

Telecommunications in New Hampshire

Regulatory Background

Alexander Graham Bell patented the telephone in 1876. Thirty-five years later New Hampshire included the invention in a small group of services (also including electricity and water lines) deemed “public utilities,” whose operations would be overseen by the new Public Service Commission. (The name was changed to the New Hampshire Public Utilities Commission in 1951.)

These utilities have several characteristics in common. Each service:

- Is a fundamental building block for economic development in a community
- Is wanted or even needed by virtually every resident and business in the state
- Relies on access to public rights of way
- Is very expensive to build, and tends to not attract competitors in a given area
- Provides public safety benefits to the community.

Certain other services, for example postal mail and highways, share these attributes but have historically been delivered by the government itself. The public utility economic model takes advantage of the innovative spirit and profit discipline of the marketplace while establishing ground rules to direct those energies to support the public interest.

For telephone service one public policy goal is “universal service:” the assurance that every resident who wants to pay for a telephone line has that opportunity. Universal service benefits not only the individual subscriber, but the entire community: employers, retail businesses, schools, and fire departments can function more effectively when everyone is easier to reach.

New Hampshire law dating to 1911 defines a telephone utility as a company engaged in the delivery of telephone messages. Since then, state and federal laws and regulations have narrowed this scope. Wireless voice technologies, such as cell phone services, are overseen exclusively by the Federal Communications Commission (FCC). Voice services that are offered by third-party providers for use with the customer’s separate Internet service, such as Vonage, MagicJack or Google Voice, are also regulated only at the federal level. (The FCC uses the term “Nomadic Voice over Internet Protocol,” or Nomadic VoIP, to describe this type of service.) The rules for regulating voice services that are offered as a bundle with a particular hardwired Internet connection, such as cable telephony and fiber to the home service, have been the subject of much debate and litigation in recent years, and there is no nationwide decision on their status yet.

History of the Telephone Market in the Nation and in New Hampshire

For generations the telephone industry in America consisted of one giant, nationwide telephone company and its subsidiaries (American Telephone and Telegraph, or AT&T) plus a scattering of much smaller local telephone companies typically serving less dense

and more remote areas. (There are ten of these independent telephone companies in New Hampshire today.) These smaller companies connected their own networks to the AT&T network, thereby allowing a customer of one independent phone company to place a call into another phone company territory, across the AT&T network. All these telephone companies established billing arrangements among themselves to compensate each other when telephone calls traversed - and therefore used the resources of - multiple networks. Collectively these different, interconnected telephone systems are known as the "Public Switched Telephone Network" (PSTN). Each provider, whether it was a subsidiary of AT&T, a small "mom and pop" private company, or something in between, had a geographic monopoly: no other provider was allowed to compete in its territory.

This long-established industry model worked well at delivering reliable and near-universal telephone service, but many observers were dissatisfied with the pace of innovation and the price of service under the monopoly structure. This dissatisfaction resulted in dramatic changes over the last thirty years: first through a court decision and then through legislation.

In 1984 a long-running court battle over AT&T's monopoly status was settled and resulted in opening up the market for long distance services. New providers - early examples included MCI and Sprint - were allowed to compete with AT&T, and both business and residential customers could choose which long distance provider would handle their calls. At the same time, AT&T was split into seven separate regional telephone companies known in the press as the "baby Bells." The baby Bell serving most of the Northeast, including New Hampshire, was now named NYNEX. (Through mergers and acquisitions it would later become Bell Atlantic, and then Verizon Communications, whose departure from the state is discussed below.)

The breakup did not create greater competition in local markets. In 1996 Congress acted to do just that. A major revision of the 1934 Telecommunications Act produced both new rules and new nomenclature for the telephone industry. The existing telephone companies - both the baby Bells and the smaller local firms - were now designated "incumbent local exchange carriers," or ILECs. The new law was designed to promote a new class of companies to compete with these ILECs: the "competitive local exchange carriers," or CLECs. The 1996 Act imposed obligations on ILECs to negotiate interconnection agreements with CLECs, and even required larger ILECs (for example the baby Bells) to share their telephone lines and equipment with the CLECs on favorable pricing terms.

The ILECs are "old" and the CLECs are "new," but they also differ fundamentally in the roles they play. The ILECs - which already provided telephone service to virtually every city, town, and hamlet - continue to have a legal obligation to provide universal service: each ILEC is considered a "carrier of last resort." CLECs generally do not have that obligation. A CLEC can choose to serve a particular customer profile - perhaps households closest to a few city centers, perhaps large businesses or even types of business - and not build out a network to reach others who might want service.

To help it provide universal service, an ILEC may receive compensation for some of the costs of constructing and maintaining its network in rural areas that are more expensive to serve. This compensation comes from the federal “Universal Service Fund.” (Some states have established similar statewide funds; New Hampshire has not.) The terms under which a CLEC may compete in a small ILEC’s region may be affected by concerns about the ability of the ILEC to continue meeting its universal service obligations.

The CLEC Sector

A company that wants to go into business as a CLEC first needs four fundamental resources:

- a. A **network** to reach potential customers and physically connect them to the PSTN;
- b. An **interconnection agreement** that enables the CLEC to exchange traffic with an established telephone company;
- c. **Regulatory authorization** to offer telephone service to customers in a particular geographic area; and
- d. One or more blocks of **telephone numbers** to assign to its new customers. (Some customers will choose to bring their telephone numbers with them when they switch to the CLEC, but a CLEC is at a tremendous disadvantage if it cannot provide new numbers on request.)

In the first years after the 1996 Act took effect, many CLECs did not build their own networks but instead leased facilities from the local ILEC. This allowed CLECs to become operational more quickly, but made them especially dependent on both the ILEC’s operational support and on the federal regulations that required the ILEC to make facilities available. (Those mandates for sharing facilities have been relaxed in recent years, creating new challenges for CLECs that rely on this model.)

Other CLECs built their own network facilities, often including the “access lines” that reach their customers. These network deployments typically include stringing fiber or wires along existing utility poles owned by an ILEC, by an electrical utility, or jointly owned by both. Federal and state laws require that such utility poles be made available to CLECs on a non-discriminatory basis. Disputes over such attachments sometimes come before the PUC.

Some CLECs have a third option for establishing a telephone network infrastructure: they can upgrade their existing networks, used for other purposes, to support telephony. That is the path that cable television operators have taken. These operators had already built networks to deliver television signals to residential customers in the decades before the 1996 Act. In recent years they have upgraded those networks to support two-way data traffic and have developed equipment, some placed in their customers’ homes and some in their network, to translate Internet data traffic and telephone voice traffic into formats that the cable network can carry. These cable operators have aggressively marketed telephone service to residential customers, typically as part of a bundle that also includes television and Internet services, and are expanding into small business telephone and data services. They have become the largest competitors to the ILECs.

Whether a CLEC uses ILEC facilities such as access lines, or only carries telephone calls to and from the ILEC's customers, it must pay the ILEC for some level of service. In this role the CLECs are considered "wholesale customers" of the same ILEC they compete against for retail business.

CLECs must obtain regulatory authority from the PUC before offering telephone service to customers. In cases where a CLEC wishes to compete in the territory of New Hampshire's largest ILEC (FairPoint Communications, discussed below) the PUC has adopted a streamlined process to review such applications. According to New Hampshire law, only a history of questionable business practices (as shown, for example, by fines for violations of consumer protection laws in other states) can block approval of a complete and accurate application. These applications are typically reviewed and approved in a matter of weeks.

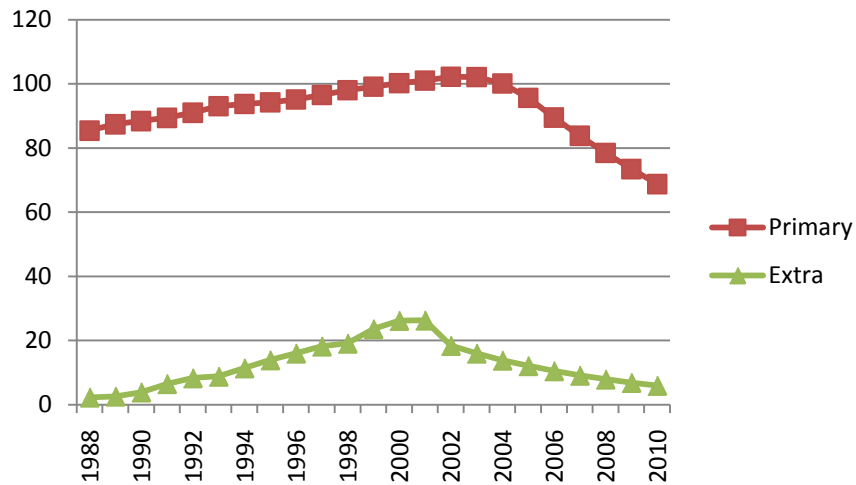
Current Trends in the Telecommunications Industry

One of the key metrics, though not the only one, for measuring the financial health of the telephone industry is "Access Lines in Service." This is a count of the number of telephone lines reaching residences and businesses that are "turned on" and have customers currently subscribing to service over them. (When a customer drops telephone service the line will become inactive but will usually not be removed.)

The advent of the Internet was, for many years, a big driver for growth in access lines. Many residential and business customers installed additional access lines just for dial-up Internet service, allowing the customer to make and receive telephone calls over their primary line even when using the Internet. The combination of dial-up Internet access, fax machine usage, and telephone lines for teenagers drove access line growth in the late 1990s. These trends peaked between 2000 and 2002, when (according to the FCC) one in five telephone lines was a secondary rather than primary line.

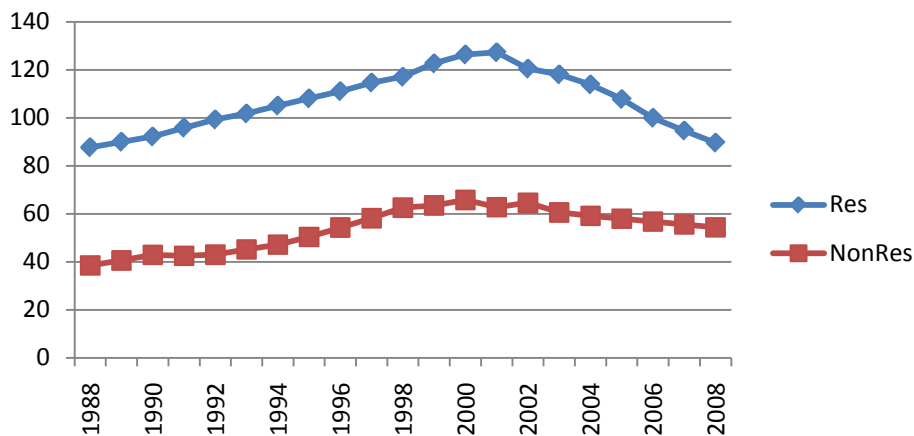
Since that peak the Internet has become a big driver for losses in access lines. The advent of Digital Subscriber Line (DSL) service allows a single telephone line to provide Internet and voice service simultaneously, and cable Internet service also provides a much faster alternative to dial-up. Between cellular phone service and these broadband alternatives, which are available in most but not all of New Hampshire, second telephone lines have become less attractive. Telephone providers have consequently suffered a substantial drop in access lines in service. The historical growth and subsequent decline nationwide in both primary and secondary lines is shown in Figure 1 below. (Data through 2006 is from FCC reports; subsequent years are extrapolated from those numbers.)

Figure 1: US Access Lines (millions)



Business customers cannot drop traditional service as readily as residential customers, because the alternatives are often not a good fit for their needs. Cellular phone service tends to be less reliable and is typically unlisted. Cable providers have built networks concentrated in residential areas; coverage in business districts is sometimes lacking. As a result, although business access lines have declined in recent years, the trend is much less dramatic than for residential customers, as shown in Figure 2 below.

Figure 2: US Access Lines, Residential and Non-Residential (millions)



FairPoint Communications

The 1984 breakup of the Bell System has been followed by a period of re-consolidation resulting in two telephone companies, AT&T and Verizon, with dominant nationwide positions in both landline and cellular telephone service. Each of these companies has adopted a “triple play” business plan for its residential customers, promoting traditional

voice, Internet, and television service over its access lines. These plans require major investments in upgrading to fiber optic lines.

Fiber transmission lines can carry much more traffic than older copper telephone lines. Verizon has adopted a “fiber to the home” model, deploying fiber all the way to the residence. AT&T has adopted a less expensive “fiber to the curb” model, replacing copper with fiber along poles and in conduits, but using copper access lines for the final yards to the home.

By 2007 Verizon had concluded that this strategy calls for greater focus on more urban areas, where more houses per mile means that per-customer costs are lower and per-mile revenue is higher. In support of this focus the company looked to sell its operations in Northern New England. The company seeking to acquire these operations was FairPoint Communications, a much smaller telephone company headquartered in North Carolina with operations throughout the United States.

The sale required approval by the utility regulatory agencies in the three states and the FCC. Under New Hampshire law, the PUC must determine such transactions are “in the public good.” Before it would conclude that, the PUC required various concessions from both Verizon and FairPoint. One concession was a reduction by Verizon of the sales price (thereby strengthening the balance sheet of the new owner). The commission also required commitments of FairPoint to improve retail service in areas ranging from installation times to customer service call responsiveness, to provide adequate support of CLEC wholesale customers, to expand broadband availability throughout the state, and to reduce the number of no-longer-used “double poles” along streets and highways. (A double pole comes about when a new replacement pole is placed next to a damaged or otherwise inadequate older pole. Once all the wires are transferred to the new pole, the upgrade work is often left uncompleted, and the old pole left in place. This creates an unnecessary safety hazard and eyesore.) Each of these commitments by FairPoint was backed up by agreed-upon penalties for inadequate progress.

After a full year of hearings and independent assessments, the three states and the FCC approved the sale. FairPoint Communications took over Verizon’s network in Maine, New Hampshire, and Vermont on April 1, 2008.

The most visible assets of a telephone company are probably its lines, poles, switches, trucks, and workers. A less visible but equally vital asset is the information it gathers and uses: the current status of all its equipment, the street addresses of its lines in service and idle lines, the services to which individual customers subscribe. All of this information is captured and processed in a group of databases and applications collectively known as the Operational Support System (OSS). Problems in the OSS may result in failures to complete customer installations promptly and correctly, and in failures to bill correctly for services delivered. OSS problems can also disrupt the telephone company’s ability to support wholesale customers.

Verizon's OSS was developed internally over several human generations and perhaps a dozen generations of computer technology. It consists of over 600 programs, and maintaining or even using it relies on institutional memory at Verizon and internally-written documentation. FairPoint planned to migrate from that OSS to one of its own creation, which would be assembled from newer off-the-shelf telephone industry software plus custom integration development efforts and code, both of which would be provided by an outside contractor. This would be an ambitious effort with inherent risks to schedule and functionality, but FairPoint believed the payoff – a new OSS, easier to use, modify, expand and support – was worth the investment and risk. FairPoint would rely on Verizon systems and staff to provide OSS functionality during development of the new OSS. Once the new OSS was ready, the various databases would be converted and transported from the Verizon system.

After many months of delay and substantial testing, FairPoint “cut over” to the new OSS at the beginning of February 2009. Problems appeared immediately. The company was unable to reliably complete new installation orders on time and its billing error rate rose to much higher levels than before. It was unable to reliably provide CLEC wholesale customers with the information and services they needed – for example, when a retail customer in FairPoint territory wanted to switch providers.

FairPoint was unable to correct the bulk of these problems for many months despite bringing in additional outside consultants to assess the situation and recommend corrective actions. One result of these continuing OSS problems was an increase in customers switching from FairPoint to a competitor. As we have seen, telephone companies across the nation are losing customers, but FairPoint's loss rate in New Hampshire has been steeper.

The combination of unexpected costs to recover from the cutover problems, plus decreased revenues as subscribers left, added up to a financial shortfall that left FairPoint unable to pay back its loans. On October 26, 2009, the company filed to reorganize itself under Chapter 11 bankruptcy protection. In negotiations with representatives of the three states, the company developed a plan that maintains most of its commitments to the states, specifically those involving service quality and broadband expansion. The financial losses under the plan are largely borne by the original shareholders and the bondholders – especially the unsecured bondholders. The three states approved the plan under state laws in the second half of 2010; the bankruptcy court, which assesses the financial viability of the plan, approved it in early 2011.

Current Issues

Five topics are likely to dominate the PUC's oversight of the telecommunications market over the next few years: FairPoint performance, competitive entry, alternative regulation, the role of broadband, and the depletion of telephone numbers in the 603 area code.

FairPoint performance, particularly regarding service quality for retail customers, operational support for CLEC and ILEC wholesale customers, broadband expansion

commitments, and billing error rates, will be a continuing focus for the Telecommunications Division.

Competitive entry is the process by which a CLEC becomes able to compete in the territory of an ILEC. This process is relatively straightforward when CLECs are entering the territory of FairPoint, our largest ILEC: authorization is uncontested and the CLEC can “piggyback” on existing interconnection agreements between FairPoint and other CLECs. Efforts to compete with smaller ILECs have been more difficult. The ILEC may contest the authorization, and once certified the CLEC typically must negotiate the first interconnection agreement the ILEC has ever made. In addition, some CLECs in both FairPoint and smaller ILEC territories will need to attach to utility poles, and may ask the PUC to intervene in that process.

Alternative regulation is in some respects a companion process to CLEC entry. State law provides that a smaller ILEC facing serious competition may petition the PUC to be regulated under a custom plan rather than under the traditional rate of return regime. (Such a move can free them to respond more quickly to changes in the market.) The plan must meet various criteria to ensure that rates do not rise quickly and that universal, affordable access is preserved. The PUC has approved alternative regulation plans for three of New Hampshire’s ten ILECs in recent years. A separate state law also provides a more difficult path to alternative regulation available to any utility, including larger ILECs (which effectively means FairPoint). The Commission has not yet approved alternative regulation for any ILEC under that statute.

The role of **broadband** in the state’s regulation of telephone service is complicated and shifting. Non-Internet data services over the PSTN, for example frame relay or ATM, are subject to state regulation but Internet services are not. Companies that plan to deliver broadband Internet service do not need to register as CLECs, but many have done so in part to strengthen their position when claiming pole attachment rights. Nomadic VoIP providers are also unregulated by the state but they may seek to obtain blocks of telephone numbers for their customers, perhaps through a wholesale intermediary, and the federal authority handling that request will consult with the PUC.

It may seem odd that New Hampshire is seeing a **shortage of telephone numbers** while experiencing a drop in telephone access lines, but both are occurring. When customers drop traditional telephone lines, they often switch to another voice service – for example, cellular or cable - with its own need for a number. The telephone access line count drops but the telephone number count does not. The **increase** comes mostly from the dramatic growth in cell phone adoption. A generation ago a family of four typically used a single telephone number for the home telephone; today it will often use five (one home phone and four cell phones).

Another factor in telephone number shortages, and one that the PUC can more easily influence, is inefficient allocation methods. In the 1990s numbers were assigned to providers in blocks of 10,000 numbers, many of which were hardly used. When New Hampshire faced exhaustion of the 603 area code at that time, the PUC worked with federal

authorities to reduce the block size to 1,000 numbers each. This action slowed down number consumption and prolonged our status as a single area code state for a decade. (Having a single area code means that residents can use seven-digit dialing, without using an area code, to call any number in New Hampshire.) Over the next year the PUC will be assessing other steps that might preserve numbers and our status as a single-code state, but we will also be preparing for a smooth transition to a second area code if needed.

One area of telecommunications is unlikely to require PUC attention over the next few years: **rate hike requests** from ILECs. (CLECs can change their rates without Commission approval.) The precise level and geographic range of competition is open to dispute but there is no doubt that competition has capped the prices that ILECs can charge. Even when costs increase and profit margins deteriorate, a rate hike is not practical; too many customers will simply switch to service from a cable operator, nomadic VoIP provider, or cellular carrier. No New Hampshire ILEC has petitioned for a general rate hike increase since 2005.

This raises the question: if competition is now sufficient to protect the public from monopoly-driven “price gouging,” can we end telecommunications regulation altogether? The loudest opponents to such a proposal might be the competitors themselves, who rely on regulatory enforcement for space on utility poles, for access to the information and network resources needed to compete for customers in a region, and for fair interconnection agreements with the ILECs. The ILECs also rely on fair regulation to preserve their ability to meet their universal service obligations. As one observer has noted, when a sports league achieves parity among teams, it still needs referees.

(April 19, 2011)