deployment highly unlikely in the near future.

- "Regulatory and legal delays caused by the 1996 Telecom act and initiated by the RBOCs have resulted in institutional stalemates and excessive cost factors to make a corporate environment the most inefficient path to broadband deployment."[9]

The same Web site then goes on to present the alleged benefits to communities that build and operate municipal FTTH networks:

- *"Ubiquitous Coverage:* The current business economic climate will not permit incumbents to establish and operate fiber-to-the-home type broadband networks, especially in sparsely populated areas. A mission-driven initiative by a town to bring broadband to its citizens appears to be the only solution to the quandary.

Advocates of municipal broadband networks claim a long list of benefits accrue to local businesses and residents.

- *"Efficiency:* A town-private enterprise partnership may be able to leverage Rights of Way and existing fiber strands installed by a municipally owned power utility, as well as corresponding telecommunications systems and facilities like backup power equipment, network monitoring systems, remote terminals and associated real estate.

- *"Enhanced Services:* Through unbundling of its broadband network to service providers, the town could spur a diversity of value-added products including Voice over IP, flexible bandwidth, digital cable, video on demand, streaming media, etc.

- *"Economic Development:* A broadband network could act as a magnet to businesses. A common concern for both new technology as well as traditional businesses is the presence of a reliable high-speed communications system.

[9] http://mertongroup.com/faqmbn.html

- *"A Community Asset:* A local pervasive broadband system operating profitably could improve the tax base and be a real asset to the town. It could also favorably change the property taxes in the area as well as improve the credit standing of the town so that cost of borrowing is reduced.

- "*Competition:* It is a common fact that a town, by operating its own broadband network, can favorably influence the pricing as well as quality of communications service provided by private operators to its citizens.

- "*Lower Life Cycle Costs:* By installing an open-access fiber broadband system that is marginally over-engineered, the need for future upgrades and installations can be minimized. In addition, street-diggings can be avoided as well since fiber cables have a life span of 20 years.

- "*Improved Government IT Integration and E-Government:* Government data systems could be better integrated and business/technical processes standardized. E-government services such as tax collection, payroll, utility services and billing could be offered online in a broadband environment.

- "*Security:* The need for an integrated high-speed communications infrastructure at both a national and a local level has taken on new meaning after September 11th, 2001. No local government can ignore the importance of having a reliable broadband communications network connecting hospitals, schools, businesses and broadcast companies to provide notification and rapid response in the event of emergencies."

"The number one reason to vote yes," according to Annie Collins, "is for economic development."

Annie Collins, chairwoman of Fiber for Our Future, echoed this rationale in comments to the Batavia Chamber of Commerce in September 2004, saying the new network would offer such possibilities as telemedicine and remote meter reading by the cities' electric utilities. "The number one reason to vote yes," according to Collins, "is for economic development. Economic development comes from having an infrastructure in place that allows local businesses to excel and encourages new businesses to locate in the Tri-Cities."[10]

Terrence McCarty and Ravi Bhagavan, two principals with The Merton Group, attempted to make the case for municipal broadband in a 2002 policy paper.[11] They claimed, in the conclusion of their essay, that "it is clear from this analysis that a municipal broadband network is very

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[10] Jan Ramming, "Chamber Endorses Municipal Broadband," *The Sun [Batavia]*, September 29, 2004.

[11] Terrence P. McGarty and Ravi Bhagavan, "Municipal Broadband Networks: A Revised Paradigm of Ownership," The Merton Group, 2002.
http://www.mertongroup.com/Municipal%20Broadband%20Networks.pdf

viable. In fact, it may be the only way certain areas will be able to get such broadband facilities. If a town views the existence to broadband [sic] as both a social imperative as well as an essential element to retain and attract businesses, then the ability of the town to implement this service will be critical."[12]

The Merton Group paper does not, in fact, support any of those conclusions. The authors, for example, make no attempt to document the link between broadband access and economic development, present no data on the success or failure of communities that have attempted municipalization, and do not discuss the cost and risks associated with municipalization.

Most of The Merton Group paper consists of attacks on the motives and litigation tactics of the Baby Bells, and it ends with a superficial overview of the steps local officials should take when considering municipalization. In any case, as will be reported below, developments of the past two years have proven them to be wrong.

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3. Access, quality, and price of broadband services

How ubiquitous is broadband currently, and how do its quality and price compare to that promised by the advocates of FTTH networks? These questions address three of the nine alleged benefits claimed by The Merton Group.

Ubiquity of broadband access

In 2001, a survey of residents in the Tri-Cities showed 79.3 percent had cable service and 77.4 percent had Internet access, but of those with Internet access, 95.2 percent relied on dial-up modems, which by definition is not high-speed access. Digital Subscriber Line (DSL)[13] was available only within 3.3 miles of SBC Ameritech's switching station in Geneva.[14] AT&T-Comcast's cable network was not upgraded to accommodate cable modems.[15]

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[12] Ibid., p. 33.

[13] Digital Subscriber Line (DSL) provides high-speed digital modem technology via a conventional telephone line using signal frequencies above those used by voice or fax, so the DSL signal does not interfere with telephone conversations or faxes.

[14] Eric Schelkopf, "City explores cable needs," *Kane County Chronicle,* August 21, 2001.

[15] A cable modem is designed to operate over cable TV lines. Because the coaxial cable used by cable TV provides much greater bandwidth than telephone lines, cable modems are much faster than dial-up modems.

Today, according to SBC and Comcast, virtually 100 percent of the region can sign up for DSL and access the Internet via cable modems. In addition, T-1 service[16] is available to businesses throughout the Tri-Cities over existing telephone lines and wireless service is available from several dealers, all at significantly lower prices than were being charged just two years ago. Direct Broadcast Satellite (DBS) service is also available throughout the Tri-Cities from DirecTV and EchoStar. Satellite service has emerged as a serious competitor to cable in recent years, with DirecTV and EchoStar now having some 21.1 million subscribers.

Cable companies have spent billions of dollars in the past two years upgrading their systems to provide cable modem service, including approximately $20 million by Comcast just in the Tri-Cities area.

Another form of wireless broadband service, called MDS (multipoint distribution service), or wireless cable, involves using antennas mounted on water towers or high buildings to deliver high-speed (up to 1.5 million bits per second, or Mbps) Internet access to users. In 2002, South Elgin, for example, contracted with St. Charles-based MCC Technology/Data Moving Company to place antennas on four municipally owned water towers, giving virtually the entire village access to broadband.

The latest entry in wireless broadband is WiMax. WiMax is similar to Wi-Fi, which coffee shops and hotels use to create "hot spots" for wireless Internet access, except while Wi-Fi serves only a 300-foot radius, WiMax can reach up to 30 miles. AT&T, MCI, Covad Communications, EarthLink, BellSouth, and Qwest Communications all are apparently considering getting into the WiMax business. According to a recent news story, "The first version of WiMax, expected next year, would beam signals to rooftop antennas. The second phase, slated for 2006, would let customers mount antennas indoors, cutting installation costs. The third phase, in 2007, would put chips in laptops and handhelds, allowing connections anywhere reached by an antenna."[17] Intel apparently plans to have WiMax chips in most laptops in three years.

Broadband is more widely available in 2004 than in 2002 for several reasons. More bandwidth-hungry content such as on-line movies, Web-cams, and video conferencing is now available to consumers who sign up for broadband, fueling demand for the services. A new technology called voice over Internet Protocol—VoIP—has emerged that allows phone calls to be made over the Internet, giving competitors of telephone companies a new platform from which to offer competitive service.[18]

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[16] A T-1 line is a dedicated phone connection consisting of 24 individual 64 Kbps channels, each of which can be configured to carry voice or data traffic. Telephone companies typically allow customers to lease a fraction of the line, known as *fractional T-1* access.

[17] Paul Davidson, "Inventive Wireless Providers Go Rural," *USA Today*, July 14, 2004.

[18] Joseph L. Bast, "VoIP and the End of Monopoly," BYTE.com, April 19, 2004; "Study Predicts VoIP Sector Will Grow 100-fold by 2008," *Telecommunications Report*, August 31, 2004.

A third and especially important reason for the explosion of broadband services is public policy. Prior to 2002, AT&T and other major cable companies were hesitant to make new investments in expanding cable modem service due to the threat that regulators would require them to share their facilities with competitors. But in March of that year, the FCC ruled cable modems are an "information service" rather than a form of "telecommunications" or "video," and therefore cable companies are exempt from line-sharing requirements. Since then, cable companies have spent billions of dollars upgrading their systems to provide cable modem service, including approximately $20 million by Comcast just in the Tri-Cities area, according to the company.[19]

Prior to 2002, AT&T and other major cable companies were hesitant to make new investments in expanding cable modem service due to the threat that regulators would require them to share their facilities with competitors.

SBC Ameritech and other Regional Bell Operating Companies (the so-called "Baby Bells") have been similarly hesitant about investing in expanding DSL and fiber-based broadband services until regulators send a clear signal that they, too, will not be required to share new facilities with competitors. Such regulations currently require phone companies to sell access to their infrastructures using a formula called TELRIC, for "total element long-run incremental costs."

In May 2002 and again in March 2004, the U.S. Court of Appeals for the District of Columbia struck down FCC rules regarding the terms and prices under which Baby Bells must share their lines with competitors. In June 2004 the Bush administration said it would not seek to have the court's ruling overturned, and on October 14 the FCC issued rules saying the Baby Bells do not have to share new "fiber-to-the-curb (FTTC) loops, where fiber is extended within 500 feet of a customer's premises." Since then, SBC and other telephone companies have announced major new investment initiatives in fiber, DSL, and other broadband platforms,[20] while companies such as AT&T that had previously relied on the regulations to gain access to the Baby Bell's infrastructure have announced plans to shift their business plans to wireless and Internet-based telephony.[21]

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[19] Leigh Ann Hughes, Comcast, personal communication, October 13, 2004.

[20] "SBC Communications Announces Advances in Initiative to Develop IP-Based Residential Network for Integrated Video, Internet, VoIP Services," news release, SBC Communications Inc., June 22, 2004; Christopher Rhoads, "Bringing Fiber Home," *The Wall Street Journal*, August 19, 2004; "SBC to Rapidly Accelerate Fiber Network Deployment in Wake of Positive FCC Broadband Rulings," news release, SBC Communications Inc., October 14, 2004.

[21] Ellen Simon, "AT&T Pins Hopes on Technology for Business," Associated Press, August 1, 2004; Almar Latour, "AT&T, Cable Providers Join Forces," *The Wall Street Journal*, August 19, 2004.

Speed and quality of FTTH alternatives

While the spread of broadband services in the past 24 months was impressive, advocates of municipalization say current offerings are still not fast enough or good enough. A FTTH network, according to a FAQ on the Geneva Web site, "transmits data at a speed up to 100 Mbps, two times faster than the fastest wireless, 50 times faster than a cable modem, and almost 75 times faster than DSL."[22] WiMax, the same document points out, currently cannot offer local (analog) television stations, offers only one or two digital cable channels at a time, and "is not impervious to eavesdropping or interference from other devices, and performance is affected by distance, additional subscribers and line of sight."

Those claims overlook the dramatic increase in speed of FTTH alternatives compared to two years ago.

Those claims are wrong for several reasons. First, they overlook the dramatic increase in the speed of FTTH alternatives compared to two years ago. Most of the alternatives are now sufficient to meet the demands of most of the residential and business markets, with individual consumers choosing the right service provider based on their needs and the strengths, weaknesses, and prices offered by the competing providers.

In 2002, DSL allowed downloads at speeds up to 768,000 bits-per-second and uploads at speeds of 128,000 bits-per-second. Today, DSL can reach 3 to 6 Mbps largely in support of video applications. ADSL 2+, an enhancement to the standard, can accommodate up to 15 Mbps and will begin deployment in 2005.[23] These speeds can handle more data-intensive digital applications including video and the large data downloads (e.g., for software upgrades) that telecommuting requires.

Cable modems provide data distribution to residences of between 500 Kbps and 4 Mbps and commercial cable modem services can go even higher.[24] Wireless broadband can reach 54 Mbps, depending on several factors.[25] WiMax will offer speeds of between 17 Mbps and 75 Mbps, depending on distance from the tower and other factors.[26] All of these broadband platforms are reporting advances in speed due to technological improvements and the deployment of new lines and more substations and transmitters.

All of these FTTH alternatives can deliver high-speed Internet services and telephony, which require downstream speeds of about 1.5 Mbps, though some, such as wireless email, have

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[22] http://www.geneva.il.us/bb/FAQ.htm

[23] Steve Titch, personal correspondence.

[24] Ibid.

[25] Geneva's Web site, supra note 22.

[26] "WiMax: How Far? How Fast?" *Unstrung*, July 8, 2004, citing numbers from Intel Corp.

functionality limits that are expected to be addressed in the near future. The size of the broadband pipeline beyond 1.5 Mbps is important, but only because it is required for consumer cable TV, which is "where the money is" in broadband these days. Recall that the UTI report predicted 34 percent of potential residential customers would sign up for TV while only 13.1 percent would sign up for high-speed data and 7.5 percent for telephone service. Most of the revenue for the FTTH utility would come from cable TV subscribers, not Internet users.

This is why cable companies have a distinct advantage in the current marketplace—they can devote just 10 percent of their cables to Internet services and the rest to TV—and why telephone companies are negotiating partnerships and marketing deals with satellite TV companies (e.g., SBC and EchoStar, BellSouth and Verizon with DirecTV) and investing billions in fiber-coaxial hybrid networks[27] and increasing the capacity of their DSL services. WiMax, right now at least, looks like a weak competitor in the telecommunications world because of its limited capacity to broadcast television, but it could become the "killer app" in providing low-cost Internet access and Internet telephone service.

A FTTH platform can provide TV, telephony, and Internet services through a single pipe. But as the many competing providers of various broadband services described above make apparent, this capacity is not necessary for a business plan to succeed. The absence of competitors offering FTTH demonstrates just the opposite fact, that a FTTH plan is *not* currently competitive because of its high capital and maintenance costs.

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It is not meaningful to say, as one panelist did at a July 7 rally by municipal broadband advocates in the Tri-Cities, that "DSL is an intermediate technology, everyone knows this."[28] *All broadband technologies are "intermediate" technologies*, in the sense that they are rapidly evolving and likely to be displaced sometime in the future. This applies to fiber-optic networks no less than to DSL. Indeed, because DSL is so much less expensive to install and has improved in speed so rapidly in just the past two years, the case can be made that fiber optic is more vulnerable than DSL to competition from wireless and other emerging broadband platforms.

Consumers currently receive telecommunications services from separate providers using competing platforms. This is partly a legacy of regulatory policies that treat service providers differently based on the technology they use, but it is also the result of marketplace realities. Consumer needs and willingness to pay vary, and investors and entrepreneurs apparently believe

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[27] Almar Latour, Andy Pasztor, and Peter Grant, "SBC, EchoStar Plot Online Movie Venture," *The Wall Street Journal*, August 19, 2004; SBC Communications, supra note 20.

[28] Jim Baller, principal with Baller, Herbst Law Group, speaking at "Why Municipal Broadband is Good for the Tri-Cities," July 7, 2004, hosted by Fiber for Our Future at the Batavia Town Hall. The presentation was recorded and is available at www.tricitiesbroadband.com.

most consumers today are unwilling to pay a high enough price to recover the cost of financing, installing, and maintaining the FTTH platform.

Virtually every home now has a land-wire telephone line and a cable connection, and most also have one or more wireless telephones and handheld devices. Nearly 80 percent of people living in the U.S. have a choice of five or more wireless companies competing for their business.[29] Many now also have a satellite dish for digital TV or high-speed Internet access.

How many families or business owners would be willing to pay to have *yet another line* run to their premises to offer services that differ little from what they are already getting? And what is the "social benefit" of having local governments provide that additional line?

Price of FTTH alternatives

Advocates of municipal broadband networks claim the existence of a government-run utility will force private companies to improve their services and lower their prices. But this assumes a lack of competition currently allows prices to be higher than necessary, and it further assumes the government-run utility would be able to set its own prices low enough to be competitive.

The UTI proposal projects monthly rates for cable TV, telephone, etc. based on estimates of market penetration, cost of content, maintenance expenses, cost of retiring debt, and apparently the rates charged by private competitors. The projected rates are necessarily speculative and, as will be shown below, are probably too low to make the utility financially self-supporting. This is especially worrisome because the price of FTTH alternatives is low and falling fast.

As this was written (October 11, 2004), Comcast's Web site was offering cable modem service for the "first 6 months for $19.99/month, FREE Modem, $50 Cash Back Rebate, No Contract!"

SBC now offers DSL "Express" service with downstream speeds of 384 Kbps - 1.5 Mbps and upstream speed of 128 Kbps for $26.95/month. "Pro" service has downstream speeds of 1.5 Mbps - 3.0 Mbps and upstream speed of 384 Kbps and costs $36.99/month. For a static IP address (necessary for VoIP), add $38.00/month to each price.[30]

As this was written (October 11, 2004), Comcast's Web site was offering cable modem service for the "first 6 months for $19.99/month, FREE Modem, $50 Cash Back Rebate, No Contract!" Maximum downstream speed is 3.0 Mbps. The standard non-sale price in the Tri-Cities appears to be $42.95 per month.

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[29] Sonia Arrison, "Something Happened on the Way to Wireless Broadband," *TechNewsWorld*, May 21, 2004.

[30] http://www05.sbc.com/DSL_new/content/1,,18,00.html?SRC=http%3A%2F%2Fsw51

SBC offers T-1 line service supporting data rates of 1.544 Mbps in Illinois for between $112.50 and $291.00 per month, depending on area and length of contract. If the T-1 crosses wire center boundaries, a channel mileage charge of between $13.84 and $25.00 per month per mile and a channel mileage termination charge of between $24.80 and $82.00 apply.[31] Woodstock-based Other World Computing advertises T-1 for "as low as $399/month."[32] In the 2002 edition of this report, the advertised price for T-1 was $700/month.

DirecWay, part of the DirecTV Group, offers satellite broadband service in the Tri-Cities area with downstream speed of 500 Kbps and upload speed of 75 Kbps for a $49.99 set-up fee and then $99/month (Home Plan) or $129/month (Professional Plan, Static IP) for 15 months. After 15 months you own the equipment and the cost of service falls to $59/month (Home Plan) or $89/month (Professional Plan). DirecWay also has a commercial plan with downstream speed averaging 1 Mbps and upload speed of 100 Kbps for $99/month (Static IP, 5 email boxes) or $129/month (Static IP, 10 email boxes).[33]

Woodstock-based Other World Computing offers a satellite dish, installation, receiver card for a computer, five email accounts, and technical support for high-speed Internet access for between $29.95 and $149.95 a month.[34] Back in 2002, when MCC Technology/Data Moving Company was wiring South Elgin for MDS, it said rates were expected to range from $69.95 to $149/month. In October 2004, according to the company's Web site, actual rates range from $39.99 to $99.99.[35]

As these prices suggest, competition and falling prices, not monopoly, are the rule in the broadband industry in the Tri-Cities.

When WiMax comes to the Tri-Cities, it too is likely to be inexpensive. Clearwire, a business recently acquired by cellular phone pioneer and billionaire Craig McCaw, expects to offer a "WiMax-like service" in as many as 40 cities in 2005. McCaw has said he expects to charge $25 a month for broadband and $40 to $50 for a package that includes unlimited telephone service.[36]

As these prices suggest, competition and falling prices, not monopoly, are the rule in the broadband industry in the Tri-Cities. The evidence is clear that broadband prices in the Tri-Cities area are modest and falling.

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[31] DSI Service prices as reported in SBC Tariff issued June 6, 2003, Ill. C.C. No. 19, Part 15, Section 3.

[32] http://www.owc.net/broadband.html

[33] http://www.direcway.bz/pages/11/index.htm

[34] S.A. Mawhorr, "Satellite Dish Speeds Up Internet Connection," *Daily Herald*, August 26, 2002.

[35] http://www.datamoco.com/b_pricing.htm

[36] Paul Davidson, supra note 17.

The same is true nationwide and has been true since the beginning of the industry. According to an FCC rulemaking in 2001, "The record before us, which shows a continuing increase in consumer broadband choices within and among the various delivery technologies—xDSL, cable modems, satellite, fixed wireless, and mobile wireless—suggests that no group of firms or technology will likely be able to dominate the provision of broadband services."[37] The FCC, so often wrong in the way it has chosen to interpret the 1996 Telecom Act and regulate the telecommunications industry, was right that time.

Conclusion

Not all of the broadband platforms described above are as fast or reliable as the fiber-to-the-home network envisioned by advocates of a municipally owned broadband network, and some may cost more than a typical small business owner wants to spend. But they are widely available now to residents and businesses in the Tri-Cities at affordable prices, often for much less than they cost two years ago. More choices and even lower prices lay ahead as Comcast, SBC, and their competitors expand their offerings and technology continues to evolve.

Advocates of municipal broadband say being without a state-of-the-art broadband platform places the economies of small cities and rural communities at great risk.

Why, then, should the city invest now in an expensive FTTH infrastructure? One can guess that the purpose is to subsidize a small number of community residents and businesses who want the highest quality broadband services but aren't willing to pay the full price for them. As the discussion below shows, this indeed is the only plausible justification for taking on the expense and risk involved in building a municipally owned broadband network.

4. Broadband and economic development

Advocates of municipal broadband say being without a state-of-the-art broadband platform places the economies of small cities and rural communities at great risk. Access to broadband is an important consideration to high-tech businesses choosing to relocate or expand, they say, and to high-tech workers looking to telecommute.

In 2002, Peter Collins, Geneva's information systems supervisor, wrote in a letter to the editor of a local newspaper, "The Kane County Economic Development Board commissioned a

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[37] Rulemaking to Amend Parts 1, 2, 21, and 25 of the Commission's Rules to Establish Rules and Policies for Local Multipoint Distribution Service and Fixed Satellite Services, 15 FCC Rcd 11,857, at ¶ 19 (2001), cited by testimony of Thomas Tauke, senior vice president, Verizon Communications, on the Internet Freedom and Broadband Deployment Act of 2001 before the House Energy and Commerce Committee, April 25, 2001. http://newscenter.verizon.com/policy/broadband/

study to assess telecommunications assets throughout the county. That study ... to no one's surprise, found a lack of affordable telecommunications assets and in fact encouraged what the Tri-Cities are trying to accomplish."[38] The claim that a municipal FTTH network would be a boon for economic development efforts remains at the center of Fiber for Our Future's campaign.

What evidence do the advocates present to support their claim? A report that appears on Batavia's Web site, edited by John Garvey for Convergence Research, Inc., says:

> As medium and smaller sized municipalities struggle to compete with large cities, and as metropolitan suburbs compete with the city core, access to broadband is increasingly necessary to retain current businesses and attract new start-ups. Lack of high-speed Internet access—a reality and a dilemma in rural communities and in outlying suburban areas—contributes to the difficulty municipalities have in recruiting engineering firms, software houses and other businesses that rely on broadband access.[39]

Typical of other research papers making similar claims, Garvey's report presents no data or proof of a link between broadband and economic growth.

Typical of other research papers making similar claims, Garvey's report presents no data or proof of a link between broadband and economic growth. Moreover, there is a conflict of interest that is also commonplace in the pro-municipalization literature: Convergence Research, Inc. is a consulting firm that specializes in advocating municipalization and makes money by acting "as the primary operator offering reliable cable and telephone communication services to residents over this publicly owned network."[40] The for-profit firm, which operates out of a post office box in Geneva, apparently has produced just one publication, the "white paper" advocating municipalization.

Advice on economic development from consulting firms, whether from Garvey's firm or the one used by the Kane County Economic Development Board, should be steeply discounted. Virtually all such firms tell their clients what they want to hear: That they can become high-growth areas for high-tech companies by investing, or investing more, in subsidies to new businesses. Today it's telecommunications infrastructure; yesterday it was workforce training and free land.

A decade ago, SRI International made millions of dollars by convincing scores, perhaps hundreds, of communities that they could become "the next Silicon Valley" by dangling

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[38] Peter Collins, "Underserved in Internet," letter to the editor, *The Kane County Chronicle*, June 29, 2002.

[39] John Garvey, "Municipal Broadband Networks: Unleashing the Power of the Internet," Convergence Research, Inc., March 2002, p. 4.

[40] Convergence Research, Inc.'s Web site. http://www.c-r-inc.com/

subsidies in front of corporate CEOs. Today, McKinsey & Company is doing the same thing, producing in 2001 a report for the City of Chicago titled "A New Economy Growth Strategy for Chicagoland."

Econometric research consistently finds subsidies to corporations—whether in the form of cheap access to broadband, skilled labor, or land—are an unreliable and often counterproductive strategy for economic development.

In fact, econometric research consistently finds subsidies to corporations—whether in the form of cheap access to land, sewers, or broadband—are an unreliable and often counterproductive strategy for economic development. Cities and states that make these expenditures do not create jobs or increase personal income at higher rates than cities and states that don't.[41] Edwin Mills, professor emeritus of real estate at Northwestern University and one of the country's leading urban economists, recently wrote about Chicago's aspirations to attract high-tech firms:

> By any reasonable definition, high-technology research, development, and manufacturing are the most footloose of industrial sectors. By and large, they locate where their highly educated and high-paid employees want to live. Mostly that is not adjacent to inner-city universities—a fact many local governments have learned at some cost to them. High-tech activities tend to locate in distant suburbs of metropolitan areas with fine universities (Route 128, Silicon Valley, Research Triangle Park).
>
> Almost no high-tech concentrations have been mainly the result of government planning. (Research Triangle Park is a partial exception.) More often, governments have jumped on the wagon after the band has been formed and most employment growth has finished.[42]

Because the vast majority of residents of most communities are now well-served by private broadband providers, a municipal broadband network would benefit only a small number of high-end users of broadband services. It is hardly surprising that these potential beneficiaries would organize and lobby for such a subsidy. But this is no reason why voters and taxpayers should support their scheme. The expected private benefits of a few users do not justify the cost of connecting every business and household in the community with expensive fiber-optic lines.

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[41] Samuel R. Staley and Michael LaFaive, "State Economic Development: Feeding Sparrows Through A Horse," *ALEC Policy Forum*, American Legislative Exchange Council, September 1, 2002; Amy K. Frantz, "Markets, Not Government, Should Determine Economic Winners," *Institute Brief*, Public Interest Institute at Iowa Wesleyan College, November 1, 2002; Peter S. Fisher and Alan H. Peters, "Tax and Spending Incentives and Enterprise Zones," *New England Economic Review*, Federal Reserve Bank of Boston, March/April 1997; Timothy J. Bartik, *Who Benefits from State and Local Economic Development Policies?* (Kalamazoo, MI: W.E. Upjohn Institute, 1991).

[42] Edwin S. Mills, "Dreams, Plans & Reality: A Critique of Chicago Metropolis 2020," *Heartland Policy Study* No. 97, February 2002.

5. Public versus private provision: efficiency considerations

Another claim commonly made by advocates of municipalization is that public utilities operate more efficiently than private companies. Kathryn Grondin, a writer for the *Daily Herald*, believes a municipally owned broadband network would benefit consumers because "without shareholders to satisfy, savings can go to the customer."[43] James Volk, speaking for members of his pro-municipalization group, told a reporter, "We are looking at it as a business and will make business decisions on whether we go forward."[44]

> A comprehensive survey of more than 100 independent studies of privatizations in a wide variety of fields ... found cost reductions of between 20 and 50 percent.

Would a municipally owned broadband network really be more efficient than any of the competing private broadband services in existence now or coming on the scene? More broadly, can elected officials and public employees run a government enterprise as efficiently as a business? Answers to this question often are motivated by ideology (conservatives tend to say no, liberals tend to say yes) or based on a few favorite anecdotes. What do the data say?

Research on the costs and quality of public services produced via municipal ownership versus private provision is extensive and conclusive.[45] Activities and services that have moved from public to private provision since 1980 include such sophisticated enterprises as multi-billion-dollar insurance funds, airports, hospitals, ports and harbors, prisons, railroads, and water works. They also include parks, golf courses, sports stadiums and arenas, police and fire services, and building maintenance. Often the switch is attributable to complaints of high costs and poor service, making continued reliance on the public sector a liability for elected officials.

The research shows *privatization*, not municipalization, delivers significant cost savings,

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[43] Kathryn Grondin, "St. Charles to Survey Businesses on Need for Fiber Optic Network," *Daily Herald*, October 14, 2000.

[44] Tona Kunz, "Why Officials From Tri-Cities Visited a Small Town in Iowa," *Daily Herald*, January 17, 2002.

[45] Geoffrey Segal, editor, *Annual Privatization Report 2004*, 18th Edition (Los Angeles, CA: Reason Foundation, 2004), http://www.rppi.org/apr2004/anpr2004.pdf; William D. Eggers and John O'Leary, *Revolution at the Roots: Making Our Government Smaller, Better, and Closer to Home* (New York, NY: Free Press, 1995); General Accounting Office, *Privatization: Lessons Learned by State and Local Governments* (Washington, DC: U.S. General Accounting Office, 1997); Robert Poole, *Cutting Back City Hall* (New York, NY: Universe Books, 1980); Carl F. Valente and Lydia D. Manchester, *Rethinking Local Services: Examining Alternative Delivery Approaches,* Management Information Service Special Report No. 12 (Washington, DC: International City Management Association, 1994); Charles Wolf Jr., *Markets or Governments: Choosing Between Imperfect Alternatives* (Cambridge, MA: The MIT Press, 1988); E.S. Savas, *Privatizing the Public Sector* (Chatham, NJ: Chatham House Publishers, Inc., 1982); E.S. Savas, *Privatization and Public-Private Partnerships* (New York, NY: Chatham House Publishers, 2000).

greater accountability and responsiveness to consumers or elected officials, and a level of quality equivalent or superior to public-sector delivery. A comprehensive survey of more than 100 independent studies of privatizations in a wide variety of fields, conducted by John Hilke for the Reason Foundation, found cost reductions of between 20 and 50 percent.[46] Other surveys have documented average savings in the same range.[47]

E.S. Savas, Barbara Stevens, and other experts identify less bureaucracy and higher worker productivity attributable to better supervision, less paid time off, and superior equipment as the reasons why private-sector firms are typically able to produce higher-quality goods and services at a lower cost than government agencies.[48] Those factors are more common in the private sector because firms must compete to produce higher quality and lower costs or they lose business to more efficient competitors. Because they do not need to compete to survive, government agencies can remain indifferent to these considerations.

By this reasoning, towns should begin manufacturing cars and trucks because they own roads, or perhaps own and operate restaurants and bars because they own sidewalks.

Unlike most cities, the Tri-Cities own and operate their own electric utilities. This means they have personnel and assets that could be used to reduce the cost and risk associated with building and maintaining a municipally owned broadband system. Peter Collins summarized the possibilities in 2002:

> The tri-cities, unlike most communities, own their electric utilities. The rights-of-way and the poles are owned and maintained by the cities themselves. We can build and run our own facilities much easier than towns without such an infrastructure. And if you're building facilities to serve Internet and data services to residents and businesses, you might as well offer cable and telephone services also. It's an economy of scale.[49]

By this reasoning, towns should begin manufacturing cars and trucks because they own roads, or perhaps own and operate restaurants and bars because they own sidewalks. This "comparative advantage" comes only from denying equal access to these public goods to private competitors who should be assumed to be better equipped to manufacture a good or provide a service than is

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[46] John Hilke, *Cost Savings from Privatization: A Compilation of Study Findings* (Los Angeles, CA: Reason Foundation, 1993).

[47] James T. Bennett and Manuel H. Johnson, *Better Government at Half the Price* (Ottawa, IL: Caroline House Publishers, Inc., 1981); T.E. Borcherding, ed., *Budgets and Bureaucrats: The Sources of Government Growth* (Durham, NC: Duke University Press, 1977); E.S. Savas, *Privatization and Public-Private Partnerships*, supra note 45, Chapter 6.

[48] E.S. Savas, supra note 45; Barbara Stevens, *Delivering Municipal Services Efficiently: A Comparison of Municipal and Private Service Delivery* (New York, NY: Ecodata, Inc., 1984), pp. 15ff.

[49] Peter Collins, supra note 38.

the municipality. Giving government-owned utilities tax and regulatory advantages over private companies distorts the marketplace and discourages private companies from investing in the region. As Jeffrey Eisenach, in a 2001 report on government-owned telecommunications utilities, observes:

> As a result of this basket of subsidies and other advantages, most of them hidden from view and difficult or impossible to quantify, the one thing public utilities never do is provide an accurate gauge of the true costs of providing any service. Instead, because these hidden subsidies permit public utilities to undercut the prices charged by private competitors, they distort the marketplace, deter entry by real competitors, and thus prevent the marketplace from setting cost-based prices.[50]

Tri-Cities officials seem uncertain about whether the new utility would have to comply with the same rules as apply to private cable and telephone companies. A 2003 memorandum on one of the community's Web sites says "the new utility would probably be subject to franchise fees and taxes like the incumbents."[51] But how can city officials present detailed price estimates for cable TV, telephone, and broadband services —as they do on their Web sites—without knowing if the utility would have to pay these fees and taxes?

Tri-Cities officials seem uncertain about whether the new utility would have to comply with the same rules as apply to private cable and telephone companies.

The claim that municipalization is more efficient than relying on private companies fails on empirical grounds. In the next section we will review the experiences of other cities that have attempted to get into the cable and broadband businesses.

6. Experiences of other cities

Offering telephone, cable, and Internet services is far more complex and difficult than collecting trash or cleaning parks. Telephone service requires switching equipment, secure facilities, backup power generation, and a trained staff of customer service agents. Customers don't simply sign up on their own: Advertising campaigns must be managed, billing systems and debt collection procedures put in place, and prices set and revised competitively. Not surprisingly, then, few communities attempt to do it: Of some 55,000 towns and municipalities in the U.S., about 200

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[50] Jeffrey Eisenach, "Does Government Belong in the Telecom Business?" *Progress on Point*, The Progress and Freedom Foundation, January 2001, p. 15.

[51] From "Further questions regarding the feasibility study and project and answers from the broadband Consultant (1-9-03)," in a memorandum by Bill McGrath, city manager, to Jim Volk, telecommunications chair, posted on the City of Batavia Web site on January 9, 2003.

operate municipal broadband networks, for a penetration rate of about 0.5 percent.[52]

Even cable by itself is surprisingly difficult to provide. Small cable firms—many of them many times larger than what the Tri-Cities is envisioning—have gone out of business because they couldn't negotiate terms with content providers as favorable as those given to such giants as Comcast. Marketing, maintenance, and service calls are all labor-intensive and expensive.

Eisenach provides the following summary of research by Ronald Rizzuto and Michael Wirth at the University of Denver on municipal cable systems in four small cities:

> The study concluded that the first three systems "have been poor investments from a pure business perspective" and the fourth (Cedar Falls), though too new for a conclusive evaluation, "has a large financial deficit to overcome in order to become profitable." Indeed, the study concluded that the three systems that had been in operation long enough to permit a conclusion had cumulative losses of $6.6 million and that "the Glasgow and Paragould investments will never reach payback, and it will take Negaunee 23 years to pay back its initial investment."[53]

Building and operating a broadband infrastructure is much more expensive and risky than managing a cable system.

Rizzuto and Wirth, according to Eisenach, found "Glasgow's cable system loses money even after the benefits of lower cable rates for Glasgow residents are taken into account," and they refer to the consumer benefits of lower cable rates as "an illusion because, as noted earlier, the municipal cable system is not self-sustaining."[54]

Building and operating a broadband infrastructure is much more expensive and risky than managing a cable system. Spencer, Iowa, population 11,000, spent $17 million to create its fiber-optic network and run coaxial cable to 4,500 homes. This is $1,545 per resident and $3,777 per household,[55] close to the construction cost estimate of $3,539 per customer that appeared in the UTI report for the Tri-Cities. Communities in Utah, Wisconsin, and Washington have

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[52]McGarty and Bhagavan, supra note 11, p. 3.

[53] Jeffrey Eisenach, supra note 50; pp. 12-13. The original study is Ronald J. Rizzuto and Michael O. Wirth, *Costs, Benefits, and Long-Term Sustainability of Municipal Cable Television Overbuilds* (Denver, CO: GSA Press, 1998).

[54] Ibid., p. 14.

[55] Spencer's municipal utility had reserve funds sufficient to loan the new entity $8 million and to spend $8 million itself on the fiber network, which it owns. The new entity leases the fiber from the utility. James Volk and Randy Recklaus, "Re: Tri-City Broadband - Spencer Iowa Site Visit," memorandum on the Batavia Web site dated January 22, 2001.

collectively built or are about to build FTTH networks.[56] Other communities are considering municipal WiMax networks.[57]

Spencer expected (and still expects) to "break even" on its investment by charging residents and businesses for telecommunications services, but many communities that have taken the plunge have not. Most operate at a loss, forcing ratepayers for other utilities or local taxpayers to pay more to pick up the losses. For example:

- *Iowa Communications Network* "consistently requires large subsidies to continue in business. For the fiscal year ending in June 1999, for example, the system lost $24.5 million on an operating budget of $53.3 million. Even after subsidies of over $23 million, it sustained a net loss of over $5.8 million."[58]

- *California's CALNET system*, designed to connect state agencies and other public entities, was some $20 million in debt when it was privatized in 1998.[59]

- *Marietta, Georgia* lost more than $35 million operating "FiberNet," a 210-mile fiber-optic system with some 200 paying customers that it launched in 1996. It finally sold the system to American Fiber Systems in September 2004 for about $8 million, "a fraction of what FiberNet has cost the city in losses."[60] Marietta Mayor Bill Dunaway told the *Atlanta Journal-Constitution* the town could no longer afford to make equipment upgrades to keep the network competitive. "That's why we should not be in this business—you have to keep reinvesting. It's negative cash flow once you consider reinvestment of capital."[61]

> "That's why we should not be in this business—you have to keep reinvesting. It's negative cash flow once you consider reinvestment of capital."
>
> — Bill Dunaway, Mayor
> Marietta, Georgia

- *Lebanon, Ohio* originally projected its cost at $5 million and ended up spending $9 million. In May 2001, the city increased electric rates to cover broadband losses and authorized

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[56] John Wohlstetter, "Municipal Networks: Raising Taxes Beats Raising Rates," Competitive Enterprise Institute, January 14, 2004.

[57] David Caruso, "Philly Considers Wireless Internet for All," Associated Press, September 1, 2004.

[58] Jeffrey Eisenach, supra note 50, p. 14.

[59] Ibid.

[60] Robin Yamakawa, "Price Holds at $11.2M for Company," *Marietta Daily Journal*, September 1, 2004.

[61] Brenden Sager, "Marietta to Lose Millions in Sale of Web Service," *Atlanta Journal-Constitution*, July 29, 2004.

$14.8 million in mortgage revenue bonds to cover operating losses.[62] Lebanon then passed a law requiring all new homes and offices to connect to the municipal broadband network and requiring competitors to purchase broadband capacity from the municipality and pay the city $1,250 to $2,000 for every customer they sign up.[63] The town is now being sued by Time-Warner and developers.

The *Tacoma, Washington* Power Utility launched it's Click! Network in 1997. By 2000 it had lost $15.7 million. Projections of cost, time to construct, number of customers, earnings, and net profit were all overly optimistic.

- The *Tacoma, Washington* Power Utility launched it's Click! Network in 1997. By 2000 it had lost $15.7 million. "Combined with the $86.5 million in capital expenses already dedicated, the system has spent a total of $105 million since its inception. As a public entity, TPU must cover its losses with revenue from ratepaying electricity customers. So far TPU's cable system losses have added about $709 in new costs for each of the utility's 148,000 power customers."[64] Projections of cost, time to construct, number of customers, earnings, and net profit were all overly optimistic. "At present it does not appear that the Click! Network can become profitable within the foreseeable future."[65]

In an October 2001 report published by the Beacon Hill Institute at Suffolk University, economist David Tuerck and colleagues present case studies of "five communities that have had a disappointing experience with the cable/Internet business," including Tacoma, Washington and Lebanon, Ohio, mentioned above.[66] The following excerpt from the executive summary of their report presents their findings:

- "*Tacoma, Washington* has failed to break even after building its Click! Network. Costs have exceeded expectations, and the city has had to increase electric rates in order to cover its cable/Internet losses.

- "*Paragould, Arkansas* is losing money and may have to increase property taxes in order to pay off bonds floated to shore up its faltering cable business.

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[62] David Tuerck et al., "Cashing in on Cable: Warning Flags for Local Government," *BHI Policy Study*, Beacon Hill Institute at Suffolk University, October 2001.

[63] Ben Charny, "Time Warner Broadband Suit Advances," CNET News.com, September 2, 2004.

[64] Paul Guppy, "When Government Enters the Telecommunications Market," *Policy Brief*, Washington Institute Foundation, June 2001.

[65] Ibid.

[66] David Tuerck et al., supra note 62.

- "*Ashland, Oregon* attempted to diversify and expand its electric department's customer base by entering the cable/Internet business. It has had trouble attracting customers, however, because of unanticipated price competition from the incumbent, private-sector cable provider.

- "*Lebanon, Ohio* built its own cable system to provide residents with lower rates. Now, sinking into debt and suffering financial losses, Lebanon has raised its own rates and finds itself up against stiff competition from the incumbent provider.

- "*Scottsboro, Alabama* also went into the cable business to offer lower rates. Then, when it experienced unexpected price competition, it went to court to prevent its competitor from cutting *its* rates."

In March 2004, Tuerck and the Beacon Hill Institute revisited the issue in another report.[67] This time they found a proposed municipal broadband network for Concord, Massachusetts stood a 60 percent probability of losing money, with an expected loss of some $542,000. The authors also updated their reports on other cities, presenting as "cautionary tales" the experiences of Tacoma, Washington; Ashland, Oregon; Lebanon, Ohio; and Braintree, Massachusetts. All were having difficulty facing new competition from private broadband providers.

The point should be clear: Experiences in other cities reveal that municipal broadband utilities often fail.

Besides all of the examples cited above, newspaper articles easily found on the Internet report similar financial troubles facing municipal broadband and cable networks in many other towns and cities, including such places as Forsyth, Georgia; Glasgow, Kentucky; Morganton, North Carolina; Negaunee, Michigan; and Trion, Georgia. The point should be clear: Experiences in other cities reveal that municipal broadband utilities often fail.

7. Why municipal broadband is so risky

Why have so many municipalities experienced financial problems with their municipal broadband networks, forcing them to raise prices, cross-subsidize their consumers, suspend expansion plans, or even sell the networks at huge losses to private companies? The obvious answer is that telecommunications is a risky business. Adopting a financing scheme that relies on private investors, while a proper move, is probably insufficient to genuinely protect taxpayers and ratepayers.

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[67] David Tuerck and John Barrett, "Municipal Broadband in Concord: An In-Depth Analysis," *BHI Policy Study*, Beacon Hill Institute at Suffolk University, March 2004.

Risk factors

The frequent failure of municipal broadband utilities must partly be due to the fact that operating an integrated telecommunications business is not one of the "core competencies" of elected officials or the administrators they hire. But there are other reasons as well. Seven risk factors are most clearly evident:

Many communities that experienced financial losses from their municipal broadband systems did so because construction costs were higher than original estimates.

- *Cost of construction:* FTTH is the most expensive way to deliver broadband service, which immediately makes it the most vulnerable platform in the fiercely competitive broadband industry. Other competitors either spend very little on infrastructure or already have it in place and paid for, making it a "sunk cost," whereas the FTTH utility must charge prices high enough to include debt repayment. Many communities that experienced financial losses from their municipal broadband systems did so because construction costs were higher than original estimates.

- *Time to construct:* It takes between one and two years to build a FTTH network, during which time the utility is spending money but not earning revenues. United Telesystems Inc. apparently told Tri-Cities officials, "We have seen clients get their systems launched within 7 to 8 months from when they have closed on their bond issues, however, it typically takes 10 to 12 months."[68] But during the July 7 rally, Aggregate Networks' cofounder and principal Rick Kaufmann twice referred to "two years" of construction with "no revenue" coming in to the utility. This was one reason, he said, why investors view municipal broadband networks as start-up ventures and so demand higher interest rates.

- *Legal restrictions on subsidization:* The municipal entity cannot be subsidized without triggering legal challenges under Section 253 of the 1996 Telecommunications Act.[69] Cities that have tried to subsidize their municipal broadband networks by raising rates for other utilities or forcing residents and businesses to use the municipal service have been taken to court. If the municipal utility begins to lose money and cannot make its loan payments, the only legal route is sale of the assets to a private firm, either prior to or following bankruptcy. Taxpayers and ratepayers in towns and cities across the country have lost millions of dollars when this has occurred.

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[68] From "Further questions regarding the feasibility study and project and answers from the broadband Consultant (1-9-03)," supra note 51.

[69] 47 U.S.C. §253(a). "In General—No State or local statute or regulation or other State or local legal requirement, may prohibit or have the effect of prohibiting the ability of any entity to provide any interstate or intrastate telecommunications service."

Questionable penetration rates: Many municipalities that suffered losses from their broadband ventures received from their consultants inflated estimates of the number of potential customers who would sign up for services. There are obvious incentives for consultants to inflate those numbers while simultaneously under-estimating construction cost and time. A good example is the telephone survey supposedly showing latent demand for broadband services in the Tri-Cities. "A total of 300 completed calls (100 for each cities) were randomly made to residents of Batavia, Geneva, and St. Charles and 50 to businesses. Of the business calls, one city had 16 completed business calls and the other two had 17." [70] On its face this is too small a sample to determine if there is sufficient consumer support for a service costing $57 million - $62 million just to launch.

As mentioned earlier, consumers currently use the bulk of bandwidth for cable TV, not for faster Internet access. FTTH may make 100 Mbps available for interactive video, high-speed computing, or voice over Internet Protocol (VoIP) applications, and a few businesses may use the network this way, but the vast majority of potential customers would be satisfied with standard Internet access at 1.5 Mbps and the rest of the bandwidth devoted to consumer cable TV. If they already receive cable TV from another source, then getting Internet access from the cable company, telephone company, or a wireless company will probably be cheaper and no less convenient than switching to the FTTH network. This makes the high penetration rates predicted by the Tri-Cities' consultants highly unlikely.

Aggregate Networks LLC and consulting firms like it, however, have few contacts and little expertise in arranging for content.

Finding content consumers will pay for: Focusing on how many bits per second a technology can deliver is misleading because bandwidth is only one part of a successful business plan. More important is the ability to create, market, and deliver the applications consumers want. Big cable and telephone companies are able to negotiate deals with well-known content providers—for example, DirecTV has an exclusive pay-per-view "Sunday Ticket" deal with the NFL, and AT&T has partnered with Comcast, Cox, and Time Warner to deliver VoIP service. Aggregate Networks LLC and consulting firms like it have few contacts and little expertise in arranging for content.

Technological change: New technologies such as WiMax and VoIP present a fundamental challenge to all business plans in the telecommunications sector, whether private or public. Businesses must be prepared to sell or abandon facilities and operations that have become obsolete, and the quicker they can make the decision and act on it, the better off their investors and consumers will be. Municipalities are unlikely to be able to act as quickly as private firms, creating the specter of taxpayers or ratepayers being forced to subsidize obsolete services for several years after superior alternatives become available.

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[70] From "Further questions regarding the feasibility study and project and answers from the broadband Consultant (1-9-03)," supra note 51.

An example of an emerging technology not already mentioned in this report is broadband over power line (BPL), which allows Internet access over household electricity lines.[71] Such technology would allow Internet service providers to reach every house and business using the existing power grid. Even if BPL is capable of operating only at relatively slow speeds, as may be the case, it could still provide the remote metering function advocates of FTTH claim as one of its benefits.[72] On October 14, the FCC approved rules expected to boost the spread of BPL nationwide.[73]

Many of the consulting firms in this business are start-ups with few clients and assets of their own. It is unlikely they will still be around to take the blame when a municipal broadband utility begins to cost taxpayers and ratepayers money.

Financial viability of partners: Municipal broadband networks rely heavily on consultants and contractors, making the financial viability of these partners crucial to the success of the business plans. But how viable are those partners? RCN, a major builder of municipal cable networks, announced plans to file for Chapter 11 in February 2004. According to David Tuerck, "Other firms have suffered bankruptcies, buildout freezes and abandonments. These include Western Integrated Networks/WINFirst (bankrupt), Altrio (frozen), American Broadband (abandoned), Utilicom (frozen), and SNETamericast (abandoned)."[74] Many of the consulting firms in this business are start-ups with few clients and assets of their own. It is unlikely they will still be around to take the blame when a municipal broadband utility begins to cost taxpayers and ratepayers money.

Certificates of Participation

Voters in the Tri-Cities rejected the municipal broadband initiative in 2003 in part because they believed their tax dollars were put at risk. Does the new plan, which relies on certificates of participation rather than general revenue bonds, deserve a second look from voters?

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[71] David LaGesse, "Piggybacking on power lines," *U.S. News & World Report*, August 12, 2002, p. 51; Judith B. Warrick, "Are You Ready for the Revolution?" *Global Electricity Strategy*, Morgan Stanley Dean Witter, April 12, 2001.

[72] "We expect that [BPL] will be mainly used at home controlling and remote metering because it has the low speed of 1 Mbps or less and it will be rarely used at the field needing the high speed data transmission. However, if the limit on the power line frequency usage is solved, the high speed data communication will be possible. So it has the brightest promise than [*sic*] any other home networking technologies." Samsung Technical Support, on Samsung's Web site accessed on October 12, 2004. http://www.samsung.com/HomeNetwork/SupportServices/Technicalinfo/wired/PLC.htm

[73] Ben Charny and Jim Hu, "FCC Eases High-Speed Network Rules," CNET News.com, October 14, 2004.

[74] David Tuerck and John Barrett, supra note 67.

According to Annie Collins, the new financing arrangement means "this will be no risk at all for the taxpayer."[75] The Fiber for Our Future Web site proclaims, "ZERO IMPACT ON YOUR TAXES—GUARANTEED!" [all caps in original][76] It says "this year's referendum question will again ask for you to grant authority to the TriCities to build and operate a municipal fiber optic broadband utility in a manner which carries ZERO TAX RISK. [all caps in original] There are several possible financing methods available to the TriCities. While these methods may require a longer repayment period or a higher interest rate than last year's proposal, the utility will remain **100 percent independent of your tax dollars."** [bold face in original]

> Aggregate Networks has yet to announce a financing package for either of its two FTTH municipal clients.

But Aggregate Networks hardly has the track record that should inspire such confidence. It is reportedly involved in just two other municipal FTTH projects—Truckee Donner Public Utility District in California and Crawfordsville Electric Light & Power in Indianapolis—and it has yet to announce a financing package for either of its clients. Indeed, it appears no broadband network in the U.S. has ever been financed by certificates of participation, probably because investors view such projects as being too risky. In a market where broadband services are already ubiquitous and inexpensive, they are almost certainly correct.

The use of certificates of participation may offer some protection to taxpayers that using revenue bonds does not, but there is a price to pay for that protection. Generally in such cases, ownership of the asset is held by the lender while the client—in this case the local governments—pays down the loan. This means the network will not be "community owned," but only leased by local governments from Aggregate Networks' investors. Those investors, in turn, are free to sell the network to other investors. In fact, Aggregate Networks' Rick Kaufmann, speaking at the July 7 rally in Batavia, said "we will sell it to Comcast if it doesn't work."

Historically, certificates of participation emerged as a way for local governments to avoid caps and restrictions on their ability to raise taxes and issue revenue bonds. They are most effective where the economic value of the asset involved is readily assessed and likely to be stable. Municipal broadband networks do not fit this definition. The value of an expensive FTTH system is not determined by the cost of building it, but the ability of entrepreneurs to use it as part of a successful business plan. There is simply no precedent for that being done. Consequently, it is highly unlikely that Aggregate Networks or any other consulting firm will be able to arrange this kind of financing for municipal broadband utilities.

Finally, it would be misleading to imply that arranging for private financing of the *construction* of the FTTH network means taxpayers and ratepayers won't later find themselves "on the hook" to pay for operating costs and upgrades to the system. One of the lessons from

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[75] Jan Ramming, supra note 10.

[76] www.tricitybroadband.com, October 10, 2004.

other cities that have tried to make municipal broadband networks work but failed is that operating costs per customer are often higher than expected, resulting in the need for annual subsidies. There is nothing in the Tri-Cities referenda that would protect taxpayers and ratepayers from having to pay more to keep the utility operating in the years ahead.

Conclusion

Two years ago, in the first edition of this report, I wrote:

> A municipal broadband network may start service by charging "competitive" or even below-market fees, but once full-spectrum (DSL, cable, and wireless) competition arrives, prices for access will fall to the cities' operating costs or less, leaving them unable to pay off the bonds issued to cover the up-front investment in fiber. Businesses and residents cannot be treated as captive customers and charged more than what competitors would charge, first because of the existence of technological alternatives to the fiber-optic network and second because municipalities are barred from subsidizing their public telecommunications enterprises. Bankruptcy is a likely scenario.

Municipal broadband utilities clearly place taxpayers and ratepayers at substantial risk, regardless of how their construction is financed.

Developments since October 2002 have largely supported this analysis. Private competitors have returned to the field following deregulation of cable and telephone companies. Prices for broadband services are being driven downward by strong competition. As unlikely as it was in 2002 that a broadband utility could have put together a viable business plan, it is even less likely today. Municipal broadband utilities clearly place taxpayers and ratepayers at substantial risk, regardless of how their construction is financed.

Conclusion

Generally speaking, municipal ownership of broadband networks is probably not in the best interests of residents and most businesses, even in communities not well served today by private providers. Access to broadband services is more plentiful than advocates of municipalization claim or admit, suggesting the real issue is not availability but *price* and who should pay it.

The chief advantages of a municipal broadband network are that it would speed up access to high-quality broadband services by six months or a year and subsidize this access for the small number of businesses and individuals who most want it. It is unlikely that more than a small number of residents would benefit from this speed-up, that their benefits would justify the steep cost, or that it is fair to force other residents and businesses to subsidize them. It is fanciful to imagine that municipal broadband is a cost-effective way to promote economic development.

Very few other cities attempt to build and own broadband networks precisely because the costs and financial risks are too great. Cities that have taken the leap simply illustrate the riskiness of the venture, costing their taxpayers and ratepayers millions of dollars in subsidies with no end in sight.

It is no secret or surprise that public provision of services tends to be less efficient in the long run than private provision. Telecommunications services—complex, ever-changing, and intensely competitive—are unlikely to be an exception to this rule. Claims that consumers would benefit because governments don't make profits, or that public officials can run government agencies "like businesses," simply aren't plausible in light of the record.

Building and operating a FTTH network would be expensive and risky. Because of large economies of scale, the telecommunications industry is dominated by national and global companies. The Tri-Cities would be competing with giants such as Comcast and DirecTV and technologies that require less up-front investment than fiber optic. Comcast, SBC, and other competitors could easily cut their prices and thereby reduce the municipal entity's revenues. Bankruptcy of the municipal entity in a few years is a real possibility.

Threatening to build a municipal broadband network may have been a good strategy two years ago to prompt AT&T and SBC to make good on past promises. Following through with municipalization, however, is probably not in the best interests of Tri-Cities residents or the business community.

City officials would have to be prepared to quickly sell the network—at a loss—once competition emerges. It appears to be inevitable that such competition will emerge, thanks in part to the removal of regulatory barriers by the FCC and the courts.

Threatening to build a municipal broadband network may have been a good strategy two years ago, to prompt the incumbent cable and telephone companies to make good on past promises. Following through with municipalization, however, is probably not in the best interests of Tri-Cities residents or the business community.

About the Author

Joseph L. Bast is president and CEO of The Heartland Institute, a national nonprofit research center founded in 1984 and located in Chicago, Illinois. He is the coauthor of seven books, including *Why We Spend Too Much on Health Care* (1992), *Eco-Sanity: A Common-Sense Guide to Environmentalism* (1994), and *Education & Capitalism* (2003). His writing has appeared in *The Wall Street Journal*, *Investor's Business Daily*, *USA Today*, *Human Events*, and many of the country's largest-circulation newspapers.

Mr. Bast was the founding publisher of *IT Update*, a monthly newsletter on information technology and telecommunications regulation issues, and four monthly newspapers: *School Reform News*, *Environment & Climate News*, *Health Care News*, and *Budget & Tax News*. He has been recognized frequently for his contributions to public policy research and debate, including being named one of "The 88 to Watch in 1988" by the *Chicago Tribune*; recipient of the 1994 Roe Award from State Policy Network and of the 1996 Sir Antony Fisher International Memorial Award; and elected a member of the Philadelphia Society in 2002. He and his wife, Diane, reside in Palatine, a suburb of Chicago.

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