
Cashing in on Cable
Warning Flags for Local Government



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Executive Summary

The Telecommunications Act of 1996 and the increasingly competitive nature of the telecommunications business have largely obviated the role of government as a regulator of cable television and Internet service. The response by some local governments has been to switch from regulator to competitor in the market for these services. This development puts taxpayer funds at risk in the highly volatile broadband industry.

We review the experience of five communities that have had a disappointing experience with the cable/Internet business:

- 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.
- 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.

The experience of Norwood, Massachusetts offers an opportunity to assess the financial viability of entering the cable/Internet business. Unlike many municipalities, Norwood has provided financial data in sufficient detail to make it possible to determine whether it would make a profit by entering the cable/Internet business.¹ We apply sensitivity and risk analyses to these data to show that this business could easily become a money-loser for Norwood:²

¹ Using these data, we measure profit and loss by the "net present value" of projected cash flows.

² Sensitivity analysis shows how a single, unfavorable turn of events (e.g., higher than expected costs, lower than expected market share) could cause an enterprise to incur a loss. Risk analysis shows the profit

- Applying sensitivity analysis, we find that Norwood could incur losses ranging from \$0.227 million to \$4.352 million.
- Applying risk analysis, we find that Norwood could “expect,” in a statistical sense, to lose \$150,000 if it enters the cable/Internet business. The probability that it will lose money is 54 percent.

There are other financial issues to consider:

- Municipalities offering electric power to their residents often see the cable/Internet business as a natural extension of that service. But entering a second business raises the likelihood of cross-subsidization at the expense of electric power consumers. It appears that cross-subsidization of this kind is taking place in Braintree, Massachusetts.
- Municipalities that plan to offer cable/Internet may find that citizens will be reluctant to approve bonding for these projects at the expense of other more necessary projects. The town of North Attleboro, Massachusetts’ electric department is seeking a \$20 million bond to finance the construction and operation of a city cable system. At the same time, town officials are expected to have to ask citizens to approve a tax override to fund four other public projects. Three such overrides have failed recently in nearby Braintree. Towns that want to have more money to provide cable and more money to fix schools and other buildings may be finding that they can’t have their cake and eat it too. Voters may show reluctance to override Proposition 2 1/2 when they see the town entering into a new, costly business venture.
- Municipalities that provide cable/Internet service may run afoul of the IRS and of state and local taxing jurisdictions. Federal law strongly suggests that such providers should be compelled to pay the Unrelated Business Income Tax. Municipalities may furthermore put the tax-exempt status of their electric power operations at risk by entering the cable/Internet business. Such considerations further threaten to turn their entry into this market into a money-loser.

Communities that enter the cable/Internet business see doing so as a sensible business venture. They expect to make a profit as well as provide customers with better service and, possibly, lower rates. Entering the broadband market is not, however, like providing sewer or electrical service. Supplying broadband services is an unruly, rough-and-tumble business. Entrants to the broadband market are as likely to incur losses as to make profits.

Private firms understand this; thus when profits shrink, they leave the industry or find themselves acquired by other firms. Private firms are accountable to stockholders for whom the sole standard of performance is the market value of their stock. The prospect of an unsolicited takeover focuses attention on the bottom line.

or loss an enterprise could “expect,” in a statistical sense, given the risks applicable to various factors (e.g.,

Public entities are not, however, so cognizant of risk or focused on the bottom line. Since they sell to the same taxpayers who must ultimately absorb the costs of their mistakes, and since taxpayers are unable to express their displeasure with management by selling their stock, public entities are unlikely to internalize the risks of entering a highly competitive market. And once they get into trouble, they are more likely to hang on, struggling to provide after-the-fact justification of their earlier decision and forcing their customers to pay through higher taxes or electrical rates.

Municipalities enter the cable/Internet business in order to provide better service at lower rates to their residents and in order to promote competition. But cable/Internet is already the very model of a competitive industry, characterized by innovation, a high degree of competition between alternative services and constant pressure to turn a profit. Like any industry undergoing rapid change, broadband will, in some instances, exhibit high prices and poor service. Because, however, the technology is constantly improving, the general direction is toward more investment, expanded service and only moderate price increases.

The Federal Communications Commission is optimistic: “The Commission believes that, as competition to cable and choice in the video programming marketplace develop, consumers will have access to more services and that prices will be controlled by competition.”³ The existence of some pockets of inefficiency and the allure of high profits nevertheless tempt some municipalities to enter the broadband business.

We offer this report as a warning flag to any community that might be so tempted. Cable TV and Internet are industries subject to intense competition and technical change. Municipalities contemplating entry to these industries should make a thorough attempt to gauge the risks involved before they commit themselves to what may end up becoming a costly venture.

costs and market share) that affect profits.

³ FCC Consumer Alert, “FCC Role in Rate Regulation Ends,” available from <http://www.fcc.gov/Bureaus/Miscellaneous/Factsheets/cblrate.html>; Internet.

I. Introduction

When Congress created the Federal Communications Commission (FCC) in 1934, the role of government in the telecommunications industry was a narrowly limited one. The private sector provided telecommunication services, and the public sector regulated the provision of those services to assure that they were provided at a fair price.

Rapid technological change now means that there is strong competition in the telecommunications industry, and hence a diminishing need for government intervention. As former Clinton White House Advisor Ira Magaziner puts it:

With the Internet and this new environment of convergence, we are going to have the greatest amount of competition the world has ever seen. We are going to have telecom companies, computer companies, satellite companies, wireless companies, consumer electronics companies, and electric utilities all competing to build out this infrastructure, and the best thing we could do is let that competition take place and not try and regulate it or interfere with it.⁴

It was with an eye to such expectations that Congress passed the Telecommunications Act of 1996. The Act, which deregulated “expanded basic” cable TV rates, was intended to spur the nascent competition associated with this industry and, in so doing, to facilitate the development of a broadband infrastructure throughout the country. An unintended consequence of this Act, however, was to encourage government, now reduced in its role as a regulator, to become a competitor to the very private-sector entities it regulates.

By 2000, more than 200 publicly owned utilities had entered the U.S. broadband industry, offering a mix of services, including cable and Internet access.⁵ The entry of public entities into competition with private-sector entities raises important economic, ethical and financial issues at the municipal and the national level.

⁴ Ira Magaziner, “Creating a Framework for Electronic Commerce,” at *Progress and Freedom Foundation Aspen Summit 1998: Cyberspace and the American Dream* (Washington: The Progress and Freedom Foundation, July 1999), available from http://www.pff.org/ira_magaziner.htm; Internet.

⁵ American Public Power Association, *Annual Directory & Statistical Report, 2000* (Washington D.C.: American Public Power Association, 2000).

Caveat civitas – let the townspeople beware! In this report we argue that very substantial business risks face any municipality that enters the cable TV and Internet access business. We open our argument with cautionary tales of some of the municipalities that have entered the business and failed.

Cautionary tales are not sufficient, however. Where some municipalities fail at the cable/Internet business, others may still hope to succeed. In Section III, we therefore consider in detail the kind of financial analyses that a municipality must perform in order to consider fully the risks attendant to entering that business.

The town of Norwood, Massachusetts provides a useful object lesson. The town has decided to offer cable TV and Internet access service to its residents. In doing so it would compete head-to-head with the existing cable provider, AT&T.

The economic basis for this decision is a feasibility study by Virchow, Krause & Co. (VKC) of Wisconsin, commissioned by the town to study the proposed entry by the Norwood Light Department into the broadband market. The study concluded that the project would be a financial success.

However, we identify pitfalls in this analysis, which, when considered, show how easily an apparently favorable financial analysis may conceal risks of failure. We also point out the potential for cross subsidies that may cause electric power consumers to pay inadvertently for cable/Internet service. Finally, we point out the risk that municipal entities providing for-profit cable/Internet service may be subject to the Unrelated Business Income Tax, a possibility that would pose additional risks to taxpayers and electric power consumers served by the municipality.

In Section IV, we expand the analysis to consider some of the broader policy issues at stake. These issues revolve around considerations of efficiency, fairness and prudence. The principal implication for municipalities is that, operating as they do outside the private-enterprise system, publicly owned cable/Internet providers may not only fail financially but may prove to be a continuing burden on municipal resources long after their failure has become apparent.

With this information in hand, town residents may still choose to go ahead with town-provided cable/Internet services, but at least they will be proceeding with a full appreciation of the risks involved.

II. Cautionary Tales

There is no guarantee that a town can cash in on cable. This is the central message from five municipalities that have entered the broadband market. These well-documented cases illustrate clearly what can go wrong when towns enter the business.

Tacoma Public Utilities Click! Network

In 1996, the city of Tacoma, Washington hired SRI Consulting to explore the possibility of entering the broadband market. The SRI report advised Tacoma to consider “playing a significant role in the advanced communications business.”⁶ Tacoma opted to enter the cable/Internet market to seek new revenue because income from its core business of providing electricity had leveled off.⁷

In April 1997, the Tacoma City Council gave Tacoma Public Utilities (TPU) the authority to begin building the “Click! Network” for the purpose of providing cable TV, Internet and high-speed data transmission services. The plan initially called for issuing municipal bonds to finance the network, but ultimately TPU used existing cash reserves from its electricity business to build the network. Services were scheduled to be delivered beginning September 15, 1997. Table 1 below details the Click! Network’s projected versus its actual performance.⁸

Table 1. Click! Network Performance Shortfalls

Goals	Projected Performance	Actual Performance
Start date	September 15, 1997	July 27, 1998
Customers	34,312 by end of 1998	17,260 at the end of 2000
Revenue	\$22.7 million in 1999	\$2.7 million by December 31, 1999
Capital budget	\$40 million	\$86.5 million by October 2000
Profit	\$1.9 million by end of 1998	Has not yet reached break-even point

⁶ SRI Consulting, “Telecommunications Strategy Assessment”, prepared for the Light Division of Tacoma Public Utilities, May 21, 1996.

⁷ Paul Guppy, “When Government Enters the Telecommunications Market,” in *Policy Brief*, (Seattle: Washington Institute Foundation, June 2001) Washington Institute Foundation, June 2001, p. 4.

The Click! Network has continually fallen short of expected goals set forth in the consultant's study. The initial system was projected to have a capital budget of \$40 million. By October 2000, however, capital costs had risen to \$86.5 million. Combined with an operating loss of \$15.7 million, the system has cost over \$102 million.⁹ So far, TPU's cable-system losses have added about \$709 in new costs for each of the utility's 148,000 power customers. It appears that the need to make up Click! Network losses figured into TPU's decision recently to impose a 50 percent surcharge on local electric bills and in the utility's need for an additional \$100 million in borrowing authority to cover rising wholesale electricity costs.¹⁰ With its poor investment choices, TPU has jeopardized its core business of competitively providing electricity to citizens of Tacoma.

Paragould, Arkansas

The city of Paragould, Arkansas entered the broadband market primarily because residents were not satisfied with the incumbent cable provider, Paragould Cablevision. The city believed it could provide better service at a lower cost. In October 1989, residents of Paragould approved the issuance of \$3.22 million in bonds to finance a municipal cable television company. The referendum was approved by a vote of 1,549 to 1,102 out of approximately 7,000 registered voters. The bonds were backed by a 6.5 mill rate suspended tax on all personal and real property in the city.

This suspended tax was activated when it became necessary to cover cable losses for the first six years of the cable operation. The cable operation began in March 1991, and in 1992, property taxes were raised for the first of many times. Table 2 below contains the property tax increases and cable system operating losses for the years 1992 to 1997.¹¹

These cable losses occurred *even though the system met its target for market penetration*. After 1992, the city had 3,277 subscribers, almost 50 percent of the incumbent operator's customers. It eventually bought out Paragould Cablevision. But operating costs rose faster than

⁸ Ibid, p. 5.

⁹ Arthur Anderson, *An Analysis of TPU's 1997 Telecommunications Study* (Washington: Arthur Anderson, Feb. 7, 2001).

¹⁰ Guppy, p. 6.

¹¹ Statistics were taken from National Cable Telecommunications Association, *Municipal Ownership: An Ongoing Review of the Status of Municipal Ownership of Cable Television Systems...or...Look Before You Leap*, Oct. 1998, and *The Arkansas Democrat-Gazette*, Aug. 6, 1998 and Sept. 16, 1997.

expected. “The programming costs are killing us,” Rhonda Davis, Chief Financial Officer of the Paragould Light and Water Commission said in 1997.¹²

Table 2. Property Tax Subsidies to Paragould City Cable

Year	Property Tax Rate Increase (mills)	Cable System Loss (\$)
1992	2.786	273,788
1993	2.250	227,571
1994	1.776	198,407
1995	2.825	343,503
1996	2.753	389,690
1997	2.785	432,647

The future doesn't look any brighter for Paragould. A study conducted by Ronald Rizzuto and Michael Wirth of the University of Denver in 1998 concluded that the Paragould system could not reach the break-even point either with or without the tax subsidy, and would never pay back the original investment at its current level of performance. Through 1998, the investment had produced a loss (i.e., negative net present value) of between \$3.7 and \$4.4 million.¹³

Necessary system upgrades will likely keep Paragould mired in debt and losses for many years to come. When the city built the system in 1990, it built a 450 MHz, two-way plant. Paragould City Cable's design was “tree and branch” as opposed to a more desirable “hybrid-fiber coax” (HFC) design.¹⁴ The industry standard is 750MHz HFC, and even this technology is quickly becoming obsolete. Upgrading to Ethernet technology would require a significant additional capital investment.

If Paragould City Cable feels it cannot afford to issue the bonds to make this investment, the residents of Paragould risk being passed by on the information superhighway. The blame for Paragould's plight is the city's willingness to put low cable rates ahead of a prudent business plan. They achieved lower-than-market rates through tax subsidies and forced the competition, Paragould Cablevision, out of the market. Because of these actions, the residents of Paragould are left with an obsolete cable system and no alternatives.

¹² National Cable Telecommunications Association, p. 3.

¹³ Rizzuto and Wirth, p. 20. See below for a discussion of “net present value.”

¹⁴ Ibid., p. 20.

Ashland, Oregon

The city of Ashland, Oregon believed that entering the broadband market would be a good way for the electric department to diversify its revenue stream in the face of deregulation in the electric utility industry. Lower revenue and higher-than-expected costs have, however, put Ashland's city-owned cable TV and Internet system in a precarious position. The construction of the Ashland Fiber Network (AFN) fell 18 months behind schedule and led to the appointment of an AFN advisory committee. The committee was created at the suggestion of members of the Ashland Citizens Budget Committee, who were concerned with the financial state of AFN.

A large factor in the success projected in the city's original business plan, completed by the private consulting group R.W. Beck, was the belief that the incumbent cable provider, Charter Communications, was prohibited from dropping rates according to its franchise fee agreement with the city. On this assumption, Ashland believed the city's cable company would have a 20% price advantage. The city was mistaken in its assumptions. The creation of AFN resulted in Charter's lowering its prices and increasing advertising. City Councilor Don Laws is concerned that actual future revenues from AFN will differ greatly from the business plan predictions if competition is not considered. "The initial assumptions were there would be no price competition and obviously there's been intense competition," he said.¹⁵

As recently as December 2000, Pete Lovrovich, who left his position as Electric Department Director in April 2001, projected the city would have 1,825 cable subscribers and 1,966 Internet subscribers by the end of the fiscal year, which was June 30, 2001. In April, after Lovrovich departed, the projected number of cable subscribers was revised to 1,460 by June 30, and the number of Internet subscribers was revised to 1,693. The actual June numbers were 1,483 cable subscribers, 19 percent below the original projections of December, and 1,403 Internet subscribers, 29 percent below the December projections.

AFN also lost key commercial clients to lower Charter bids. The city had been attempting to induce Rogue Valley Manor, an elderly care facility, to switch from Charter to AFN for its Internet connection. The city never progressed past initial discussions. An attempt to displace Charter and provide Southern Oregon University dorms with cable television also failed. Both times AFN has been outmarketed and outpriced.

¹⁵ Myles Murphy, "Mixed Reviews for AFN Report", *Ashland Daily Tidings*, Aug. 22, 2001.

Ultimately it will be the citizens of Ashland who will pay the price for their city leaders' mistakes and miscalculations. "While the effect of competition was positive for Ashland cable subscribers whichever service they use, if AFN does not succeed, all Ashland taxpayers will pay the price in the end," according to Mayor Alan DeBoer.¹⁶ The city fathers of Ashland were not prepared for the stiff competition in pricing and marketing from the incumbent provider, and as a result, they face a long struggle to make their city cable system solvent.

Lebanon, Ohio

By building its own cable system, the city of Lebanon, Ohio hoped to give its citizens a cheaper alternative to the incumbent provider, AOL Time Warner. But the system's price tag has ballooned from the \$5 million estimated in 1999 to \$9 million quoted in December 2000, and the city has faced fierce price competition from AOL Time Warner. When the city signed up its first customers in February of 1999, AOL Time Warner responded by slashing its prices. Eventually the city cable system captured about 2,800 customers while AOL Time Warner retained about 3,300.

Initially the city cable system did bring lower rates to the citizens of Lebanon. But just 18 months after launching the system, city officials were already talking about rate increases. In December of 2000, both AOL Time Warner and the city were charging \$5.99 for their lifeline analog package and \$14.99 for their standard analog package. In the same month, the city proposed raising the next year's rate for the lifeline package to \$6.99 and the rate for the standard package to \$16.99. The new rates for digital service would be \$20.49 for basic digital and \$23.99 for deluxe digital in 2001. Projections showed that by 2005, Lebanon's rates would be \$9.49 for the lifeline package, \$20.49 for the standard package, \$27.49 for the basic digital package and \$30.49 for the deluxe digital package. AOL Time Warner, meanwhile, had no plans to raise its rates.

Afraid of the loss of customers due to the rate hikes, Lebanon officials threatened to use police officers to enforce a 36-year-old law, one that they have never used before, as a way to stop door-to-door sales by AOL Time Warner. In a thinly veiled attempt to prevent a competitor from gaining additional customers, city officials claimed they were just looking out for city

¹⁶ Myles Murphy, "AFN Panel Continues Inspection of Details", *Ashland Daily Tidings*, Aug. 24, 2001.

residents. The head of the telecommunications system for the city claimed that 40 residents complained that AOL Time Warner employees would knock on their doors, pitch the company's services and offer to install them on the spot. However, no written records of these complaints exist, according to city attorney Mark Yurick.¹⁷

Less than a year after the rate increase was proposed, actual rates exceed the previously projected rates for 2005. Currently, the rates for the city cable system are \$6.99 for the lifeline package, \$23.98 for the standard package, \$27.98 for the basic digital package, and \$34.98 for the deluxe digital package. AOL Time Warner's are lower: \$5.99 for lifeline, \$14.99 for standard, \$21.07 for analog basic and \$24.50 for digital.¹⁸

By May 2001, Lebanon's cable/Internet system was saddled with increased debt and stagnant revenues. The city-owned utility proposed an increase in electric rates after city officials agreed to borrow \$14.8 million in mortgage revenue bonds, part of which will be used to cover debt from the broadband department.

Previously, in 2000, the city council approved a 20 percent electric rate hike for residents served by the city-owned utility. Council Member Mark Flick said, "The 20 percent increase [in 2000] in electric is going to seem like nothing compared to what they'll see from this [May 2001 mortgage bonds mentioned above]." Flick stated the \$14.8 million would actually be in the neighborhood of \$22.5 million once interest was paid. But he doesn't see much of a choice: "We can back away and eat the mistake that was done [with the creation of telecom]. But the loss of money there is greater than this expenditure. Telecom will never pay for itself as it exists. Unless functions are added to it, it will not pay in 30 years. The bottom line is that, no matter what, you, the taxpayers, will pay for the failure. The ultimate outcome will be higher taxes."¹⁹

Once again it is the citizens of Lebanon who will pay for the mistakes of Lebanon city officials who are attempting to compete in a market where they have no experience. Time and again, officials whose only experience is managing an electric utility that faces little or zero competition believe they have the business savvy to take on corporate giants such as AOL Time Warner. And time and again, they find themselves stuck with the burden of paying for these

¹⁷ Cheryl M. Harris, "Time Warner Resumes Sales Pitch", *Dayton Daily News*, Dec. 16, 2000.

¹⁸ Lebanon's cable rates were obtained from their website at www.ci.lebanon.oh.us/departments/telecom and AOL Time Warner rates were obtained by calling the local customer service office on Sept. 7, 2001.

¹⁹ Lisa Loveless-Manz, "Rising Electric Rates May Zap Residents", *Dayton Daily News*, May 19, 2001.

money-losing enterprises. In the case of Lebanon, Council Member Flick's comments lead one to believe that the city is in a position of throwing good money after bad.

Scottsboro, Alabama

In January of 1998, the city of Scottsboro, Alabama became dissatisfied with the local cable company's service and decided to build its own cable system at a cost of approximately \$7 million. Its goal was to provide a cheaper alternative to the services offered by Falcon Cable. The city council granted Scottsboro Electric Power Board a franchise in March of 1998, which hooked up its first cable customer by the end of the year.

Before the city built its cable system, Falcon was charging an average monthly rate of \$40.36. Six months after the launch of the city cable system, Falcon dropped its rate to \$35.48 a month. The city's cable rate was only \$28 a month. It continued to beat the competition. But then something unexpected happened: Charter Communications Inc., the national cable company controlled by Microsoft co-founder Paul Allen, bought out Falcon.

Immediately Scottsboro started to feel the heat. Between March and November of 2000, Charter signed up about 1,200 customers in Scottsboro at a rate of \$19.95 a month, \$8.00 below the city's rate. Utility manager Jimmy Sandlin blames the lower prices on Charter's large customer base. Said Sandlin, "Charter's nationwide customer base of more than 6 million subscribers, compared to the utility's 4,250 customers, allows Charter to offer some pretty ridiculous things like a rate of \$19.95 a month for one year for 145 channels."²⁰ Scottsboro sees this as unfair, but Charter is merely taking advantage of their economies of scale, a practice any prudent business would employ if able.

Scottsboro took its complaint to the FCC in August 2001. In the filing, Scottsboro alleged that Charter was using illegal "predatory pricing" to try and put Scottsboro's cable company out of business. The filing stated that Charter was offering \$200 rebates to customers who switched from the city services and rates well below those of other communities served by

²⁰ Associated Press, "City-Owned Utility Gets Taste of Cable Competition", *The Daily Sentinel*, Oct. 31, 2000.

Charter.²¹ Scottsboro and the FCC say that the city's filing probably won't lead to any administrative or legal actions.

Municipal leaders like those in Scottsboro use their tax-free, low-interest capital and cross-subsidization advantages to charge below-market prices, but they are incredulous when a private company uses the advantages at its disposal to fight back. They are astonished to discover that private companies are willing to compete vigorously for market share. Greater awareness of the risks involved would prevent these kinds of surprises.

²¹ David Armstrong and Dennis K. Berman, "Telecom Companies Confront New Rival: The Municipal Network", *The Wall Street Journal*. Aug. 17, 2001.

III. Financial Analysis for Municipalities

When any entity undertakes a business venture, it must have some grasp of the likelihood that the venture will be a financial success. The overriding question for municipalities contemplating entry into the cable/Internet business must be, “Will it make money for the town?”

Here we outline some of the pertinent issues that arise in the consideration of that question. We show that a proper financial analysis should consist of (1) determining the cash flows that the project can be expected to generate over its life; (2) discounting those cash flows to determine net present value; and (3) subjecting the estimated net present value to “sensitivity” and “risk” analysis. We further show, using the town of Norwood, Massachusetts as a case study, how an apparently profitable project can, in actuality, turn out to be a money-loser.

Second, we consider the problem of cross-subsidization as it arises in public enterprise and, in particular, in the cable/Internet business. We show how another Massachusetts town is apparently – and contrary to promises made to the municipality – using its electricity business to subsidize its cable/Internet business.

Finally, we take up yet another risk – the possibility that, by entering the cable/Internet business, municipalities are exposing themselves to the Unrelated Business Income Tax. Should public enterprises offering cable/Internet service have to pay taxes on their profits or property, they would all the more likely become money-losers for the municipalities that sponsor them.

Preparing a Financial Analysis

The town of Norwood, Massachusetts is planning to enter the telecommunications market. Norwood is not alone. Braintree has already entered the cable/Internet business and Taunton and North Attleboro are seriously considering entering.

In this section we scrutinize the case of Norwood, mainly because it has prepared a detailed analysis of the financial consequences of its entering that market. Norwood offers a

good example of what an appropriate financial analysis can show about the cable/Internet business.²²

The town of Norwood selected Virchow, Krause & Company (VKC) of Wisconsin to perform a feasibility study of the proposed entry by the Norwood Light Department into the telecommunications market. VKC presented its findings to the Board of Light Commissioners on March 27, 2001. Subsequently, Norwood's Board of Selectmen voted to have two articles placed on the Special Town Meeting Warrant. The first article allowed the Town of Norwood Light Department to become a cable television provider. The second article was for the funding required to construct the broadband network.

On May 7, 2001 a special town meeting was held to permit Norwood residents to ask questions and vote on the articles. Both articles passed, and the Norwood Light Department was given permission to issue a public bond for \$10.9 million to cover the costs of constructing the broadband system. The last step was taken on July 25, 2001 when town selectmen voted unanimously to seek bids for new cable providers. The Norwood Light Department intends to be one of the applicants.

The VKC Study Summarized

The decision to enter the cable/Internet markets was based largely on a financial analysis contained in the VKC feasibility study. The following is a synopsis of the study's principal assumptions and conclusions:²³

- Based on a survey of 537 (out of a possible 12,574) residents, VKC concluded that over 90% of residential cable customers were either very willing or somewhat willing to switch providers at the same price for the family package.

²² Although, as we show, Norwood ignores some potentially fatal flaws in its financial plan, it is almost alone in its attempt to offer projections in any detail. Compare, for example, the town of Braintree, which has already entered the cable business. We obtained copies of three relevant documents: (1) Network Engineering Consultants, *Cable Television and Communications Market Research Study: Summary of Results*, Feb. 1, 2000; (2) Network Engineering Consultants, *An Analysis of the Potential Uses of the Hybrid Fiber Coaxial Network*, presented on Dec. 7, 1999; and (3) *Communications Business Plan*, presented to the Municipal Light Board, Nov. 13, 1997. None of these documents offered sufficient detail to make it possible to evaluate their accuracy or to determine the sensitivity of their findings to changes in market conditions.

²³ Virchow, Krause & Company, *Norwood Municipal Light Department Broadband Services Feasibility Study: Broadband Services Cost-Benefit Analysis Internet & CATV Products*, (Madison, Wisconsin: Virchow, Krause & Company, March 15, 2001) and a transcript of questions at a Town of Norwood Public Hearing on May 7, 2001.

- VKC projected a market penetration rate of 61 percent in both the residential and commercial cable market from year four onward.
- VKC projected a market penetration rate of 48 percent in the residential Internet market, and a 40 percent rate in the commercial market both from year four onward.
- The price charged for cable service was assumed to be \$34.95 a month for the family package, and \$39.95 a month for the optimum package.
- The price charged for Internet service was assumed to be \$29.95 a month for moderate-speed service, \$39.95 a month for high-speed service and \$69.95 a month for premium service.
- The project would be financed by issuing a bond for \$8.7 million in the first year and \$2.2 million in the third year, with a coupon rate of 5.25%.

We use these and other data provided by VKC to determine the cash flows that the project is projected to generate over the next 20 years. These projected cash flows are presented in Appendix A. Then, from the cash flows, we computed the expected net present value (NPV) of the project. NPV gives a single measure of the entire profit made by the project throughout its life, after subtracting all costs (including financing). Future cash flows are discounted using an appropriate interest rate in order to give today's equivalent value (the "present value"). An investor would not want to undertake a project for which the projected cash flows, when properly discounted, have a negative NPV.²⁴

The choice of a discount rate is necessarily a matter of judgment. VKC uses 8 percent, which applied to the cash flows in Appendix A, yields a NPV of \$4.667 million. The U.S. Office of Management and Budget²⁵ recommends using 7 percent on the ground that it is close to the pretax rate of return on an average new private-sector investment in recent years. With a discount rate of 7 percent, the net present value becomes \$5.229 million.

This is the value that the municipality could place on the project, given that the VKC assumptions about price, market share, cost and other factors turn out to be true. But, as we have seen, the best-laid plans can go awry. It is therefore prudent, before entering into any business

²⁴ We may think of NPV as the net gain to society of allocating resources to some public project *A*. If *A*'s NPV is positive, then the benefits to society of approving the project are greater than the costs. If *A*'s NPV is negative, the opposite is true. If *A*'s NPV is zero, then the benefits are just equal to the costs.

²⁵ U.S. Office of Management and Budget, *Circular No. A-94 Guidelines and Discount Rates for Benefit-Cost Analysis of Federal Programs*, revised (Washington D.C.: October 29, 1992), p. 3., available from <http://www.whitehouse.gov/omb/circulars/a094/a094.html>; Internet.

venture, to consider the possibility that not every such assumption will, in fact, turn out to be true. The best way to gain the proper perspective on this possibility is to conduct a “sensitivity analysis” and/or a “risk analysis.”

The following two sections apply both a sensitivity analysis and a risk analysis to the Norwood project. The sensitivity analysis consists of determining the effect on cash flow and on NPV of altering four different key assumptions made by VKC. There are assumptions about (1) market share, (2) costs, (3) needed equipment and (4) price. In performing this analysis, we alter these assumptions one at a time to show how an adverse turn of events affecting each could turn NPV from positive to negative.

The risk analysis allows these same assumptions to vary simultaneously and randomly within a certain range. The range is constructed so that the assumptions can vary in a fashion that is both more favorable and less favorable to the project. We construct a probability distribution for each of several assumptions concerning price, cost and market share. We then use a computer program to conduct thousands of random trials and to determine thousands of randomly obtained NPVs. Using this program, we further construct a distribution of the NPVs, along with a mean and other critical statistics pertaining to the distribution. From this distribution, we can assess the risk of success or failure.

Sensitivity Analysis

The VKC cost-benefit analysis provides a single “best-guess” estimate of net present value. This is not a guaranteed return, however. Before undertaking this project, an investor would also want to know how risky it is, including how likely it is that the project would actually lose money.

The first step in a risk analysis is to test the sensitivity of the results to the assumptions that are used to construct the future net cash flows. This serves as a useful preliminary to a full-blown risk analysis.

Sensitivity Analysis 1: Smaller Growth in Market Penetration Rates

The net present value of the project is highly sensitive to the assumptions one makes about the market penetration of the cable and Internet market that Norwood will achieve. What would happen if market share were to grow more slowly than anticipated? Table 3 below sets out VKC's assumptions and a slightly less optimistic alternative, indicated by the shaded area of the table.

Table 3. Market Penetration Rates (%)

Service	Year One	Year Two	Year Three	Years Four through Twenty
<i>VKC's assumptions</i>				
Cable	15	30	50	61
Internet	15	30	40	48
<i>Alternative Scenario</i>				
Cable	15	30	40	40
Internet	15	30	40	40

For year four and beyond, VKC projects market shares of 61 percent and 48 percent, respectively, for cable subscribers and for residential Internet subscribers. An alternative scenario, the shaded area, has Norwood gaining 40 percent of the market in years three through 20, both for cable and Internet service.

This change results in a NPV (at a discount rate of 7 percent) of -\$0.227 million. Should Norwood's market share thus fall short of expectations, the project would become a money-loser.

Sensitivity Analysis 2: Lower Prices due to Competition

We have seen that it is easy for municipal leaders to ignore the prospect of price competition. But consumers tend to forgo loyalty when it comes to their pocketbooks. The small town of Elbow Lake, Minnesota started a municipal cable system in December 1990. During a price war with the incumbent operator, the city needed to finance the system to keep it afloat. After four years, having achieved less than the expected market share and revenue, the city sold the system to a private provider. "I think we showed 85 to 90 percent of the people said they'd support the city [in an initial survey]. And then when we built it, we were at 60 to 65 percent," City Manager Jeff Holson said. "The almighty buck talks, I guess."²⁶

²⁶ "Local Cable Company Out of Business", The Plain Dealer (Ohio), April 23, 1995.

The VKC study for Norwood used cable prices identical to the incumbent competitor's prices to estimate revenues. If the incumbent competitor reduced its price, Norwood would have to do the same to maintain its market share. Reducing the cable price by 20 percent, which would, for instance, bring the cost of a family package down from \$34.95 to \$27.96 a month, would turn the project into a money-loser. The NPV would be -\$0.932 million.

The Internet services market is even more unpredictable than the cable market. Of the 537 residents in VKC's survey, only 36 percent said they were willing to switch Internet providers for higher speed at higher cost. Data contained in the study show that 76 percent of residential Internet users are currently connected using dial-up technology on a shared voice line. The study also states that AOL currently has nearly half (49.4 percent) of the residential Internet market. It would appear that many of the respondents in the survey are content with their existing dial-up technology.

According to the VKC study, the lowest price for Internet access that Norwood would charge is \$29.95 a month for moderate speed and \$39.95 for high-speed. Both of these prices are higher than what most Norwood residents are currently paying (AOL charges \$23.95 per month). Even assuming that the moderate speed is quicker than dial-up, Norwood will still have to reduce its rate significantly to capture their projected 48 percent of the market. If, in addition to lowering cable rates by 20 percent, Norwood also has to drop its Internet rates by 20 percent – i.e. to \$23.96 for moderate-speed service, or essentially the same as the AOL price – then the NPV for the project drops to -\$4.352 million.

Sensitivity Analysis 3: Higher than Anticipated Operating Costs

Operating expenses include items such as salaries and benefits, equipment leasing, office expenses, helpdesk fees, programming costs, and so forth. The VKC feasibility study assumes Norwood will be able to raise its rates in tandem with rising operating costs.

This assumption flies in the face of recent experience. The FCC notes that from June 1999 to June 2000, programming expenses rose 16.2 percent and cable prices rose 4.8 percent as

the volume of services increased.²⁷ This, combined with rapid increases in capital investment, portends a cost-price squeeze of the kind that could undo the VKC assumptions.

Suppose, then, that, in order to remain competitive, Norwood finds that it must keep prices constant, as operating costs rise at a compound rate of just two percent per year. Under these conditions, NPV falls to -\$1.187 million.

Sensitivity Analysis 4: Unexpected Capital Outlay over the Course of the Project

A pertinent question when considering entering a dynamic industry like broadband services, where rapid technological advances drive product development, is whether the initial investment in infrastructure will be recouped before it becomes obsolete.

Norwood is choosing to build a hybrid-fiber coax (HFC) network, which is adequate for the present needs of a majority of residents. However, the question is whether it will be adequate in the not-so-distant future. VKC expressed its own concerns, observing that “today, however, we question if a traditional HFC network can support the growing data needs of the residential market.”²⁸ Some of these needs will be High Definition Television (HDTV), video-on-demand and streaming video. A current HFC network using a cable modem has bandwidth that allows data to move up to 1.5 megabytes per second (mbps). One HDTV channel requires 20 mbps. Add DVD quality video-on-demand and a HFC system is woefully inadequate.

An all-fiber network that brings Fiber To The Home (FTTH), called Ethernet, is the only technology that can provide enough bandwidth to accommodate future processing speed and larger video and data applications. With HFC, bandwidth depends on the number of neighbors who simultaneously access the network. Ethernet gives consumers their own dedicated amount of bandwidth.

VKC suggested an Ethernet network as a possible solution for Norwood. “The best future proofing of the Norwood network is to implement a fiber based Ethernet solution to each home...we recommend that Norwood consider FTTH.”²⁹ But this would add another substantial cost to the project. If Norwood implements its HFC network, and then five years into the project

²⁷ Federal Communications Commission, p. 3.

²⁸ Virchow, Krause & Company, p. 42.

²⁹ Ibid, p. 43.

finds it necessary to switch to Ethernet, it would have to make another large bond issue before the bond for the initial HFC system had been repaid.

Competisys, an integrated utility company, is currently laying an Ethernet network in northern California. Its estimated cost for installing fiber plant is \$1,000 per subscriber and that of installing the electronics is \$2,000 per subscriber.³⁰ These costs are likely to fall over time. Suppose that, in five years, the costs are 50 percent lower, or a combined \$1,500 per subscriber. This is the investment that would need to be undertaken in year 6 for the Norwood’s 6,255 residential cable customers and 218 commercial customers. Once this additional investment cost is included, the NPV of the project would become negative, falling to -\$1.368 million.

Table 4. Results of Contingencies in the Norwood Telecom Market

	NPV (millions)
Baseline Scenario	\$5.229
Contingency	
Fails to reach required penetration rate	-\$0.227
Cable rates reduced by 20% per month	-\$0.932
Both Internet and Cable rates reduced by 20% per month	-\$4.352
Operating costs rise by 2% per year	-\$1.187
Upgrade to Ethernet in year 6	-\$1.368

Risk Analysis

A sensitivity analysis is helpful in identifying where the risks lie, but it does not really tell us how likely each of the risks are. For this, one needs a full risk analysis (see Box 1), which we have undertaken for Norwood.

We used most of the same assumptions as those made in the VKC feasibility study, with the following modifications:

³⁰ Evan Blackwell, “Fiber to the New Home”, *Broadband Week*, July 23, 2001, available from http://www.broadbandweek.com/news/010723/print/010723_telecom_home.htm; Internet.

1. We assume that in any given year there is a 10% probability that the price will fall by 10% from the initial level; from that point on the price stays at the new, lower level. The lower price might be in response to a price cut by the existing cable supplier or made in order to boost market share.

Box 1. Risk Analysis

The cost-benefit analysis undertaken by VKC for Norwood, MA, is based on their best estimate of each variable – programming costs, market share, etc. – for each of the next 20 years.

There are two weaknesses to this approach. First, it may give misleading results, and second, it does not give an adequate sense of the risks involved. To see this, consider a simple project that costs \$140; there is a 60% chance that revenue will be \$200, and a 40% chance that the revenue will only be \$100.

The best guess is that profit will be \$60 – i.e. \$200 - \$140. This is because the most likely outcome is that revenue will be \$200. Some project appraisals present this figure as their best guess and leave it at that. However, the expected profit is really \$20: there is a 60% chance of a \$60 profit, and a 40% chance of a \$40 loss, which averages out to \$20. $(\$60 \cdot .6) + (-\$40 \cdot .4) = \$20$

Note that in this example the project is risky. There is a 40% chance that it will lose money. We might still want to do the project, but need to be aware of the high probability that we will lose substantially.

A better approach is to do a risk analysis. Sometimes termed a Monte Carlo simulation, the procedure is to:

- a. choose the distribution of future variables (e.g. 60% probability of \$200 in revenue, 40% probability of \$100 in revenue);
- b. randomly pick values for the future, using these distributions, compute the net present value and repeat the process many times.

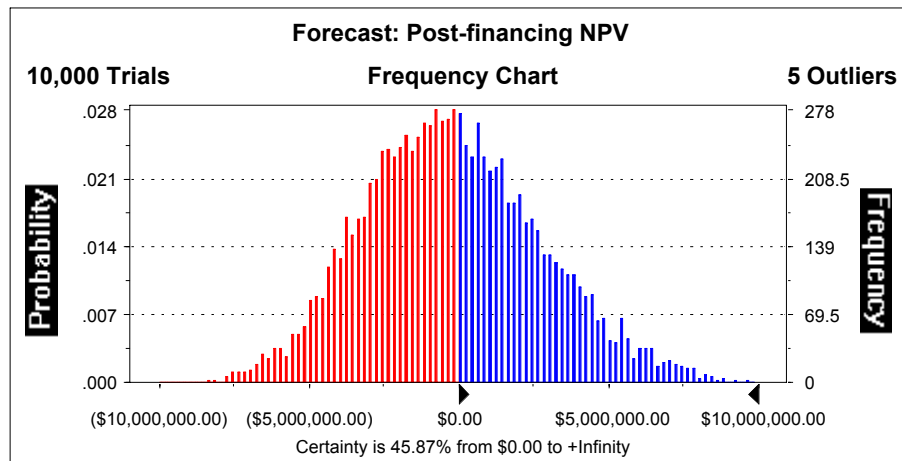
The result is a *distribution* of outcomes for NPV, which allows one to compute, among other things, the expected net present value, and the probability of a loss. Many risk analyses are done with the help of specialized software such as @Risk and Crystal Ball.

2. The VKC study assumes that the cost of salaries and benefits will not rise over time. Instead we assume:
 - a. a 15% probability that wages will not rise over time,
 - b. a 25% probability that wages will rise by 1% per year,
 - c. a 35% probability that wages will rise by 2% per year,
 - d. a 20% probability that wages will rise by 3% per year and
 - e. a 5% probability that wages will rise by 4% per year.
3. We use a discount rate of 5.25% as an appropriate “risk-free” cost of capital because we assume the interest charged on the bonds will be 5.25%. The appreciation of risk is then based on the distribution of net cash flow that emerges, after using this discount rate.
4. For market share, we assume:
 - a. In year 1, a market share for cable and Internet service following a triangular distribution – minimum of 12%, mode of 15% and maximum of 18%.

- b. In year 2, an *increase* in market share for cable and Internet service following a triangular distribution – minimum of 10%, mode of 15% and maximum of 20%.
- c. In year 3, an increase in market share following a triangular distribution:
 - for cable, minimum of 10%, mode of 20%, maximum of 24%.
 - for Internet, minimum of 5%, mode of 10%, maximum of 12%.
- d. In year 4, an increase in market share following a triangular distribution:
 - for cable, minimum of –5%, mode of 11%, maximum of 13%.
 - for Internet, minimum of 0%, mode of 8%, maximum of 12%.
- e. In years 5 through 20, an increase in market share for cable and Internet service following a normal distribution with mean 0% and standard deviation of 2%.
- f. The market shares for cable and Internet service are assumed to be closely correlated over time.³¹

The analysis was programmed using Crystal Ball, an add-in program to Microsoft Excel.³² Using this program, we obtained 10,000 computations of net present value, each associated with one of the above-described scenarios. We then determined the frequency distribution of net present value from which we were able to compute expected net present value and the probability that the project would lose money. See Figure 1.

Figure 1. Post-Financing Net Present Value Distribution



³¹ Specifically, the market shares in year 1 and the changes in market shares in years 2-4, for cable and Internet service, are assumed to have a rank correlation coefficient of 0.8. After year 4, the changes in market shares are assumed to be perfectly correlated.

³² The spreadsheet and our assumptions about the risk parameters are available on request.

Specifically, we found:

- The expected net present value of the project is -\$150,000.
- There is a 54% probability that the project will lose money.
- There is a 10% chance that the losses will be at least \$3.9 million; and a 10% chance that the profit will be at least \$3.8 million.

In short, the project does not look attractive; it is expected to lose money, and there is a substantial risk of high losses.

Losses cannot be willed away. They have to be financed in one way or another – either, in this instance, through subsidies from the Norwood Light Department (which would then have to raise what it charges for electricity) or directly from the town (in which case property taxes would have to rise, or services be cut). Either way, if losses were to appear they would have to be borne by the residents of Norwood. This stands in contrast to the case of a private provider, where the losses would fall on the company's shareholders.

Cross-Subsidization and Municipal Priorities

When municipalities take advantage of their tax-exempt status to enter into a business venture, they naturally want to have their cake and eat it too: On the one hand, they want to use all the resources at their disposal and their tax-exempt status to maximize the return to the community. On the other hand, they do not want to put those resources or their tax-exempt status at risk. Below, we consider the question whether their tax-exempt status might be put at risk, after all, by their entering the cable/Internet business. Here we consider the risk to which other resources and thus other programs are exposed by their entering that business.

This risk arises as a result of the possibility that the municipality will (1) cross-subsidize its cable/Internet business by diverting resources from some existing business, typically the local electric department, to which its cable/Internet business is linked or (2) strain its fiscal resources as it accumulates debt aimed at financing its cable/Internet business.

For an object lesson concerning the first of these possibilities, consider Braintree, Massachusetts, located close to Norwood, which, through the Braintree Electric Light Department (BELD) has already entered the cable/Internet business. BELD constructed its cable/Internet system at a cost of \$7 million. The fiber optic infrastructure of the cable/Internet system was

built using \$3.5 million of surplus BELD funds. When BELD asked the town for an additional \$3.5 million bond to buy equipment needed to capture the digital cable signal, some city officials raised the issue of cross-subsidization.

Fred Foley, a water and sewer commissioner and former finance committee chairman, said, in reference to the initial \$3.5 million of BELD funds, that the cable operation was essentially being subsidized by electric ratepayers. “The ratepayers are the shareholders,” he said. “At some point that money has to come back.”³³

In May 2000 the BELD distributed a *Fact Sheet* aimed at answering questions about its proposed entry into the cable/Internet business. There, BELD posed the question, “Will the CATV launch be funded with electric rate payer dollars?” The answer provided was:

No. State law prohibits BELD from using electric light plant revenues to fund anything not related to light plant operations, maintenance, repairs, expansion or depreciation. To do so would be considered unlawful “cross-subsidization” of cable operations by electric rate payers.³⁴

Yet a BELD financial statement for 2000 shows a transfer of \$2,198,105 from the light division to the broadband division.³⁵ BELD explains this as an allowable, once-and-for-all transfer of equipment and insists that the broadband division now operates independently of the light division. Whatever the rhetoric, the transfer amounted to calling upon electricity consumers to subsidize cable and Internet users.

There is the further concern that municipalities will find themselves sacrificing other priorities, as they try to raise new money to provide cable service even as they find themselves unable to finance schools and other projects that compete for scarce municipal resources. With the economy slowing and municipalities across Massachusetts confronting the possibility of a shrinking tax base, many municipalities – notably Braintree and North Attleboro – find themselves forced to go to voters with requests to override Proposition 2 1/2 to fund municipal services.³⁶

³³ Kevin Rothstein, “Braintree; Cable Competition is Coming to Town”, *The Patriot Ledger*, March 21, 2000.

³⁴ Braintree Electric Light Company, *A Fact Sheet Regarding the Proposed Digital Cable Television Service Offering of the Braintree Electric Light Department*, prepared for the annual Braintree town meeting, May 1, 2000, p. 6.

³⁵ BELD Financial Statements, available from <http://www.beld.com/annual/statement.html>; Internet.

³⁶ Proposition 2 1/2 generally limits municipal property taxes to 2 _ percent of assessed value and prevents property taxes from growing by more than 2 _ percent a year. When voters approve a debt exclusion or

Recent experience puts certain municipalities in the position of starting up a risky new business venture even as they find schools and other needs going unattended. When Braintree residents were asked to approve a \$44 million debt exclusion for school construction in June 2001, they turned it down. Braintree, which has tried three times to pass an override and failed, is reportedly facing a potential \$100 million in school building costs, \$50 million in sewer and road repairs, and \$6 million in renovations to town hall. Officials say the town has no way to cover those expenses within its operating budget without cutting services. “Our costs on all fronts have far exceeded 2 _ percent annual growth,” said James Casey, chairman of Braintree’s Board of Selectmen. “We’re definitely not gonna be able to afford all these services we have today in the future.”³⁷

This raises questions about municipal priorities. BELD is seeking an additional \$1.5 million, on top of the \$7 million already invested by the town, for its cable/Internet system. Although bonds sold to fund this new investment are supposedly secured by expected cable/Internet revenues, the town itself would end up holding the bag if, for reasons considered above, revenues prove disappointing. Braintree officials and citizens must therefore decide how important a city owned cable/Internet system is relative to public education, road and sewer repairs and town hall renovation, as these projects compete for an ever-dwindling pool of public funds.

The town of North Attleboro, Massachusetts is considering its own entry into the cable/Internet business. In recent years, the town’s electric department has conducted three feasibility studies. The first two studies indicated that the town would not generate sufficient revenue to cover the costs of providing the services. The third study, prepared by the same consultants who conducted the feasibility study for Braintree, deemed the project to be a money-maker.

Now the town’s electric commission is poised to ask for a \$20 million bond to cover construction and operation of the system. This is despite the fact that very few details about the plan are known to anyone outside the electric commission. All meetings thus far have been held behind closed doors, with the public unable to attend. The article regarding the bond, placed on

override, they are essentially give the municipality the right to raise their property taxes above the annual 2.5 percent allowed under Proposition 2 1/2.

³⁷ Emily Shartin, “Town’s Costs for Services Mounting, Voters Not Persuaded on Need for Override”, *The Boston Globe*, Sept. 13, 2001.

an October 2001 town meeting warrant, does not make clear how the new debt would be amortized.³⁸

Like Braintree, however, North Attleboro has other priorities: The town is expected to seek an override to fund four projects totaling \$15.8 million: 1) \$6 million to turn the Barrows building into a new police station, 2) \$4.4 million for further renovations to the Community School, 3) \$3.7 million for the first phase of work to bring public buildings into compliance with the Americans with Disabilities Act and 4) \$1.7 million for renovations and expansion of the public works building on Smith Street. These four projects would cost the average homeowner of a \$155,000 house about \$158 a year in additional property taxes the first year of the bond.³⁹

Towns that want to have more money to provide cable and more money to fix schools and other buildings may be finding that they can't have their cake and eat it too. Voters may show reluctance to override Proposition 2 1/2 when they see the town entering into a new, costly business venture.

In the end, local taxpayers would have to make good on bonds floated to fund a failed cable/Internet business. A municipality may thus impair its ability to fund school and other projects when it enters into a business venture that may well, as we have shown, end in failure.

Tax Issues

The foregoing analysis does not consider yet another risk faced by Norwood and other municipalities that consider entering the cable and Internet business. This is the risk that the new business might be subject to Federal or state income taxes and that, in addition, that the existing electricity business might lose its tax-exempt status.

Most electrical utilities are organized as non-profit entities.⁴⁰ These entities receive several tax benefits not available to for-profit companies. They are, for example, exempt from Federal income tax. In addition, they may be exempt from state income tax, sales taxes, and property taxes. They also receive discounts on postage rates. These are significant competitive advantages.

³⁸ Amy Newbury, "North Attleboro Closes Cable Meeting", *Sun Chronicle*, Aug. 28, 2001.

³⁹ Gloria LaBounty, "North Attleboro Eyes \$15.8 Million Override", *Sun Chronicle*, Sept. 13, 2001.

⁴⁰ Section 501(c)(12) of the Internal Revenue Code or section 115.

The underlying rationale for tax-exemption is that the organization serves some type of common good and that the net earnings do not benefit private individuals.⁴¹ The organization should also not exert political influence and it should be a not-for-profit entity. A public utility that engages in a for-profit activity, such as the cable TV business, may violate one or more of these characteristics.

If an electric utility engages in a section 503 prohibited transaction (such as, possibly, the cable TV business) there are several negative results that can occur. First, part of the utility's income may be subject to Federal income tax (the Unrelated Business Income Tax or UBIT). Second, the utility may lose its tax-exempt status, which will cause all its income to be taxed, including the electric division profits. Finally, sanctions may be imposed on management.

Obviously, loss of tax-exempt status would have severe financial consequences for rate payers, due to the imposition of federal and state income taxes, local property taxes (on what turns out to be a capital intensive business), as well as sales taxes.⁴² All these taxes would add to the utility's cost structure, reducing NPV or forcing higher rates on customers. The sanctions consist of excise taxes that are imposed on disqualified persons who are in a position to exercise substantial influence over the affairs of the organization and who engage in transactions they know are improper.⁴³

If an organization does not lose tax-exempt status it can still be subject to the imposition of income taxes if it engages in a prohibited transaction, if it acts as a *feeder organization* or if it generates unrelated business taxable income. A feeder organization is one that carries on a trade or business, such as cable television, and remits its profits to the exempt organization. A feeder organization is subject to federal income tax.

Therefore, the key issues with regard to utilities are whether the cable television business constitutes a prohibited transaction, whether UBIT can be imposed, and when and under what circumstances the utility can lose its tax-exempt status altogether.

⁴¹ See section 501(c)(3) and (4) for example

⁴² In Massachusetts corporations pay a tangible property tax of \$2.86 per thousand dollars on the cost of machinery and equipment, fixtures, machinery, etc. They also pay a 9.5% income tax on earnings.

A tax-exempt utility engages in a prohibited transaction when it:

- 1) lends any part of its income or corpus, without the receipt of adequate security and a reasonable rate of interest, to;
- 2) pays any compensation, in excess of a reasonable allowance for salaries or other compensation for personal services actually rendered, to;
- 3) makes any part of its services available on a preferential basis to;
- 4) makes any substantial purchase of securities or any other property, for more than adequate consideration in money or money's worth, from;
- 5) sells any substantial part of its securities or other property, for less than an adequate consideration in money or money's worth, to; or
- 6) engages in any other transaction which results in a substantial diversion of its income or corpus to; the creator of such organization;⁴⁴

An organization engages in a prohibited transaction when it lends any part of its income or corpus without receiving adequate security and a reasonable rate of interest.⁴⁵ In the case of BELD the transfer of \$2,198,105 that was made from the light division to the broadband division may constitute a prohibited transaction, since no security was pledged or interest charged.

The UBIT was created to prevent tax-exempt organizations from engaging in prohibited transactions, which would create unfair competition because of the tax exemptions they enjoy. The tax rates used are the regular corporate tax rates. Unrelated business income is created from activities that are unrelated to the exempt purpose of the organization. It is assessed when the organization engages in *substantial commercial activities*.⁴⁶ Whether or not the conduct of a cable business by an exempt electric utility constitutes a substantial commercial activity is a question of fact. The regulation states that an exempt organization may be subject to the UBIT when:

- 1) The organization conducts a trade or business.
- 2) The organization or business is not substantially related (other than through the production of funds) to the exempt purpose of the organization.
- 3) The trade or business is regularly carried on by the organization.⁴⁷

⁴³ Section 4958

⁴⁴ Section 501(b)

⁴⁵ IRC Sec. 503(b); Reg. Sec. 1.503(b)-1, Para. 5032.01, RIA U.S. Tax Reporter

⁴⁶ Section 511(a)(1).

⁴⁷ Section 513(a) and Reg. 1.513-2(a)

While there are certain exceptions to these rules, clearly, the operation of a cable business is a trade or business, one that competes with for-profit entities. It also is not substantially related to the exempt purpose of the utility, which is to provide electrical power. BELD also clearly intends to carry on this business on a regular basis, and it will compete with for-profit businesses. Broadly defined, a trade or business includes any activity conducted for the production of income through the sale of merchandise or the performance of services.⁴⁸ Examples in the regulations include travel services marketed by university alumni associations or other exempt organization, and priced to produce a profit. These travel services compete with for-profit travel services and are not related to the entity's exempt purpose.⁴⁹

To be related to the exempt purpose of the utility, the cable operation must be causally related and contribute importantly to the exempt purpose. Causality and importance are determined by the facts. For example, The Supreme Court has ruled that a tax-exempt medical organization's activity of selling commercial advertising space in its professional journal doesn't *contribute importantly* to the journal's educational purposes and therefore the earnings from those activities are taxable.⁵⁰

The biggest threat to the utility from entering the cable business is the loss of its tax-exempt status. This would mean the utility would be subject to federal and state income taxes on *all* of its income, not just the cable business profits as in the case of the UBIT. The utility would also be subject to property taxes, sales taxes and higher postal rates. This would mean higher bond and operating costs and higher electrical rates for customers.

To maintain exempt status the organization must satisfy *both* an organizational test and an operational test. The organizational test means that the organization of the entity is, at least on paper, still meeting the requirements for tax exemption. The blatant addition of a for-profit broadband cable business may cause the utility to fail the organizational test. The operational test looks to the operations of the utility to make sure that, in fact, the requirements for tax-exemption are met. Therefore, even if the utility looks tax-exempt on paper it may not actually be tax-

⁴⁸ Reg. 1.513-1(b)

⁴⁹ RIA Tax Reporter, paragraph 5132.05 and Reg. 1.513-7

⁵⁰ See U.S. v American College of Physicians (1986, S Ct) 57 AFTR 2d 86-1182, at Para. 5135.01(5) RIA Tax Reporter.

exempt when its operations are scrutinized. However, the IRS will usually require that the prohibited business is the *primary* purpose of the organization, which may not initially be the case for a utility such as BELD, but could be if the cable business grows in relation to the size of the electric division, as it has projected.

In summary, in addition to the moral and equity issues inherent in public utilities engaging in for-profit businesses, there are several very important tax issues that should not be ignored. At the very least, the cable division's profits will almost certainly be subject to federal and state income taxes. At the worst the utility may lose its tax-exempt status and be subject to taxation on all its profits, in all divisions, as well as property and sales taxes. This very real threat should not be ignored as the IRS is stepping up enforcement in this area.

IV. Other Policy Issues

Not all the issues confronting a municipality contemplating entry to the cable/Internet business are narrow financial issues of the kind examined in the preceding section. There are issues also of whether its entry into that business constitutes a good and efficient use of taxpayer resources and a fair and prudent action on its part. We consider some of these issues here.

Issue 1. Should Taxpayers or Users Foot the Bill?

A private supplier of cable or Internet services knows that the business is risky, as do the firm's shareholders. There is no coercion: households sign up for service if it is in their interest, the supplier provides service if it believes it will be profitable, and shareholders volunteer their capital, hoping for a handsome return but willing to take their lumps if the business loses money.

The case of a public supplier is somewhat different. If it loses money, the shareholders – in effect, the taxpayers – will have to shoulder the burden whether they voted in favor of the enterprise or not. It is not clear why anyone should ever have to be coerced into covering the losses (if any) for a service that could be provided in the private sector voluntarily.

It is such considerations that once compelled the public sector to limit itself to a regulatory role. Regulatory agencies took upon themselves the job of assessing costs and setting price, leaving the job of innovating, taking risks, controlling costs and serving consumers to the private entities they regulated. With government shunning its role as a regulator in the cable industry to become an active player, questions arise about the consequences for the industry, for the economy and for government.⁵¹

Issue 2. Is Public Provision Economically Efficient?

The profit motive is central to bringing about economic efficiency in the private sphere. Profits motivate firms to enter an industry where existing firms are earning profits and to leave an industry where the average cost per unit exceeds the price per unit, that is, where profits are negative. As firms leave an unprofitable industry and remaining firms cut back on production,

⁵¹ Jeffrey A. Eisenbach analyzes the government's role in the telecommunications market in, "Does Government Belong in the Telecom Business?" *Progress on Point, Periodic Commentaries on the Policy*

supply of the product decreases, resulting in an increase in price and a drop in average cost. This profit motive works to induce firms to go out of business whenever price is less than average cost.⁵² In the end, price will just equal average cost, so that the firm just covers all of its costs, including the value of owner-provided labor and capital services. Where average cost equals the marginal cost of producing the last unit, then price will equal marginal cost and firms will operate “efficiently.”

The profit motive also compels owners and managers to be alert to new technologies and opportunities to reduce costs and increase market share. The for-profit system of private enterprise rewards alertness and punishes complacency. The firm that gets a leg up on its rivals enjoys at least temporary prosperity and staves off the possibility of failure.

The entry of public entities into this private, competitive sphere where profit is the goal poses two potential problems for economic efficiency: (1) public entities, accustomed to the rules governing the provision of public goods, are often unwilling to submit to the rules of the for-profit system of private enterprise and (2) public enterprises can sometimes operate at artificially low costs. Let us first address the problem that arises as public entities encounter the rules of the road that govern the private, for-profit world.

Public entities – even those specifically empowered to operate at a profit – are unlikely to view the prospect of profits or losses in the same manner as their private-sector counterparts. Private entities have a single objective: maximizing profits, which, in the end, means survival in the industry.⁵³ Public entities can embrace any manner of (sometimes conflicting) objectives: for example, providing high-quality cable service at low prices and, at the same time, maximizing profits. In the words of Rhonda Davis, chief financial officer for the Paragould, Arkansas Light and Water Commission, “We didn’t go into it [cable business] to make money. People wanted to pay a reasonable rate and have good service.”⁵⁴

Debate, (The Progress and Freedom Foundation, Release 8.1, January 2001), available from <http://www.pff.org/POP8.1GovtTelecom011001LOGO.pdf>; Internet.

⁵² And by “average cost,” we mean the average of *true* costs, not the artificially lower costs at which publicly owned utilities operate. See the section on Fairness below.

⁵³ In the end, by the foregoing logic, economic profits are zero, making it necessary to maximize profits merely to break even.

⁵⁴ Steve Bennish, “Cable Data Suspect,” *Dayton Daily News*, April 13, 1998.

Looking out for the welfare of consumers seems like a loftier motive than maximizing profits. But under competition, maximizing profits means making just enough revenue to cover all economic costs.⁵⁵ Private entities go out of business when they fail to maximize profits. Indeed, one purpose of the for-profit system is to force firms that cannot cover their costs to go out of business, since their continued operation merely wastes resources.

Public entities, on the other hand, have an indefinite lease on life. They can survive protracted losses by claiming that they serve some purpose (high quality cable at low prices) other than “merely” making profits and by utilizing their access to public funds. Thus they can go on “wasting” economic resources long beyond the time that they would have been driven out of business had they been privately rather than publicly organized.

These are not merely philosophical points. In an industry like broadband, in which technology is constantly changing, losses are a real possibility. If a government cable provider manages to hang on despite recurrent losses, the resulting inefficiencies will manifest themselves in borrowing and raiding utility or town funds, which will in turn endanger town bond ratings and the funding of other services from which those funds were diverted.

Issue 3. Is Public Provision Fair?

Public utilities, like other government agencies, are entitled to tax and financial advantages that private companies do not enjoy. Municipal utilities are able to issue low-interest, tax-free and government-backed debt to finance their ventures. Sometimes the utilities use no-interest electric utility profit surpluses to finance their operations.⁵⁶ Public utilities are not subject to property taxes or state, federal and local corporate taxes. They have access to public rights of way, including utility poles, which private companies often have to pay a fee or endure lengthy negotiations to acquire.

By entering the broadband market municipalities, and by extension public utilities themselves, are put in the peculiar position of being both competitor and regulator in the cable/Internet industries. The city grants cable franchise licenses, settles right-of-way issues and sets property tax rates. In effect, the municipality ends up regulating its own competition.

⁵⁵ If the firm made positive economic profits, some other firm would enter the market to compete those profits away until price and average cost were just equal again.

The unfairness with which public entities compete with their private sector counterparts has implications for economic efficiency. Said Rizzuto and Wirth, “Because these hidden subsidies permit public utilities to undercut prices charged by private competitors, they distort the marketplace, deter entry by real competitors, and thus prevent the marketplace from setting cost-based prices.”⁵⁷ Thus as we anticipated above, the cost advantages that public utilities enjoy allow them to ignore the profit motive rules in the competitive market. They can expand production beyond the point at which price just equals marginal cost; this expansion has a “social cost.” This social cost is the value of other things whose production is sacrificed in order to produce that unit. With their ability to raise capital more cheaply than their private-sector counterparts, public utilities distort the allocation of resources and thus violate the price-equals-marginal-cost rule.

While this, in and of itself, may seem of no great consequence to the cable user who gets a break on his rate, it can also portend unpleasant, hidden consequences. Just as there is no free lunch, there is no free cable service.

The real-world consequences are much as we described them above. Enjoying artificially low borrowing costs, a public utility might forget that funds diverted from its usual line of business – say, providing electricity – are funds diverted from investment in that line of service, as the experience of Tacoma, Washington, shows. It might forget that the utility and the town have limited bonding capacity and that bonds issued to provide cable TV ultimately compete with the schools and other public construction projects for bonding. The reliance on debt financing puts ratepayers and taxpayers at risk for any and all losses.

Issue 4. Is Public Provision Prudent?

Proponents of government ownership of broadband services claim that they are as essential as sewer systems, police stations or highways, and that, no matter the loss or gain, government should provide them. In its usual public sphere, however, government doesn’t have to worry about a private firm installing a competing sewer system. Moreover, if the sewer system

⁵⁶ Ronald J. Rizzuto and Michael O. Wirth, *Costs, Benefits, and Long Term Sustainability of Municipal Television Overbuilds* (Denver: GSA Press, 1998), p. 44.

⁵⁷ Eisenbach, p. 15.

wears out, the government can force residents to pay for repairs through higher taxes and fees. The government has a comfortable monopoly in the provision of police or sewer services.

Such is not the case with cable and Internet service. Entering this competitive business is not like taking over trash collection or even the distribution of electric power. Today, broadband is more a model for Darwinian selection than for the quiet life of the typical town hall.

Consider the cable business as it stands today: In the broader video programming market, there is competition among cable distributors and between cable and noncable distributors. In its *Seventh Annual Report on Competition in Video Markets*, the FCC found that “competitive alternatives and consumer choices continue to develop in the video programming market.” While “cable television still is the dominant technology for the delivery of video programming...its market share continues to decline.”⁵⁸

While cable serves 80 percent of the market now, the growth of noncable service far exceeds that of cable. For the 1999-2000 period, cable grew by about 1.5 percent, while noncable grew by almost 18 percent. The principal source of growth in noncable service is Direct Broadcast Satellite (DBS). “Between June 1999 and June 2000, the number of DBS subscribers grew from 10.1 million households to almost 13 million households, which is nearly three times the cable subscriber growth rate. DBS subscribers now amount to 15.4 percent of all MVPD [Multichannel Video Program Distributors] subscribers.” This represents a competitive threat to cable. DBS “appears to attract former cable subscribers and consumers not previously subscribing to an MVPD.”⁵⁹

Other sources of actual or potential competition are wireless or “Multichannel Multipoint Distribution Services” (MMDS), Satellite Master Antenna Television (SMATV), Local Exchange Carriers (LECs), Open Video Systems (OVS) and Internet Video. While these serve a small fraction of the market, no entrant into the cable business can dismiss their potential for making future inroads. MMDS is on the decline, but SMATV increased its subscribership by 3.5 percent over 1999-2000.⁶⁰ Most LECs appear to be slowing their efforts to enter the market, but

⁵⁸ Federal Communications Commission, “FCC Adopts Seventh Annual Report on Competition in Video Markets,” News Release, Jan. 8, 2001, available from http://www.fcc.gov/Daily_Releases/Daily_Business/2001/db0108/nrcb0101.html; Internet.

⁵⁹ Ibid.

⁶⁰ Ibid., p. 6.

BellSouth “continues to pursue a number of methods for providing MVPD service.”⁶¹ RCN provides OVS in the Boston area. Internet Video represents a looming threat.

No single municipal cable service faces competition from all these sources all of the time. Indeed, there may be only one incumbent CATV provider at the time of entry – shown by surveys and anecdotal evidence to be offering poor service. The feeling may grow that, as far as entry by the municipality into cable is concerned, “someone has to do it.” Furthermore, there’s a buck to be made for the town.

That philosophy may work for a while. Nevertheless, the inefficient incumbent provider might have been or might still be bought out by a more efficient, aggressive provider. DBS may make unexpected inroads. The local phone company may follow the lead of BellSouth. New technologies may emerge, requiring costly upgrades.

Prudence therefore requires a community that contemplates entry to this business to develop a careful financial plan that pays adequate attention to risk – along the lines of our study of Norwood’s plans for the provision of broadband services.

⁶¹ Ibid., p. 8.