

# Moving Maine Up the Broadband Ladder:

10 Recommendations for Improving Maine's Inferior Broadband Standing.

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### Introduction

Did you know that Maine's broadband Internet is significantly inferior to other states? The problem is only getting worse. Our state's economy is directly impacted by broadband access. What can we do to fix this problem? What can we learn from 48 other states? How can we work together to advocate for legislation and mechanisms to move up the broadband ladder?

"Despite the task forces, the grants and the lawsuits, <u>Maine still ranks 49<sup>th</sup> among 50 states</u> for its quality and availability of broadband Internet access." This quote, by reporter J. Craig Anderson, was published in the January 8, 2014 issue of the *Portland Press Herald*. Anderson examined the reasons for Maine's poor broadband infrastructure and discussed why we are significantly inferior to other states in this area (with the exception of Montana).

Examining the data behind the article and the potential remedies, the following conclusions can be drawn:

**1. The report is accurate.** Maine's broadband is significantly inferior to our peers.<sup>1</sup>

**2. The problem is getting worse.** While Maine's broadband capacity is not deteriorating, the rest of the world is developing broadband capacity at a far faster rate. By standing still, we are falling further and further behind.

**3. The economic impact of broadband infrastructure is already significant** and the economic significance increases every year. Maine's poor broadband infrastructure is probably already having a negative impact on the State's economic activity and that impact will continue to grow over time.

**4. We can learn from other states.** We can look at other states and see how they are improving their broadband capacity and identify where Maine lacks the mechanisms other states successfully deploy.

**5. We can improve.** Through concerted effort and careful execution, we can address the reasons Maine is behind the rest of the nation in broadband capacity. We can be better than most states.

#### Did You Know?

Maine currently ranks 49<sup>th</sup> among 50 states for quality and availability of broadband Internet access.

<sup>&</sup>lt;sup>1</sup> The data determining Maine is 49th out of 50 states comes from Ookla's NetMetrics.

## Why Investing in Broadband Matters

Over the last fifteen years, a significant body of evidence has been developed that shows that the quality of Internet connectivity has a significant impact on economic development.<sup>2</sup> One North Carolina study found nearly one in five jobs created in 2010 was directly attributed to broadband.<sup>3</sup> The impact was even more profound among small businesses, as can be seen in the table below:



Figure 1: Job Creation and Broadband

"Ultimately, Internet access is part of a region's economic and social infrastructure." For a region, increasing the speed and reliability of Internet access and lowering its cost has a direct impact on the economic performance of the region. The following are a few reasons why:

1. Superior Internet access allows new business models and new businesses

2. Superior Internet access allows existing businesses to reach new customers

3. Better access lowers costs for businesses and consumers

4. Better access allows public institutions to deliver services at lower costs, reducing the tax burden.

<sup>&</sup>lt;sup>2</sup> See among others: OCED: *THE IMPACT OF INTERNET IN OECD COUNTRIES* (07/05/2012). Maine Governor's Broadband Capacity Building Task Force: *Broadband: The Road to Maine's Future* (2013) makes the specific case on the economic importance of broadband capacity to Maine's economic future.

<sup>&</sup>lt;sup>3</sup> <u>Regional Analysis of Broadband Utilization in North Carolina</u> (September, 2011).

Ultimately, Internet access is part of a region's economic and social infrastructure. The economic benefits of careful investment in other infrastructure like roads, tunnels, bridges and ports are mirrored by the economic benefits of careful investment in Internet access improvements.

## Internet Infrastructure is Cheaper

One significant difference between investments in Internet infrastructure and other forms of infrastructure investment is that they tend to be significantly cheaper. As a rule of thumb, a mile of roadway costs an order of magnitude less than a mile of tunnel or bridge and a mile of highly reliable, blazingly fast fiber Internet infrastructure is an order of magnitude less expensive than a mile of roadway. In Maine, construction of middle mile Internet fiber costs about \$30,000 per mile and last mile fiber costs about \$60,000 per mile. Ongoing maintenance is minimal, less than hundred dollars per mile per year. Further, the environmental impact of Internet infrastructure is low. Internet infrastructure generally uses existing utility poles and conduits. Fiber optic cable is made of glass, a plentiful and inert substance.

### Broadband is of Special Interest to Maine

The biggest drag on Maine's economy is distance: our distance from the urban engines of US economic growth and our small population spread out over a large state. The former makes it difficult for Maine to participate fully in the nation's economy. The latter makes it expensive for the State to deliver services to its citizens. Think of it as a rural tax. Every advance in telecommunications effectively shrinks distances, allows rural areas to participate more fully in the economy and lowers the cost of delivering services. Upgrading Maine's Internet infrastructure is a way of reducing the rural tax and makes it possible for Maine to exceed rather than trail the national average for economic growth.

#### What is the Goal?

## Goals for Better Broadband in Maine

The science and engineering communities have a good understanding of what the best Internet infrastructure looks like, both in terms of goals and how to reach those goals. In the current decade, the best Internet infrastructure:

Is **fast**, with symmetrical speeds of 1 gigabit/sec. Symmetrical speeds mean that you can send and receive data at the same speeds.

In the current decade, the best Internet infrastructure is:

FAST QUALITY Quality of Service (QoS) RELIABLE SECURE Has **Quality of Service (QoS)**, with low latency, low jitter and no packet loss. Latency is the amount of time it takes to send and receive one piece of data. Low jitter means the speed is constant, not slowing down and speeding up again. Packet loss happens when data is sent and not received. Think of a traffic jam. In a traffic jam, trips take a long time (high latency), you slow down and speed up (jitter), if the jam is bad enough you might not even get there (packet loss). An uncongested network has good QoS.

Is **reliable.** Internet connections should have 99.95% reliability. They should be more reliable than the current power network and as least as reliable as the traditional telephone network. We should be able to count on the Internet in life and death situations.

Is **secure.** The network should be capable of and operated at financial grade security levels.

We have the technical know-how to build such a network and they have been built all over the developed world including in the US. We must build an all fiber optic network with enough capacity to reach the above goals.

#### Where Are We in Reaching the Goal?

## Current State of Broadband in Maine

Unfortunately, though the technical community knows how to build these networks, we haven't coined a good name to describe them. Sometimes they are called "ultrafast high speed networks", "next generation networks" or "gigabit networks". The first two are problematic because they are both a mouthful to say and also relative: "next generation" compared to what, last year's network?

About 15 years ago, a cable TV marketing executive came up with the term "broadband" to describe Internet access that was faster, more reliable and had better QoS than dial-up. The term stuck. The problem with the term "broadband" though, is that it doesn't have a precise meaning. One issue that makes the problem even worse is the definition of broadband changes over time. The technical ability and the demand for network connection speeds has been constantly increasing for the last 40 years. When the first cable TV based Internet service came out, speeds were about 1mb/sec down and 256kb/sec up. At that time, dial-up Internet access was prevalent and the fastest dial-up modem speeds were about 48kb/sec, so 1mb/sec was 20 times faster, at least for download. Today, where available, US fiber based residential Internet download connections are commonly from 50mb/sec to 1gb/sec, cable is from 25mb/sec to 300mb/sec and dsl from 3mb/sec to 40mb/sec. The original fastest cable TV broadband of 15 years ago is not even considered broadband any more.

The problem with the term "Broadband" is that it doesn't have a precise meaning...It changes over time.

#### Whose Definition of Broadband?

The lack of a firm definition of "broadband" makes the public policy discussions of it confusing. Every side choses their own definition and then uses it to talk past their opponents. Here are three common definitions:

### **4** Definitions of Broadband

1. The Service Provider's (SP) Definition of Broadband: "Broadband is the Internet connectivity my network is capable of without significant investment." SPs want to define broadband to what they already have and not have a requirement to spend any more capital.

2. The Public Servant's Definition of Broadband: "Broadband is the best Internet connectivity we can require without getting too much pushback from the service providers". Essentially, this position ends up with a definition close to the SP definition.

All of these definitions have pluses and minuses. Given the State of Maine's interest in economic development, the EDO's definition is probably the best for the State.

> Unfortunately, the SP definition of broadband has been used by public policy makers leading to our current poor results.

3. The Consumer's Definition of Broadband: "Broadband is an Internet connection that is fast enough that I can do anything I want, reliable enough that I never notice it is down, secure enough so I never have a problem, and cheap enough that I am paying essentially what I do for my current (insufficient) connection." This definition ignores the economic viability of the provider of the service.

4. The Regional Economic Development Officer's (EDO) Definition of Broadband: "Broadband is an Internet connection with the gualities that maximize my region's economic development including being demonstrably better than the connectivity in the region's I compete against." This is pretty much like the consumer's definition with the added implicit condition that the SP's business model be sustainable.

### **Maine's Current Broadband is Inferior**

With the EDO definition in mind, let's look again at that January 8<sup>th</sup>, 2014 article from the *Portland Press Herald*, which gives a good sense of the current state of Maine broadband: <u>Maine Broadband Going No</u> <u>Where Fast: Maine Ranks 49th Out of 50</u> <u>States</u>

As of January, 2014, Maine broadband is significantly slower, more expensive and less available than in other states. This puts Maine at an economic disadvantage.



Figure 2 Internet speed and geography.

The article states:

Most Maine counties offer top download speeds of only 7.3 to 10.9 megabits per second, about 40 percent to 60 percent below the national average of 18.2, Gizmodo found.

*York, Cumberland and Lincoln counties do somewhat better, with high-speed Internet speeds of 10.9 to 14.6 mbps – still 20 percent to 40 percent slower than the U.S. average.* 

By comparison, the study found broadband speeds in Boston range from 21.8 to 25.5 megabits per second, 20 percent to 40 percent faster than the national average.

New York is best among cities in the Northeast, with high-end broadband speeds of 29.1 megabits per second or more, at least 60 percent higher than the U.S. average.

A company for which broadband is important will locate in 48 other states before it comes to Maine.

Because they have access to superior broadband, businesses in 48 other states have a competitive advantage over Maine businesses.

There are services via broadband that most Americans have access to that Maine citizens can't have. For 48 state governments, they have better options for delivering services to their citizens than Maine.

The worst thing about Maine's broadband situation is that our current trajectory will have us continue falling further behind. The reason is not so much that our broadband infrastructure is getting worse, but rather that we aren't keeping up with progress.

### Why Is Maine Broadband so Bad?

Among the 50 states, Maine has a unique set of circumstances that negatively affect superior broadband deployment. In the US are four potential broadband providers:

- 1. The incumbent telephone company,
- 2. The incumbent cable company,
- 3. A new private company entrant,
- 4. Municipally owned network.

The following are some examples from other states:

**VERIZON:** Verizon, an incumbent telephone company that has built an all fiber network called FiOS passing about 20 million homes capable of providing superior broadband at speeds up to 500mb/sec, symmetrical.

AT&T: AT&T is an incumbent telephone company that has millions of customers using Fiber to the Curb (FTTC) product called Uverse that is capable of 60mb/sec downloads.

**TIME WARNER CABLE:** Time Warner Cable is an incumbent cable company that in other states, in response to competition, has committed to build an all fiber network with speeds up to 300 mb/sec<sup>4</sup>.

**GOOGLE:** Google is a new entrant deploying Google Fiber, an all fiber network that provides 1gb/sec symmetric consumer connections for \$70 per month to a number of cities.

LOUISIANA & TENNESSEE: Lafayette, LA and Chattanooga, TN are examples of cities that have built their own all fiber networks.

<sup>&</sup>lt;sup>4</sup> PC World: <u>Aha! Time Warner Cable ups Broadband Speeds as Google Fiber looms</u>

## What is Hindering Maine?

In Maine, we have a set of circumstances, the unique combination of which hinders all four of the avenues above.

- The incumbent telephone company for most of the state, Fairpoint, has been in and out of bankruptcy. Currently, it is losing money and has requested a \$67 million per year subsidy from the State of Maine. Fairpoint lacks the financial ability to invest significantly in improving broadband in Maine.
- One cable company, Time Warner Cable (TWC), has over a 90% market share in the state. TWC is attempting to merge with the State's second largest cable company, Comcast. In that event TWC/Comcast will have over 93% market share. There is no competition in this area.
- 3. Maine is a rural state with not the greatest demographics for Internet demand. This makes it economically challenging for third party entrants.
- 4. As of yet, there are no examples of successful municipally owned fiber networks in Maine.

Because the incumbent telephone company is financially weak, superior broadband will not come from them. Because the cable company faces no real competition, there is no motivation for them to upgrade their network. Because Maine is a rural state, new entrants are not motivated to build new networks. Municipal broadband has not caught on yet in Maine.

#### How Do We Build Superior Broadband In Maine?

From an economic development perspective, Maine's broadband goals are clear; we need Internet connectivity that is fast, reliable, secure and inexpensive enough:

- 1. To allow existing Maine businesses to improve their current business models and expand with new Internet enabled business models;
- 2. To attract companies to locate in Maine;
- 3. To encourage innovative start-ups in Maine;
- 4. To allow Maine citizens to participate fully in the world economy, including sole proprietorships and home businesses.
- 5. To allow Maine government, healthcare and education to cost-effectively serve citizens.

The technology to achieve these goals is well understood and widely available. We need to build all fiber networks throughout Maine. Not only should households and businesses be connected, but also large numbers of towers for cellular radios.

## How can we fund fiber networks throughout Maine?

Revenue generation is concentrated in four southern, coastal counties and the costs are much greater in the 14 western and northern counties. Given the higher cost of construction and service in rural areas, **the need for** government subsidies will continue.

While the goals and the technology to reach those goals is clear, what is less clear is how to fund building the network. According to the US Census, in 2012, there were 553 thousand households in Maine<sup>5</sup>. For a ballpark estimate, at capital cost of \$2,000 - \$3,000 per household, it would cost between \$1.1 to \$1.65 billion to build an all fiber gigabit network covering the entire state. Based on a current US annual average spend per household on telecommunications of \$1,848<sup>6</sup>, significant revenue will be available to support such an investment. All fiber networks are cheaper to operate than copper networks. After the all fiber network is built, including the capital cost of building and operating the all fiber network, as a society we will be paying no more for broadband than we are today.

However, these ballpark figures and averages do not illuminate a significant issue for Maine: the revenue generation is concentrated in four southern, coastal counties and the costs are much greater in the 14 western and northern counties. The current copper network is built and operated with government subsidies. Given the higher cost of construction and service in rural areas, the need for subsidies will continue. If care is taken and rigorous oversight is applied, the subsidies need to be no higher than their traditional level.

<sup>&</sup>lt;sup>5</sup> US Census: <u>Quick Facts by State- Maine</u>; quickfacts.census.gov on June, 2<sup>nd</sup>, 2014

<sup>&</sup>lt;sup>6</sup> Consumer Reports: <u>Average Spending on Telecom Bundles is \$1,848 Per Year</u>; telecompetitor.com; June 2<sup>nd</sup>, 2014

## Maine's Attempts to Address the Broadband Capacity Problem

Over the last decade, Maine's efforts to improve its broadband have had mixed success. The overall theme is that broadband speed, availability, and adoption have all improved in absolute terms. However, relative to the rest of the US, Maine has fallen further behind in speed availability and adoption rates. In either case, reliability has not improved and broadband prices have risen. There have been three major government initiatives to promote broadband in Maine:

#### 1. ConnectME Authority

In 2005, the Maine Legislature passed legislation establishing the <u>ConnectME Authority</u>. The Authority's mission is to *" facilitate the universal availability of broadband to all Mainers and help them understand the valuable role it can play in enriching their lives and helping their communities and businesses thrive."* 

#### 2. Regulatory Action

During the last decade, the Maine PUC and the Office of the Public Advocate have stipulated Fairpoint investment in rural broadband as a condition of approving the sale of Verizon's Maine assets to Fairpoint or in compensation for various regulatory violations by the two companies.

#### **3. Three Ring Binder**

In 2009, the Federal Government awarded a \$26 million grant to build the <u>3 Ring Binder</u>, a 1,100 mile high capacity, fiber optic "middle mile" network in the form of three rings running throughout rural Maine.

All three of these approaches have had problems and arguably contribute to Maine's inferior standing.

#### **ConnectME Authority**

The ConnectME Authority legislation was passed with the consent of the service providers. I was part of the group that wrote the legislation and that group was dominated by SPs, including telephone, cable, CLECs, and cellular companies. The following features of the legislation were added to insure SP support:

- 1. The tax on communications services was set at the low rate of 0.25% and it was made voluntary for cellular companies.
- 2. Incumbent SPs were given a de-facto veto on funded projects in their territories.
- 3. SPs were given a major role in setting the definition of broadband. The definition of broadband was set to a speed so low, SPs existing products all meet it.

4. ConnectME grants and loans must go to provide service in unserved areas until there is universal coverage. Then grants and loans can go to underserved areas.

Currently, the ConnectME Authority's definition of broadband is 1.5mb/sec (FCC tier 2). The current Federal Communications Commission (FCC) definition of broadband is 4mb/sec (FCC tier 3). The FCC has opened a proceeding to increase the definition to 10mb/sec (FCC tier 5) or 25mb/sec (FCC tier 6). The current national average is 18.6mb/sec. Soon we may be in the position where the administration of the State of Maine defines broadband to be an order of magnitude slower than both the Federal government's definition and the national average.

FCC		Broadband	Broadband
Speed	<b>Download Speeds</b>	(FCC	(Maine
Tier		Definition)	Definition)
0	200kb/s – 768kb/sec	No	No
1	768kn/s -1.5mb/sec	No	Yes
2	1.5-3mb/sec	No	Yes
3	3-6mb/sec	Yes	Yes
4	6-10mb/sec	Yes	Yes
5	10-25mb/sec	Yes	Yes
6	25-100mb/sec	Yes	Yes
7	100mb/sec or more	Yes	Yes

Figure 3 Maine's Broadband Definition vs. FCC Tiers

In the interest of fairness, it is important to point out that in 2005 Maine broadband was not significantly lower in quality than other parts of the country. All fiber networks had not been built yet, nor FTTC systems. Verizon was still the incumbent telephone company for most of the state.

The ConnectME Authority is the smallest State agency, staffed with only 2.5 employees. It disperses between \$1.5 and \$2 million a year. That's \$1.5 to \$2 million to solve a billion dollar problem. Further, its authorizing statute, a statute designed by the service providers to insure there will be little competition to existing networks, hamstrings ConnectME. The ConnectME staff does great work, but underlying all their reports is the assumption that there is only a token amount to be spent to solve the problems.

#### **Regulatory Action**

One of the most effective avenues of improvement in broadband capacity has been the actions of State of Maine regulatory authorities, the Public Utilities Commission (PUC) and the Office of the Public Advocate (OPA). Using a variety of merger conditions, settlements and court action, regulatory agencies have induced Fairpoint to significantly increase the

amount of DSL broadband access in Maine.<sup>7</sup> This class of DSL is generally at the 1.5-7mb/sec range. The thrust of this regulatory initiative is to have this class of DSL service universally available. This regulatory initiative has run its course, because:

- 1. There are not many additional places to which DSL service can be expanded.
- 2. The level of service is sometimes below the current FCC definition. At best it is far below the proposed definition and  $1/3^{rd}$  of the national average.
- 3. You can't get blood from a stone. Fairpoint doesn't have the capital to deploy all fiber or even hybrid fiber/copper networks such as ATT's **U-Verse**. Fairpoint cannot be compelled to perform beyond its capabilities.

#### Federal Investment and The Three Ring Binder

In 2009, the Federal Government attempted to kick-start improvements in broadband capacity through the Broadband Technology Opportunities Program (BTOP) and Broadband Initiatives Program (BIP), part of the ARRA stimulus package. BTOP/BIP had a bias towards investment in all fiber networks.

In Maine, the most significant BTOP program was the Three Ring Binder (3RB), a 1,100 mile high fiber count network through much of rural Maine. 3RB had two main goals:



Figure 4: The Three Ring Binder

- 1. Act as a middle mile network connecting rural communities to the Internet via high capacity fiber links;
- 2. Serve as a last mile fiber network to businesses and consumers directly on the 3RB route. As the grant application said:

Dark fiber customers will have the right to connect at any of over 30 Cos in which there will be significant, pre-engineered fiber terminations. In addition, dark fiber customers will have the right to splice or connect into the fiber at any intermediate splice point. A design goal is to build a fiber network that can be used by customers both as middle mile fiber and as last mile fiber. For this reason, intermediate splice and connection points will be spaced frequently along the fiber route. <sup>8</sup>

Unfortunately, as constructed, only the first goal was met. The 3RB is not suitable as the last mile of an all fiber network.

<sup>&</sup>lt;sup>7</sup> <u>Maine Public Advocate Reaches Agreement with Fairpoint and Verizon on the Sale of Verizon's Operations</u> in Maine, New Hampshire and Vermont.

<sup>&</sup>lt;sup>8</sup> Page 18; Biddeford Internet Corporation: **Broadband Infrastructure Application Submission to RUS(BIP)** and NTIA(BTOP); (8/19/2009)

This has made another goal of the 3RB more difficult to obtain:

The purpose of this project is to create a vibrant, competitive telecommunications network in rural Maine. Such a market will discipline the industry to insure there will be inexpensive, high quality service available to business, residential and non-profit customers. These customers will not be directly served by MFC, but instead will be served by carriers who buy dark fiber from MFC and then light it to provide service to the end-user. The competitive carriers serving Maine have enthusiastically embraced this project and signaled their intentions to provide service over the constructed dark fiber.<sup>9</sup>

As built, the 3RB is sufficient to provide the middle-mile portion of allfiber networks for most of Maine. " As built, the 3RB is sufficient to provide the middle-mile portion of all fiber networks for most of Maine. In this middle-mile capacity, it forms a foundation for future allfiber networks in Maine.

We can build a world-class broadband infrastructure in Maine. We know what needs to be done, we know technically how to do it and the only problem is getting it funded. A very important aspect of the funding aspect is this: **the revenue generated by Maine's telecommunications infrastructure is already great enough to cover the cost of building and operating a far superior network.** Modern fiber networks are cheaper to operate and maintain than the copper networks we have today.

### Concrete Solutions

Modern fiber networks are actually cheaper to operate and maintain than the old copper networks we have today. The problem is not in constructing the new network, but rather how do we get from where we are today to where we want to be without interruptions in service and meeting our public policy goals of fairness, including fairness to service providers.

As discussed above, there are four potential builders:

- 1. Incumbent telephone companies
- 2. Incumbent cable companies
- 3. New entrants
- 4. Municipalities

Given the billion-dollar size of the project, it makes sense to encourage all four to build networks in Maine.

<sup>&</sup>lt;sup>9</sup> Same as above

## **10 Recommendations for Moving Up the Broadband** Ladder:

#### <u>Recommendation 1</u>: Set a state broadband capacity goal that is tied to economic development, a goal of being at least average and then above average compared to our competitor states.

Right now, the ConnectME Authority is the only state agency which defines "broadband", collects detailed information about broadband and distributes it. Unfortunately, there are some subtle issues around the way the data is gathered and presented. The rules governing the ConnectME Authority state:

**Broadband Service.** At least annually, the Authority must update the minimum performance criteria for broadband service, for the purposes of this Chapter. The Authority must base its criteria on the state of the market as well as the performance necessary to meet the current broadband needs of common applications and network services in use in the State.[1]

This data is used to decide what areas are "unserved" by broadband and eligible for State support for deployment of broadband, potentially by new entrants. The incumbent SPs have a vested interest in their current services being declared broadband in order to prevent competition and avoid bad publicity. They have exerted pressure on ConnectME to keep the minimum performance criteria set as low as possible, far lower than the FCC definition. Another issue with the data is that it is self-reported by the SPs and is "advertised speed" vs "actual speed". Since most SPs sell "best effort" service and advertise speeds in fine print as "up to" a speed, there is frequently a variation between the advertised speed and the actual speed.

In my estimation, the three most effective steps Maine could take are to update its definition of broadband to match the FCC's, use actual vs advertised speeds and have as its goal that Maine's broadband be at least average, with a stretch goal of being better than, the states we compete against economically.

## <u>Recommendation 2</u>: Encourage broadband use and adoption, particularly gigabit applications.

In December of 2013, the Governor's Broadband Capacity Building Task Force released a report called <u>Broadband: The Road To Maine's Future</u>. The report is silent on the topic of the quality of Maine broadband. It is somewhat misleading because it strongly implies that the FCC agrees with Maine's low standards for the definition of broadband (see page 12). The theme of the report is that there are no problems with Maine's broadband infrastructure, but rather on the failure of Maine consumers and businesses to adopt broadband. However, the report does not address why Maine is above the national average in broadband adoption, but 49<sup>th</sup> in the nation among the states for broadband quality. The report does not explore whether or not Maine's poor broadband quality has

an effect on adoption. The report does contain a chart that shows Maine's low standard for broadband, defining these connections at speeds so slow that many popular Internet applications won't work.

The report also lists seven recommendations to increase adoption. They all involve little or no cost so there is no reason not to implement them. Greater Internet usage will increase the value of the network and make more consumer and business funds available to fund improvements in the network. However, a tweak to focus on high bandwidth applications would help.

## Recommendation 3: To encourage competition, promote fairness and avoid monopolies, require networks built with public monies to be open access.

Looking around the nation, the number one motivator of network improvement by the incumbents, both telephone and cable, is competition. Monopolies ill-serve consumers and businesses and Maine is particularly suffering now. If public funds are invested, they should not be used to build new monopolies, either private or public. Networks that allow many competitors provide the best service, the best technology and the most affordable prices. Indeed, a 2009 Study by Harvard University's Berkman Center for Internet & Society found that almost all of the most successful countries at deploying broadband had opened their largest networks up to competing carriers.<sup>10</sup>

## Recommendation 4: Favor investment in fiber networks over investment in legacy networks.

Currently, the State of Maine is paying about \$8-\$10 million a year to build-out and support the telephone network: \$7-\$8 million in state USF funds and \$1-2 million in ConnectME grants. We should stop investing in networks that are or will soon be obsolete. It ought to be a requirement that for the award of these monies, a plan be in place for the transition to newer networks. A precedent for using funds outside traditional landline service has already been set by the use of Maine USF funds to build out the cellular network in rural areas, resulting in expanded service in a variety of rural Maine communities since 2005.<sup>11</sup>

## Recommendation 5: Solicit input from incumbents on what steps would stimulate broadband investment.

Fairpoint is the incumbent for about 73% of the population of Maine.<sup>12</sup> The telephone incumbents for the rest of Maine are the independent telephone companies. While all these independents are in much better shape than Fairpoint, their trajectory on building all

<sup>&</sup>lt;sup>10</sup> <u>Next Generation Connectivity: A Review of broadband Internet transitions and policy from around the</u> <u>World</u>, Harvard University, October, 2009.

<sup>&</sup>lt;sup>11</sup> See "<u>Cellular Improvements</u>." Bangor Daily News, January 30, 2007.

<sup>&</sup>lt;sup>12</sup> Excluding Fairpoint Classic territories. If they are included the number would be higher.

fiber networks varies wildly. Some of them, particularly TDS, have built gigabit fiber networks for consumers that offer service at competitive rates, just not in Maine yet. Some of them, such as Union River Telephone, have all fiber networks, but connect customers at speeds no faster than DSL. Paying attention to the good work the independents have done, figuring out what works and what doesn't work and how the State can aid them would be very useful. The same would be true for Fairpoint and Time Warner Cable.

#### Recommendation 6: Focus on POLR proceedings at the PUC.

The difficulty of this process is not in building the new network, but in transitioning from the old copper network we have now to the new fiber network we need. Right now, there is a very important PUC issue regarding this issue, Docket No. 2013-00340 Fairpoint Rate Case Hearing. An article from the Bangor Daily News describes the issues in layman's terms: Fairpoint Seeks Telephone Fee Increase For Maine Customers. Fairpoint has asked for an annual subsidy starting at \$67 million per year to support their ability to continue to be Provider Of Last Resort (POLR) for land line service using their legacy network. A reasonable assumption is that if Fairpoint's position was adopted, the subsidy would increase in following years. Obviously, this amount of money would make huge strides in Maine's broadband problem if it was used to build new fiber networks. However, the way the rules are structured now, the proposed subsidy could only be used for legacy telephone landline service. At peak, about 98% of Maine households had telephone landlines. Today, on a national basis only 60% of households still have landlines (65% of Americans 25-29 live in households **without** landlines). The drop of landline usage is the major driving factor behind Fairpoint's financial difficulty.

This significant new tax for Maine is not popular. The Maine legislature passed a law over the Governor's veto giving the legislature the right to review any PUC decision in this case; the decision is expected in the spring/summer of 2015. It is expected that dealing with the fallout from this matter will be one of the first tasks of whoever is elected governor in 2014.

## Recommendation 7: Educate and encourage municipalities to invest in municipal fiber networks.

Nationally, one of the ways all fiber networks are being deployed is through municipalities. Municipal networks are driving deployment both directly by providing service and indirectly through the threat of competition, which induces incumbents to upgrade their legacy networks. In Maine, at least one town, Rockport, has started building a municipal fiber network and a number of other towns are exploring building their own networks. In all cases, the motivation for the towns to build fiber networks is to accelerate economic development. In states where there is more municipal network action, incumbents have succeeded in getting laws passed blocking municipal fiber networks. Maine should avoid this trend. Instead, we should have policies that educate and encourage municipalities to build the networks they need in places where there is a market failure and incumbents are unwilling to step up and build the networks.

## Recommendation 8: Develop a best in the nation pole attachment regime that encourages investment.

Maine's pole attachment regime, which allows telecommunications carriers to attach to the telecommunications space on existing telephone poles, is a bit of a mess. There are some who feel that the incumbents use the messiness of the regime to disadvantage new entrants and drive up the cost of building new fiber networks. The OPA is putting together a working group to try to address this issue. The current plan is to take the pole attachment regime out of the hands of the state PUC and give it to the FCC which has a default regime for states that do not have their own regime. However, it may be a better plan for Maine to have a best in the nation pole attachment regime, one that makes it easy to build new networks while protecting the legitimate rights of the existing pole owners.

## Recommendation 9: Work with the Maine Congressional Delegation to maximize Federal support for Maine's broadband.

The US government subsidizes about \$8 billion per year in rural telecommunications. Maine's congressional delegation should focus on maximizing Maine's share of that money. As it stands now, we get less than our share. Senator King's office is taking a lead in this effort.

## Recommendation 10: Invest State of Maine funds in strategic broadband projects.

The State of Maine cannot afford to fund the billion dollar construction of a superior broadband network in Maine and it doesn't need to. However, "pump-priming" projects that demonstrate the feasibility of all fiber networks in Maine would be very effective in stimulating a competitive environment. Providers need to know that if they won't get the job done, someone will step in to do it. In that case, the provider risks losing the market.

# Make Your Voice Heard

Let's work together to build a broadband infrastructure that's worthy of a leading spot among our national peers.

Please visit: <u>www.gwi.net/broadbandladder</u>

and join our email list of legislators, business owners and concerned Mainers who want to work toward our goal together.