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Government-Run Broadband: Will it Work this Time?

*By Raymond L. Gifford & Mark Walker**

In "The Music Man," Professor Harold Hill convinced the people of River City, Iowa that forming a band would protect the town's boys from sin and corruption. In a modern replay, today's music men are trying to convince cities that government-run broadband networks will bring economic, cultural, and educational benefits. Though it is not quite saving the youth from the iniquities of pool-playing, the government-run broadband promise is an equally hollow con. To date, government-run broadband has a consistent track record of over-promising and under-delivering. But $4.7 billion of stimulus under the Broadband Technology Opportunities Program (BTOP) and $4.2 billion for potential broadband-related 'smart grid' technologies is breathing new life into the government-run broadband movement.

To be sure, debates over municipal broadband have devolved and "become so polarized that it has led to an oversimplification of the government-sponsored choices."[1] Often the proponents and opponents of municipal broadband "have acted as if there are only two options—leave the private sector investment to unfold on its own or alternatively intervene to offer a ubiquitous government-sponsored network."[2] That said, the financial record of municipal network operators is overwhelmingly poor, caused primarily by unrealistic business plans, including the inability of municipal operators to achieve the necessary scale to compete with larger network operators. In turn, the subsidies necessary for government-run broadband leads to higher taxes, jeopardizes bond ratings, and increases the cost of other municipal services. It may also have the unintended consequence of entrenching inferior communications technologies because government lacks the ability to continuously upgrade its plant and facilities, as private providers do in response to competitive pressure.

The poor financial record of municipal broadband deployments is well documented.[3] This is particularly true where a municipal operator seeks to enter a competitive communications market with large well-established service providers. The primary cause of a municipal operator's poor financial performance is the lack of scale enjoyed by the much larger network operators in the market. Simply put, larger network operators can more efficiently spread the costs of infrastructure and back office operations across a substantially larger customer base.

Three themes have emerged based on the poor financial performance of municipal networks in competitive markets. First, the business plans of municipal networks routinely underestimate and misunderstand the competitive and dynamic marketplace for communications services, resulting in substantial overestimates of revenue. Second, beyond the initial construction costs, the business plans of municipal operators do not adequately account for the substantial ongoing costs associated with owning and operating a broadband network. Third, to maintain the offered communications services as losses grow, municipalities are forced to subsidize those services, leading to higher than necessary taxes and/or increased fees for other municipal services and the potential unintended consequence of entrenching inferior technologies.

In other words, the business plans for municipal networks have historically relied on unrealistic assumptions by overestimating revenues while at the same time underestimating capital and operating expenses. In turn, the municipality must cover budget shortfalls through higher taxes and/or increased rates for other municipal services.

Many local governments providing municipal broadband networks have failed to understand or comprehend the competitive and dynamic nature of the communications market, leading to over estimated revenues and other unrealistic business assumptions. The financial performance of networks Provo (UT), Cedar Falls (IA), Lebanon (OH), and Ashland (OR) stand as cautionary tales for government-run broadband enthisiasts:

The Case of iProvo

iProvo's well-documented financial troubles occurred, in large part, because of its inability to achieve its underlying business assumptions in the face of a fiercely competitive market. In 2006, the City of Provo, with a population of approximately 117,000, completed construction of a fiber-to-the-home network, iProvo.[4] From its initial service launch, iProvo faced strong competition from Qwest and Comcast, two well established service providers that were unwilling to cede customers to the municipal upstart.[5]

iProvo relied on an overly optimistic prediction of customer acquisition and revenue per customer. "As of December 2007, iProvo reported 10,265 customers, the target it had set for December 2005. Furthermore, the iProvo plan had projected that 10,000 customers would be the break even point. That turned out not to be the case."[6] iProvo's inability to break even with 10,000 customers was due, in part, to an overestimation of revenue per customer. The iProvo business plan assumed 75% of subscribers would sign up for the "triple play" of telephone, Internet, and cable-television services, but as of October 2007, only 17% of customers signed up for the triple play, leading to a substantial overestimate of revenue per customer.[7] Such a gross overestimate completely undermined the iProvo business plan and highlights the City of Provo's sophomoric understanding of the competitive communications market. Even if the underlying assumptions were well founded at the time the business plan was developed, the reality proved to be much different than the proffered business plan, illustrating not only the competitive nature, but more importantly the dynamic nature of the communications market.

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Beyond just competing head-to-head with Qwest and Comcast, iProvo had to compete with emerging substitute service providers as well, further illustrating the dynamic nature of the communications market. For instance, wireless service had become a substitute for wired telephone service and is becoming a substitute for wired-broadband service. In addition, DBS service providers such as DirectTV and Dish Network are a competitive substitute for the cable-television service offered by iProvo. Provo's business plan, overly optimistic in light of the competitive and dynamic communications market, explains at least in part its eventual demise and sale.[8]

Other Municipal Experiences

The example of iProvo does not stand alone as a municipal provider with substantial penetration rates but poor financial performance. "There is evidence that municipal cable and Internet services can achieve high penetration rates if they're willing to lose a lot of money doing it. And this means taxpayer or ratepayer money."[9] As of 2004, the municipal network operated by the City of Cedar Falls, Iowa, had video penetration of 47% and high-speed data penetration of 37%, but from the start of construction in 1995 through 2004 the municipal network had a cumulative free cash flow of *negative* $10,543,588.[10] In Lebanon, Ohio, the municipal provider "achieved a penetration rate of 37 percent in its first year, despite competition from Time Warner. However, it has always shown substantial operating losses... , which suggests the high penetration rate flows from below-cost pricing."[11] Similarly, in Ashland, Oregon, the municipal provider "had a 35 percent penetration rate for cable TV and a 40 percent penetration rate for Internet service as of December 2004. However, the system has posted an operating loss of about $1.5 million each year since 2002."[12] A number of conclusions might be drawn from the overwhelming evidence of poor financial performance in light of the significant market penetration. No matter the exact conclusion, the repeated poor financial performance of municipal providers should give pause before other cities embark on this same path.

Underestimating Ongoing Costs

In addition to overestimating revenues, municipal providers have also regularly compounded their financial challenges by underestimating the ongoing operating, maintenance, and upgrade costs associated with a broadband network. Most importantly, municipalities fail to fully comprehend the economies of scale and the associated cost advantages enjoyed by the much larger network operators. In addition, municipal providers underestimate substantial ongoing costs associated with effectively competing in the communications market. This is due in part to misleading experiences in providing monopoly services such as water, sewer, and electricity. For those services, no competition exists and the pace of technological change is all but imperceptible. By contrast, broadband networks require constant investment and upgrading.

Even assuming a municipal operator accounts for and accurately estimates its expenses, it sits at a relative disadvantage to larger network operators because of the municipal operator's inherent lack of scale. This is evident in terms of comparable costs for back office operations and when purchasing network equipment, such as set-top boxes. Moreover, the municipal operator is "unlikely to achieve enough scale to peer with other networks [and] realize... critical cost savings" in terms of interconnection and backhaul.[13] Similarly, in terms of video service, "the aggregate size of a municipality's subscriber base does not warrant volume discount pricing on content" as enjoyed by larger video service providers such as Comcast, Verizon, AT&T, DirecTV, and Dish Network.[14]

Furthermore, a municipal communications provider often underestimates the cost of customer acquisition and retention. In the monopoly utility context that municipalities know and are used to, customer acquisition and retention costs are negligible.[15] In general, broadband service providers can expect a churn rate of between 2.5% and 3% per month. Over a given year, a provider can expect to lose a quarter of its customers.[16] For instance, iProvo had not fully anticipated the high level of customer "churn" it experienced. "[W]hile iProvo [was] adding an average of 260 customers per month, that gain [was] offset by an average of 140 customers per month" who ended service.[17] "At a cost of $800 to acquire and connect one new customer," this level of churn increased operating expenses well beyond what had been anticipated.[18] In short, a municipal operator must plan for substantial customer acquisition and retention costs where competitive alternatives exist.

Moreover, in a competitive communications market, all service providers, municipal and investor-owned, must continually spend to upgrade their networks to provide a competitive service offering to maintain both market penetration and revenue per customer. Price compression is a natural dynamic with respect to communications services, due to rapid innovation and commoditized services:

> [I]t should be recognized that the pace of competition is increasing and rates for data services have been falling about 20% annually, making it likely that pricing could decline more steeply than modeled. Further, the pricing for telephony appears poised to contract precipitously with the introduction of VoIP services, as average monthly revenue per line could slide from $50, with the downward pressure applied by VoIP rates of $35, $30, or even as low at $15. Many municipal models do not include price compression, as the architects of those models appear to be using regulated rate-of-return pricing or naturally occurring inflation adjustments to price.[19]

Without continually spending on network upgrades and improvements to counteract price compression, a service provider must expect revenues per customer to continually decline.

Cross-Subsidies and Distortionary Effects

To overcome revenue shortfalls and expanding costs, local governments often turn to subsidizing their service offering with tax revenues or revenues from other municipal services, resulting in residents paying higher than necessary taxes and/or prices for electric and other municipal services. In addition to wasting taxpayer money, subsidizing municipal

communications services runs the real risk of entrenching inferior technologies and distorting the incentives of a normal competitive market.

For example, the Internet, telephone, and cable-television services provided over Bristol, Virginia's municipal broadband network, OptiNet, were provided below cost and subsidized by the City of Bristol through either higher fees for other municipal services or higher taxes, or a combination thereof, as determined by the Virginia State Corporation Commission.[20] Similar cross-subsidies have been documented in numerous localities where municipalities provide communication services, including Lebanon, Ohio and Provo, Utah. In Lebanon, "[t]he monthly subsidization in 2004 appears to have been $37 per household, even without factoring capital costs or other cross-subsidizations (use of personnel or other assets)."[21] In Provo, "iProvo asked the City Council to approve the transfer of $1 million from the city's electricity reserve fund to cover the municipal network costs for fiscal 2006."[22] "In addition, a government broadband enterprise could receive an implicit subsidy in the form of costless, below cost, or perhaps even exclusive access to the public rights-of-way."[23]

The municipal services targeted for rate increases to subsidize municipal broadband, typically and logically, are those in which the local government is the monopoly provider, including electric, water, and sewer services. Most local governments that seek to provide communications services, including Bristol, Provo, and Lebanon, already provide electric service to their respective communities.[24] While this provides a place to defray and 'hide' the fixed cost of broadband provision, it is inequitable to electric ratepayers and invites backlash from competitive providers for unfair practices.

The unintended and perverse consequence of subsidizing municipal communications services leads to the real potential for the municipality to entrench inferior technologies by distoring the normal incentives of a competitive market. Consider the following:

> If subsidies allow a government enterprise to offer broadband service at a price that fails to cover costs, then competitors face a higher bar to successful market entry, even if they have a better technology. Suppose, for example, the government offers 200 kilobyte Internet access for $10 per month, even though it costs $20 per month to produce. Suppose further that private competitors could offer 10 megabyte service for $40 per month. Many consumers might prefer the faster service at $40 to the slower service at $20, but they'll choose the slower service if it only costs $10. If the government service is subsidized, the competitor cannot afford to introduce its faster service until further technological progress either improves the quality or reduces the cost sufficiently to let it attract consumers away from the subsidized service. Until that happens, consumers have to content themselves with the slower, subsidized service.
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> The point here is not just that lock-in via subsidies wastes the public's money, but also that consumers have to wait longer to get a better service, because competitors are deterred by the subsidy. Consumers would be better off if the price of the government service were not subsidized, because competitors would provide the superior combination of service and price sooner.[25]

Finally, government operation and ownership of a broadband network also raises free speech and privacy concerns for its customers. Politically strong interests within a city, including parent and religious groups, may seek to exert pressure on city officials to block or filter objectionable content. For instance, these groups may not find it appropriate to subsidize Internet pornography with their tax dollars. These concerns may be justifiable in terms of indecent, obscene, or other inappropriate content. Local governments, however, should be concerned about potential liability if it incorporates "restrictive use policies or Internet filters that prohibit the receipt or transmission of constitutionally protected material."[26] "As a general principle, the First Amendment bars the government from dictating what we see or read or speak or hear."[27] Even where the intent is to block only unprotected material such as child pornography, the filters and blocking technologies are inherently over-inclusive, preventing access to constitutionally protected material and therefore violating the First Amendment.[28] "The Government may not suppress lawful speech as the means to suppress unlawful speech.... '[T]he possible harm to society in permitting some unprotected speech to go unpunished is outweighed by the possibility that protected speech of others may be muted.'"[29] Understanding the legal risks of filtering technologies, some municipal service providers have even asked their customers to waive their First Amendment claims to avoid potential liability for blocking constitutionally protected content.[30] These waivers of liability are not likely to stand up in court.

Beyond free speech considerations, a municipal broadband network also invokes substantial privacy concerns. "People who have committed no wrong should be able to participate online without fear that someone who wishes to harass or embarrass them can file a frivolous lawsuit and thereby gain the power of the court's order to discover their identity."[31] As an operator of a broadband network, the municipality will collect substantial information regarding its users and their online activities. This point cannot be overstated—a broadband provider has access to every aspect of a subscriber's online experience from online banking to online research relating to "sensitive and very private issues such as health concerns or political activity…."[32] Local governments thus need to have necessary policies and procedures in place and be prepared to litigate to avoid disclosing user information if the request is legally inadequate, irrespective of whether the request is being made by another agency such as law enforcement or a third-party. Moreover, the city should afford the user notice, unless prohibited by court order, before disclosing to another city agency or a third party, allowing the customer to fight the release of his or her personal information.[33]

Municipal entry, in a competitive communications market, creates conflicts of interest, shifts financial risk from investors to taxpayers, and jeopardizes critical public policy goals, including long-term innovation, free speech, and privacy.[34] Broadband is crucial to the economic, educational, cultural, and social structure of the nation's communities. There are many more successful—and less expensive and risky—steps that local governments can take to promote broadband adoption, other than providing retail broadband.

Endnotes

1 Michael J. Balhoff & Robert C. Rowe, *Municipal Broadband: Digging Beneath the Surface*, at 10 (Sept. 2005), http://www.balhoffrowe.com/pdf/Municipal%20Broadband--Digging%20Beneath%20the%20Surface.pdf [hereinafter *Balhoff Report*].

2 *Id.*

3 *E.g.*, *Balhoff Report*, *supra* note 1, at 32.

4 Provo, Utah, http://en.wikipedia.org/w/index.php?title=Provo,_Utah&oldid=273720329 (last visited Mar. 6, 2009); iProvo, http://en.wikipedia.org/w/index.php?title=IProvo&oldid=267325321 (last visited Mar. 6, 2009).

5 Steve Titch, *iProvo Revisited: Another Year and Still Struggling*, Reason Foundation, at 2 (Apr. 2008), http://www.reason.org/pb69.pdf [hereinafter *iProvo Revisited*].

6 *Id.*

7 *Id.* On a per-customer basis, revenue from a triple-play of services is approximately three to four times that of providing just a single service. *See* Moss-Adams, LLP, Monmouth Independence Network Report, at 7-19 (Nov. 17, 2008), *available at* http://www.ci.monmouth.or.us/vertical/Sites/%7BCE78EAE1-6CA4-4610-BDB0-A9B3B0A8BB71%7D/uploads/%7B23A212BF-5095-4AE2-8B66-10B585E79E17%7D.PDF (providing various price points for single and triple-play services).

8 Steven Titch, *Money-Losing iProvo Fiber Network Sold by City to Private Firm*, Heartland Institute (July 2008), http://www.heartland.org/publications/infotech%20telecom/article/23350/MoneyLosing_iProvo_Fiber_Network_Sold_by_City_to_Private_Firm.html.

9 Jerry Ellig, *A Dynamic Perspective on Government Broadband Initiatives*, Reason Foundation, at 10 (Nov. 2006), http://www.reason.org/ps349.pdf.

10 Dr. Ronald J. Rizzuto, *Iowa Municipal Communications Systems: The Financial Track Record*, Heartland Institute, at 7-8 (Sept. 2005), http://www.heartland.org/custom/semod_policybot/pdf/17724.pdf.

11 Ellig, *supra* note 9, at 10.

12 *Id.*

13 *Balhoff Report*, *supra* note 1, at 94.

14 *Id.*

15 *Id.* at 91 ("Churn can be expensive as it involves cost in disconnecting service, marketing to re-win, pricing of new services to recapture lost customers at lower margins, and reinstallation – problems that most municipal utilities have been spared with water or electric service.").

16 Ellig, *supra* note 9, at 10.

17 *iProvo Revisited*, *supra* note 5, at 2-3.

18 *Id.* at 3.

19 *Balhoff Report*, *supra* note 1, at 92.

20 *See* Final Order, *Petition of United Telephone-Southeast, Inc.*, Va. State Corp. Comm'n, Case No. PUC-2002-00231, at 13 & 19-20 (Feb. 25, 2005); *Balhoff Report*, *supra* note 1, at 42.

21 *Balhoff Report*, *supra* note 1, at 38.

22 Steven Titch, *Spinning its Wheels: An Aanalysis of Lessons Learned from iProvo's First 18 Months of Municipal Broadband*, Reason Foundation, at 5 (Dec. 2006), http://www.reason.org/ps353.pdf.

23 Ellig, *supra* note 9, at 18.

24 Bristol Virginia Utilities, Our History, http://www.bvu-optinet.com/templates/default.php?purl=about_us_history&turl=inside_3col_std_template.htm (last visited Feb. 25, 2009) ("Bristol Virginia Utilities is a municipally owned system, providing electric, water, wastewater and fiber- optic telecommunication and information services to the City of Bristol, Virginia."); Provo City Power, About Us, http://www.provo.org/util.about_us.html (last visited Feb. 25, 2009); City of Lebanon, Ohio, Electric, http://ci.lebanon.oh.us/departments/electric/electric.html (last visited Feb. 25, 2009).

25 Ellig, *supra* note 9, at 18.

26 Nicole A. Ozer, *No Such Thing as "Free" Internet: Safeguarding Privacy and Free Speech in Municipal Wireless Systems*, 11 N.Y.U. J. Legis. & Pub. Pol'y 519, 551 (2008).

27 Ashcroft v. Free Speech Coalition, 535 U.S. 234, 245 (2002).

28 *E.g.*, Center For Democracy & Technology v. Pappert, 337 F.Supp.2d 606, 633 (E.D. Pa. 2004) (discussing the over-inclusive nature of various filtering and blocking technologies). "Even with advances in software technology, over-blocking has not abated over the years." Ozer, *supra* note 26, at 552.

29 *Ashcroft*, 535 U.S. at 255.

30 *See* Ozer, *supra* note 26, at 552 & 554 (discussing Culver City, California's public wireless network and its attempt to have users waive their First Amendment rights in connection with the city's use of content filtering technology on its public wireless network to block material the city deems undesirable or unlawful).

31 Columbia Ins. Co. v. Seescandy.com, 185 F.R.D. 573, 578 (N.D. Cal. 1999).

32 American Civil Liberties Union of Northern California, Electronic Frontier Foundation, & Electronic Privacy Information Center West Coast Office, *Joint Letter on San Francisco Wireless Internet Access*, Oct. 19, 2005, http://epic.org/privacy/internet/sfws10.19.05.html.

33 *See*, *e.g.*, *id.* (discussing free speech and privacy concerns relating to San Francisco's municipal wireless network and specifically stating that "when a government entity establishes and assumes responsibility for a system that provides public electronic communications services, that constitutes 'state action' for constitutional purposes and requires the City to comply with the dictates of the state and U.S. Constitutions, including the First and Fourth Amendments").

34 Government-run broadband may indeed have a valuable place where private markets do not provide broadband service. While some of the same pratfalls remain, so long as it is recognized that there will likely be ongoing needs for subsidization of networks in unserved areas, there may well be a role for municipal networks where there is no competitive alternative.