Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of

Connect America Fund	)	WC Docket No. 10-90
A National Broadband Plan	)	GN Docket No. 09-51
For Our Future	)	WC Docket No. 05-337
High-Cost Universal Service Support	)	FCC 10-51
	)	

INITIAL COMMENTS OF THE PENNSYLVANIA PUBLIC UTILITY COMMISSION[1]

The Pennsylvania Public Utility Commission (PaPUC) hereby submits these Initial Comments in response to the Federal Communications Commission's (FCC) Notice of Proposed Rulemaking (NPRM) issued April 21, 2010 and published in the Federal Register on May 13, 2010 (the High Cost NPRM). The FCC set deadlines of July 12, 2010 and August 11, 2010 for filing Comments and Reply Comments, respectively.

The PaPUC appreciates the opportunity to submit its Initial Comments. As a preliminary matter, these PaPUC Initial Comments should not be construed a binding on the PaPUC in any proceeding before the PaPUC. Moreover, these Initial Comments could change in response to subsequent events. This includes a later review of other filed comments and legal and/or regulatory developments at the federal or state level.

[1] The Initial Comments, including the supporting Tables and Appendices, were prepared in consultation with Dr. Loube of Rolka, Loube, Saltzer Associates, Harrisburg, PA and Silver Spring, MD

I. Introduction

The PaPUC welcomes the Federal Communications Commission's (FCC or Commission) initial steps to address the problems associated with bridging the broadband gap. The preparation of the National Broadband Plan, the development of the broadband gap model and the release of OBI technical reports represent large investment in human resources. Moreover, the PaPUC agrees with the goal of the broadband plan to bring affordable ubiquitous broadband service to the people of the United States. However, the immediate policy recommendations contained in the Notice of Proposed Rulemaking would unfairly penalize early adopter states or carriers, and the PaPUC does not believe that such policies are the best way to ensure that consumers in unserved areas obtain equally affordable broadband at reasonably comparable rates.

The PaPUC agrees with the FCC that the legacy high-cost fund support mechanisms must be revised to align them with the goals of the National Broadband Plan. The PaPUC also agrees that the revisions should ensure that support for broadband networks is transparent and that the carriers receiving that support are held accountable. However, the PAPUC does not support revisions that merely reduce legacy support for the transfer of such support to build-out programs aimed at providing broadband network infrastructure in unserved areas. Transferring a substantial portion of those funds would penalize early broadband adopters, particularly rural carriers that rely on federal support to provide traditional voice service while complying with any broadband deployment mandates imposed on those carriers under independent state law. For example, Pennsylvania's Chapter 30 of its Public Utility Code mandates the deployment and

availability of broadband facilities and services within certain time frames for both rural and non-rural incumbent local exchange carriers (ILECs). *See* 66 Pa. C.S. § 3011 *et seq.*

The proposed reforms that limit support to broadband deployment, as opposed to ongoing voice and broadband support, are self-defeating. First, if support for the provision of service is eliminated, then the carriers that are currently provided service will no longer be able to do so. Thus, the nation will have upgraded facilities and no users of the facilities. Second, because carriers typically use one network to provide voice and broadband service, removing support for the provision of voice service removes support for the provision of broadband service.

The PaPUC asserts, as it has in earlier filings in the Universal Service (96-45) and Intercarrier Compensation Dockets (01-92), that early adopter states or carriers must not lose support merely because those jurisdictions or carriers have completed broadband build-out programs. Retention of support for those jurisdictions and carriers is required to allow for the continued provision of broadband services and to allow for the return on and return of those broadband investments.

Given the concern with the potentially negative impact on early adopter jurisdictions or carriers, the PaPUC proposes to engage the FCC in a dialogue to develop a better way to reach the goal of affordable ubiquitous broadband service that is less harmful to those early adopter jurisdictions or carriers.

As an initial matter, the PaPUC proposes a comprehensive reform program that provides incentives for carriers to increase the availability of broadband and to enhance broadband quality of service.[2] This reform program is superior to the proposals outlined in the NPRM because the

[2] This general comprehensive proposal is offered in response to the FCC's request for other proposals, NPRM, ¶ 62.

FCC's proposals do not contain any incentives for current providers to increase broadband availability or to enhance broadband quality of service.

The PaPUC also proposes that jurisdictions or carriers in unserved or underserved areas must, as a prerequisite to obtaining federal support, document an equivalent total or per capita contribution, whichever is larger, to implement broadband and intercarrier compensation reforms. That documented contribution should be equivalent to the contribution, in the form of deployment support and intercarrier compensation reform, already in place in early adopter jurisdictions.

The PaPUC further proposes that the FCC should abandon the proposal to eliminate rate of return regulation. The PaPUC argues that to replace rate of return regulation with price cap regulation is counter-productive.

Rate of return regulation is a cost-based form of incentive regulation where the incentives match the FCC's desire to promote the provision of broadband service. The rate of return regulation incentive encourages investment, reflected as cost, in telephone plant. Given that the ability to provide broadband service is embedded in additional investment and that rate of return regulation encourages new investment, it is clear that retaining rate of return regulation is consistent with the FCC's broadband goals. Conversely, the incentive in price cap regulation severs the connection between cost and rates and because it ensures an inflation-based price increase annually regardless of costs incurred, it will thwart network investment. Carriers will be encouraged to reduce cost and plant investment to generate greater dividends for their respective owner and/or shareholders through cost reduction.

Evidence of the validity of this observation is already apparent with the digital subscriber line (DSL or xDSL) service. The percent DSL availability is substantially higher for rate of

return carriers than for price cap carriers. There is no reason to conclude that a different result will occur if current rate-of-return rural carriers, particularly those with low-population densities and high costs of deployment, are transitioned to price cap regulation.

The PaPUC also wishes to engage the FCC in a dialogue to develop a better universal service model with meaningful input from interested parties. Currently, this is not possible because of the lack of transparency regarding the model.

To date, as far as the PaPUC is aware, no one outside of the FCC and its consultants has seen the model. No one has seen the inputs to the model. No one has seen the model's source code. Only a minor amount of output information has been released.

The PaPUC requests that the FCC immediately release the model, the model's source code, all model inputs and all model outputs. This release would allow parties to critically examine the model and suggest amendments that better achieve the National Broadband Plan's goal of broadband deployment, a goal shared by the PaPUC.

The outputs should be by census block and not restricted to county level data. The outputs should show the results for all technologies. If the model can only be run on the FCC's facilities and cannot be downloaded to a personal computer, the FCC should establish a mechanism that would allow users access to the FCC facilities. It should also ensure that there is enough capacity on those facilities so that outside users can run the model using alternative inputs in a reasonable timeframe.

If outside users wish to modify the source code, the FCC should allow the users to perform such modifications and document how such changes affect the model results. In addition, if the model inputs were obtained through proprietary agreements, non-FCC model

reviewers who are willing to sign a proprietary agreement should be allowed access to those inputs.

An examination of the released model output results and the documentation reveals the use of inconsistent or unsupported assumptions. The costs associated with fixed wireless service provide an example of inconsistent assumptions. The NOI/NPRM asks whether the Commission should base any new Connect America Fund (CAF) support on the forward-looking economic costs of an efficient provider, rather than on historic, embedded costs. NOI/NPRM ¶ 23. If the model seeks to estimate the costs of such an efficient provider, it should not assume any existing plant or investment, and must recognize all the incremental costs associated with entry into the fixed wireless market. The model does not include any incremental spectrum costs, even though spectrum is an essential input to providing wireless service. Therefore, the model appears to be inconsistent because it does not address these important cost elements.

Alternatively, the model could assume that wireless broadband providers offer voice service and broadband service without incurring any spectrum cost. That would imply that the service provider is using unlicensed spectrum. Yet for the purposes of estimating propagation and equipment costs, the model assumes the provider is using licensed spectrum in the 700 Megahertz (MHz) band. The costs are different for these two spectrum ranges. Propagation characteristics differ, and they require different kinds of equipment. Therefore, even if the fixed wireless provider is assumed to use unlicensed spectrum, the model does not calculate other non-spectrum costs consistently.

Equally important, the PaPUC is not convinced that reliance on spectrum alone for broadband deployment in underserved areas will deliver comparable service at comparable rates, as required by 47 USC § 254. This concern arises because fixed wireline networks apparently

have more capacity for delivery of broadband compared to limited spectrum – and recent market developments appear to underscore that reality.[3]

In our comments below we will expose additional problems we have uncovered while examining the released information. Until these problems have been resolved, the PAPUC is reluctant to confirm or deny that the National Broadband Plan model (NBP model) is superior to the existing Hybrid Cost Proxy Model (HCPM).

Finally, the National Broadband Plan states that reform "requires federal and state coordination."[4] However, the FCC has moved ahead without asking for or securing such coordination. There are many instances in which such coordination would enhance and accelerate the broadband build-out. The FCC should also work with states to implement a program to bring affordable broadband service to all Americans, not just to wealthy Americans or to low-income Americans who are recipients of low-income assistance. Issues associated with carrier of last resort responsibilities must also be addressed. Below we will discuss these issues and offer possible solutions.

II. The PaPUC's Alternative Proposal for Reforming Legacy Federal Universal Service High Cost Mechanisms.

The PaPUC alternative proposal addresses each of the five federal high cost support mechanisms. It transforms the legacy programs into broadband support programs by requiring recipients to meet availability thresholds and service quality standards in order to retain all or part of their current support. The availability thresholds and service quality standards increase over a five-year transition period, allowing carriers the opportunity to adjust to the increases.

[3] Media Articles on limiting download to mobile device consumers.
[4] National Broadband Plan, page 143.

A. The incentives and impacts of the legacy programs

1. The Incentives associated with the rate of return legacy programs

The three legacy programs based on rate of return regulation include the high cost loop (HCL), interstate common line support (ICLS) and local switching support (LSS).[5] In each case, the initial starting point for determining support is a special type of rate of return calculation. In the case of HCL, the National Exchange Carrier Association (NECA) calculates the study area cost per loop for every carrier. The cost per loop is a rate of return revenue requirement for Category One Cable and Wire facilities plus Category 4.3 central office equipment (remote electronic equipment). For LSS, the support calculation starts with the revenue requirement associated with local switching equipment (Central Office Equipment Category 3 switching equipment). Finally for ICLS, the support begins with the interstate common line revenue requirement.

The primary driver of each selected rate of return calculation is plant investment. As plant increases, the rate base, return and depreciation increase. Also, as plant increases, associated expenses are assigned in greater proportion to the selected rate of return calculation. For example, increases in loop investment relative to other investment increases the allocation of corporate operation expenses to the loop revenue requirement.

2. The determination of support and recent changes in support levels for rate of return legacy mechanisms

Each mechanism has its own method of determining support. HCL support is based on the difference between carrier support and the national average support. Thus, to maintain

[5] Even though rural price cap carriers can receive funding through the HCL mechanism and small price cap carriers can receive funding through the LSS program, these mechanisms are driven by rate of return principles.

current support, a carrier's revenue requirement must increase as fast as the national average. Moreover, because inflation is increasing slowly and line counts are decreasing the HCL loop fund cap has decreased from $1,056 billion in 2005 to $962 million in 2010 for ILECs In addition, the number of carriers receiving support and the percentage of lines supported has also decreased. In 2005, 14 Pennsylvania ILECs received HCL support. In 2010, only 11 Pennsylvania ILECs received support. The percent Pennsylvania rural carrier lines support decreased from 3 percent in 2005 to 2.6 percent in 2010. Nation-wide, the number of carriers receiving support declined slightly from 1,110 to 1104, and the percent of rural carrier lines receiving support declined from 47 to 34 percent.[6]

ICLS determines support as the difference between interstate common line revenue requirement and the interstate common revenue. For Pennsylvania rate of return carriers, ICLS has been decreasing from $36 million in 2005 to $33 million in 2010. Nation-wide, for rate of return ILECs, ICLS has also increased from $945 million in 2005 to $1.12 billion in 2010.[7]

3. The incentives associated with the other legacy programs

The other legacy programs are the Interstate Access Support mechanism and the forward-looking cost model mechanism. The Interstate Access Support mechanism is limited to price-cap carriers. The ICLS program is a source of revenue that, combined with other revenue streams such as subscriber line charges, allows carriers to recover their interstate common line, marketing and transport (CMT) allowed revenue. Each ILEC's support is a function of the allowed revenue, their unbundled network element (UNE) loop and port rates, and the number of lines served. Support is associated with the portion of any study area that has relatively high

[6] NECA FCC Filings for selected years and USAC FCC Filings, HC-05 for third quarter 2005 and 2009.
[7] USAC FCC Filings, HC-09 for third quarter 2005 and 2010.

UNE loop rates. The mechanism does not contain any direct incentive to invest in advanced services or to reduce cost. However, because a carrier receives its support independent of its current activities, it has an implicit incentive to do nothing.

The forward-looking cost model mechanism supports the total cost of providing service in high cost areas of non-rural carriers. While a few non-rural carriers are rate of return carriers, the non-rural carriers are for the most part price cap carriers. The incentive built into the mechanism is to set support at levels that would support efficient providers of services. These providers could either be the ILEC or CLECs. The mechanism does not provide support for inefficient carriers such as carriers that have allowed unwarranted embedded costs to become part of their business practices. At the same time, because the model is a narrowband model, carriers that upgrade their networks to provide broadband services do not receive any additional support. Carriers providing broadband services would increase their costs and investments without receiving additional support. Therefore, the forward-looking model, by failing to consider network upgrades, contains an implicit incentive to do nothing and to continue to provide only narrowband services or a low-grade of broadband services that are not impeded by narrowband facilities.

4. The determination of support and recent changes in support levels for other legacy programs

The IAS mechanism provides support for the difference between the weighted CMT revenues and a residential line and a business line benchmark. The CMT revenue is weighted by the UNE loop and port rates. The program also was limited to a $650 million cap. When the cap constrained the total support level, the mechanism invoked a complicated allocation mechanism

to reduce total support to that cap. However, over time the operation of the cap has been subject to several revisions and it is not clear how those revisions affect the allocation mechanism. For the period between 2005 and 2010, Pennsylvania carriers IAS funding remained stable at $19 million. Nation wide, ILEC support decreased from $603 million to $467 million[8]

The forward-looking cost model provides support for the difference in cost between the statewide average and a national benchmark. Whether this support mechanism provides sufficient support has been subject to a long series of appeals and remands. Currently, only 10 states currently receive support under this mechanism. Pennsylvania does not receive any model support. Nationwide, ILEC model support has declined from $221 million in 2005 to $155 million in 2010.[9]

5. The Impact of legacy support mechanisms on broadband deployment

It is very difficult to obtain reasonable statistics regarding the relative impact of the legacy mechanisms on broadband deployment because the FCC releases only state wide data and not carrier or UNE zone data in its broadband reports. However, the limited available public data support the conclusion that broadband deployment is higher among rural rate of return carriers than it is in the rural areas served by non-rural carriers and by non-rural carriers in general. This relationship supports a claim that mechanisms containing a capital and network investment incentive to invest induce carriers to invest in broadband technologies, while mechanisms that break the relationship between support and investment retard the deployment of broadband network technologies and facilities.

[8] USAC FCC Filings, HC-12, 3rd quarter 2005 and 2009
[9] USAC FCC Filings, HC-17, 3rd quarter 2005 and 2009

For example, in Maine, it has been shown that in rural carrier study areas, on average, DSL service is available to over 90 percent of customers, while in the former Verizon carrier study area, DSL service is available to only 65 percent of Verizon's customers, and it was generally acknowledged that availability decreased in the more rural areas of the former Verizon study area.[10] In Michigan, Verizon did not offer its FiOS service to anyone and it lagged behind other Michigan carriers in the provision of DSL service.[11] In the recent order approving sale of Verizon study areas to Frontier, the FCC states: "Of the 4.8 million access lines Frontier seeks to acquire only 62 percent are currently capable of providing broadband at any speed, and approximately 50 percent at speeds of at least 3 Mbps."[12] As a condition for approval of the transaction, many state commissions required Frontier to agree to broadband build-out programs as a condition of the sale.[13] These programs reflect the concern that the provision of DSL service is currently inadequate. In addition, the FCC recognizes that approximately half of the unserved households are located in AT&T, Qwest and Verizon service territories.[14]

The FCC could clarify the relationship between the legacy mechanisms by releasing Form 477 data. While individual study areas data are considered proprietary, the FCC could compare data from groups of three or more states. That is, it could compare the DSL availability of price cap carrier rural UNE zones to the DSL availability of the rural rate of return carriers in

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[10] See the direct and reply testimony of Dr. Robert Loube on behalf of the Maine Office of Public Advocate in Maine Docket Nos. 2005-155, Phase II,2004-809, and 2007-67.

[11] The direct testimony of Dr. Robert Loube on behalf of TelNet Worldwide, Inc., ACD Telecom, Inc., TC3 Telecom, Inc., Michigan Access, Inc., JAS Networks, Inc., DayStarr, LLC, Clear Rate Communications, Inc., and Arialink Telecom. (the "CLECs"), *In the matter on the Commission's own motion, to review the total element long run incremental costs and the total service long run incremental costs for Verizon North Inc. and Contel of the South, Inc. d/b/a Verizon North Systems, to provide telecommunications services*, Michigan PSC Case No. U-15210, April 7, 2008, page 63.

[12] In the Matter of Applications Filed by Frontier Communications Corporation and Verizon Communications Inc. for Assignment or Transfer of Control, WC Docket No. 09-95, *Memorandum and Order*, released May 21, 2010, FCC 10-87, ¶ 2.

[13] Id.

[14] National Broadband Plan, page 141.

the same states. These data could be compared for small collections of 3 to 5 states.[15] Concealment of the data frustrates the public debate regarding how to reform the legacy programs. Therefore, the PaPUC requests that the FCC provide these data at the lowest level of aggregation that is possible.

B. The FCC proposal and its impact on Pennsylvania

The FCC proposed changes will affect three mechanisms. First, the FCC proposes to freeze the per-line support for ICLS. It notes that such a freeze has been accepted by carriers that transitioned from rate of return regulation to price cap regulation. It suggests that such a change would move the carriers in the direction of incentive regulation. However, the Notice does not discuss whether price cap is the correct incentive regulation at this time. Given the desire to encourage capital investment in broadband network facilities and the record of price cap carriers in providing broadband services in rural areas, requiring rate of return carriers to adopt price regulation would be counter-productive. On the other hand, retention of rate of return regulation may encourage gold-plating of the network, even though such gold-plating would include the facilities required for the provision of broadband services. A better reform would emphasize providing support that guides carriers to achieve the goals of the national broadband plan. Such a better way will be discussed below as part of the PaPUC's alternative reform plan.

The ICLS proposed change would reduce Pennsylvania ICLS support by approximately $7.2 million or 21 percent of current support levels.[16] The reduction was based on the assumption that over the next five years supported carriers would lose lines at the same rate as

[15] Obviously the data would not be meaningful for states such as Delaware, Maryland or New Jersey due to the fact that those states have few if any rural rate of return carriers.
[16] See Table 5.

they have over the previous five years. Obviously, the actual reduction would depend on future line losses and cannot be known at this time. In the case of Pennsylvania carriers, this reduction in support penalizes carriers that have already invested in broadband network facilities, because the majority of rural Pennsylvania carriers that receive ICLS are required under Pennsylvania law to provide broadband availability to 100 percent of their customers by 2008.[17] Given that the goal of the National Broadband Plan is not only to increase the availability of broadband service in unserved areas *but also to support the continuing provision* of broadband service in currently served areas, reducing ICLS conflicts with the goal of the Plan.

Second, the FCC proposes to eliminate the IAS mechanism. The FCC notes that it had committed itself to review the IAS mechanism. However, the Notice does not provide any reason for the elimination of the mechanism. Prior to eliminating a mechanism, it is necessary to review how that mechanism is working and whether it can be altered to reflect the new goals of the FCC. Just because a mechanism was developed to support voice grade services does not imply that the same mechanism does not support the provision of broadband services. In fact, given that the same physical network facilities provide both narrowband services such as voice telephony and broadband services, any support of narrowband services automatically supports the provision of broadband services. With regard to Pennsylvania carriers, if the FCC eliminates the IAS mechanism, then those carriers would lose $11 million.[18]

Third, the FCC proposes to eliminate support for competitive carriers. Such a policy change recognizes the high cost of supporting multiple providers in rural areas and the existence

[17] Under Pennsylvania state law broadband availability is defined at equal or greater than 1.5Mbps downstream and at equal or greater 128 kbps in the upstream direction. The dates for the completion of the statutorily mandated broadband deployment for rural and non-rural ILECs vary from 2008 to 2015. However, most of the rates of return carriers have chosen to meet the 2008 deployment deadline.
[18] See Table 2.

of substantial economies of scale in the provision of network services, even though it reverses the FCC's goal of encouraging competition in all markets. Adopting this change would reduce support for Pennsylvania competitive carriers by $1 million.[19]

Conspicuously absent from the Notice was reform of the HCL, the forward-looking model mechanism, or the LSS mechanisms. It is not clear why the FCC did not propose changes to those mechanisms. However, comprehensive reform of legacy support mechanisms should impact all legacy programs. In our proposal below, the PaPUC will include changes to these mechanisms. That comprehensive proposal is designed to require all universal service support mechanisms to conform to the goals of the National Broadband Plan.

C. The PaPUC Proposal

1. The goals of the PaPUC Proposal

The goal of the PaPUC proposal is to alter all of the legacy mechanisms such that those mechanisms conform to and are aligned with the National Broadband Plan. In line with that over-arching goal, the proposal rejects those reforms that would penalize early adopters of broadband capable networks. Early adopters are dependent on current support levels to cover expenses and pay for the return on and of capital. Eliminating support for the early adopters would discourage other carriers from making initial investments in broadband technologies because carriers could not be confident that revenues needed to support that investment would not be sustained over the life of the investment.

Moreover, consistent with the goal of providing affordable ubiquitous broadband service, it is necessary to provide support for the provision of broadband service. Such a requirement

[19] See Table 3.

means that the FCC must put together support mechanisms that not only pay for the initial roll-out of the service but also support for its long term viability.

However, carriers should not be under any illusion that universal service is a gift that replaces reasonable business decisions and allows them to live solely off the universal service trough. As noted many times, the sufficiency standard in the Telecommunications Act means that support should be enough to do the job but also that support should not too much so that universal service becomes a heavy burden on non-supported customers.

For these reasons, it is necessary to ensure that the mechanisms contain incentives that require the carriers to invest their own funds, especially for carriers that are earning high returns. The incentive must also require the carriers to meet certain criteria in terms of broadband service availability and related transmission speeds. Finally those criteria must encourage carriers to enlarge the area served and enhance the services that are available.

2. The PaPUC proposal

The PaPUC proposal allows ILECs to retain their current support if and only if the carriers meet certain criteria and meet enhancements of those criteria over the next five years.[20] Support is eliminated only if the ILEC refuses to meet minimum service standards. In addition, carriers will lose a portion of their current support if they provide service greater than the minimum standard but less than the maximum standard. Thus, carriers are not limited to current per-line support that will diminish with line loss, and carriers can control their own destiny by meeting reasonable service quality goals. The proposal develops a set of incentives that rewards

[20] The proposed draft rules are contained in Appendix A.

carriers that increase broadband service availability and punishes carriers that fail to move in that direction.

First, the proposal establishes a maximum broadband availability standard for the first, third and fifth year of the transition period. If carriers exceeded the maximum availability standard, then they would retain their current support. The maximum availability standard starts at 90 percent of residential customers and increases to 95 and 98 percent.

Second, the proposal defines broadband service as a downstream broadband speed of 768 kbps in year one, 1.5 Mbps in year three and 4 Mbps in year five. Thus, to retain its current support in year five, the carrier must provide broadband service at 4 Mbps and that service must be available to 98 percent of its residential customers.

Third, the minimum standard for receiving any support is 40 percent in year one, 50 percent in year three and 60 percent in year five. Thus, if the carrier refused to meet these reasonable minimum standards, the carrier would lose its entire support.

Fourth, carriers operating between the minimum and maximum standards would receive a pro rata share of their current support.

Fifth, broadband service availability is measured across a geographic region specific to each support mechanism. For HCL, LSS and ICLS, service availability is measured at the study area level. For ICLS, service availability is measured for the UNE zones that receive support. Thus, if a carrier has three UNE zones but only one of those zones receives support, then the maximum and minimum service standards are measured as the percent of residential customers in the UNE zone that is supported. For forward-looking model support, service availability is measured at the supported wire center level. Thus, if a carrier has 100 wire centers but only 30 are supported, the service availability standard is calculated as the percent of residential

customers in 30 supported wire centers for whom broadband service is available. These service availability standards focus carrier attention on the rural unserved or underserved areas of their study areas. Carriers will not have the option to average well-served urban areas with underserved rural areas to meet the service availability standards.

III. Model Issues

A. Model Transparency

The FCC is seeking comment on the use of the NBP model for the purpose of determining the investment gap and for allocating support across unserved areas of the country. However, the FCC has not released the model. Instead, it has released a limited amount of output data on a web page, along with the OBI Technical Report No. 1, The Broadband Availability Gap and the Broadband Assessment Model: Model Documentation. While the released information is useful and provides some insight in how the model works, it is totally inadequate.

The FCC should release the entire model, including the model source code. Such a release is normal operating procedure in all state proceedings. Moreover, the FCC released this type of information for HCPM.[21] If the NBP model is considered a confidential model, then the FCC can released the model and its source code subject to the usually proprietary rules under which anyone wishing to see or use the model would have to sign a confidentiality agreement.[22]

In addition to the model and model source, other parties must have the ability to run the model. If the entire model could be downloaded, the other parties would be able to run the model on their own computers. If the model cannot be downloaded, the FCC should establish a

[21] http://www.fcc.gov/wcb/tapd/hcpm/welcome.html
[22] An Order establishing how to use confidential line-count data associated with running HCPM has been in place for many years. See http://www.usac.org/hc/about/requesting-confidential-info.aspx

procedure that would allow other parties to run the model on the FCC's computers via the Internet. Such a procedure has been established by Verizon for the running of Verizon's proprietary forward-looking cost model.

The FCC should also release an inputs data book that contains all model inputs and the source of those inputs. Similar inputs books were filed by parties that sponsored the HAI and BCPM models.

Finally, the FCC should release all outputs at the census block level for all technologies investigated. Aggregation of the outputs to the county level masks the information. This disaggregation data is particularly important in areas where multiple carriers serve the same county.

Given the FCC's failure to release the detailed information about the model, its inputs and outputs, it is not possible to either support or condemn the model. At this time, the PaPUC will address model issues that it has been able to discover and requests the FCC to release another Notice requesting comments on the NBP model after the FCC has released all relevant information and parties have had sufficient time to evaluate that information.

B. The model's estimate of the number of unserved households is not accurate

1. Using housing units to estimated unserved households overestimates the number of unserved households and locates the unserved households in extremely rural locations.

The number of unserved households is estimated based on the number of housing units in a Census. However, the number of housing units overestimates the number of households because housing units includes vacant houses. In 2007, vacant houses represented 13% of the housing stock. Approximately 40 % of vacant houses (American Housing Survey 2007) are

available to be rented or sold or have been rented or sold and the new occupant has not moved in. Including these units would allow the new or future occupant the ability to purchase broadband service. However, 42 % of vacant houses are either seasonal or occasionally used, including hunting lodges and loggers' and herders' cabins. Another 18% of the vacant houses are vacant for unknown reasons. Given the limited resources, it would not be reasonable to build out broadband infrastructure to hunting lodges and loggers' and herders' cabins. In fact, realizing that such a problem existed, the FCC in its Inputs order for HCPM limited locations to customer locations.[23]

Wireline telephone customer locations, given the number of households that have cut the cord, would underestimate the number of potential broadband customer locations. Therefore, the wireline, customer locations (including cable wireline customers) should be augmented by DSL and Cable Modem customer locations.

As the OBI Technical Report notes, stretching the infrastructure to the last 250,000 housing units increases the cost of the investment gap by $13.4 billion. Eliminating hunting lodges and other similar housing units would probably substantially reduce the housing units in that most expensive group and thus substantially reduce the total gap estimate

2. Assuming that cable carriers provide broadband service across their franchise areas overestimates the total number of broadband served areas.

The NBP model presumes that broadband service is available to all customers within a cable franchise and therefore assumes that 90% of housing units can obtain broadband service. This assumption is not true and is especially not true in the rural areas where, even if major population centers are served, a substantial number of customers in that same franchise service

[23] In the Matter of Federal-State Joint Board on Universal Service, CC Docket No. 96-45, *Tenth Report and Order*, released November 2, 1999, FCC 99-304, ¶¶ 48-62.

territory are unserved due to restrictive clauses in the franchise agreements. For example, many cable franchises include a clause that exempts the cable provider from the obligation to provide service where there are less than a predetermined number of houses per road mile.[24]

3. The regression analysis used to determine unserved areas is based on an unrepresentative sample

For the remaining 10% of the households, the model develops a regression analysis. The regression equation is based on data for the three states, Alabama, Minnesota and Pennsylvania. A relationship is created between the probability that broadband service is available in a Census Block and a number of economic and demographic variables. The NBP model does not provide the input data base or a list of included variables. The NBP model uses the relationship to extrapolate to the availability of broadband service in all other states. Such an extrapolation is reasonable if and only if the states are representative of the nation. However, Pennsylvania carriers are required by state law to build-out broadband service availability. Thus, the states in the FCC's sample cannot be representative and thus the extrapolation is meaningless.

C. The process of determining incremental cost must become transparent

The calculation of the NBP Investment Gap is determined by the incremental cost of providing broadband service. Incremental cost is the additional cost to extend broadband service into unserved areas. However, it is not clear, especially for the wireline industry, what exactly is the existing network that will be extended into the unserved areas. Knowledge of the existing network is important if the incremental cost estimate is dependent on the existing network

[24] Direct testimony of Dr. Robert Loube on behalf of the Maine Office of Public Advocate in Maine Docket No. 2009-40.

configuration. The existing network can only be ignored if the incremental cost is considered to be independent of and separable from the existing network

In general, however, the incremental cost of serving the unserved areas depends on the existing network. For example, assume that the closest digital remote terminal to an unserved area is a next generation remote that currently contains unused capacity and is connected to the wire center via a fiber optic facility that contains underutilized dark fiber. An extension of service into an unserved area might be able to make use of either the remote capacity or the dark fiber. On the other hand, assume that the closest remote to the unserved area is a SLC 96 connected to the wire center via copper feeder over a T-carrier system. In the latter case, the incremental cost of providing broadband service to the unserved area must, at a minimum, include the additional cost of placing fiber cable from the wire center to whatever electronics are placed in the unserved area, and this investment would substantially increase the incremental cost of service.

While it is never stated clearly, the NBP model appears to build an optimal hypothetical model for the area that currently has service and then builds out into the unserved areas from the optimally placed network. This appearance is confirmed by the lack of Node 1 investment in the output data, where Node 1 investment would upgrade facilities from the wire center to the first remote and upgrades of the remote. The lack of such investment means that Node 1 equipment has been optimally placed. However, in a brownfield analysis, a model must be concerned with the equipment that is in place in the Node 1 sector. If, as is the case in many instances, such equipment is antiquated, then the brownfield model must replace that equipment.

If the FCC wishes to measure incremental cost, then it is necessary to obtain information about the brownfield network. It can do that by requesting all telephone companies to provide

information regarding their current remotes. Such information has been requested and provided by ILECs in the past (see Appendix 2). With this information the FCC can determine the condition of the existing network and thus estimate the incremental cost of adding to that network. Without this information, the FCC's incremental cost estimates are speculative, arbitrary and capricious.

The PaPUC recognizes that this reliance on network deployment by telephone companies, particularly remote deployment, appears to "tilt" the broadband support field in favor of telephone companies over other carriers. This position is well founded. Given the real limitations on cable franchise deployment noted above and the considerable costs to deploy spectrum and facilities for mobile broadband in underserved areas, the fact remains that the current ILEC network is the most widely deployed network in the nation. That network was deployed, in no small part, due to the incentives embedded rate base/rate of return regulation.

D. Fixed Wireless Cost Assumptions

1. The FCC should use precise topology information to estimate tower requirements rather than determining tower requirements based on an algorithm.

The number of wireless towers depends on the ability of one tower to serve a particular area. The size of that area depends on the geography of the area, the spectrum used and other technical components of the service. For any given spectrum and power assumption, the number of towers depends on the geography of the service area. Data bases containing information regarding elevation and land coverage characteristics are readily available.[25] Combining the

[25] See http://www1.gsi.go.jp/geowww/globalmap-gsi/gtopo30/README.html
http://seamless.usgs.gov/products/nlcd01.php

geographic data with standard propagation models provides reasonable estimates of tower requirements.

However, the NBP model does not rely on standard techniques for determining tower requirements. Instead, the NBP model first develops the cost of providing fixed wireless service using four different cell radii and placing one tower at the center of each radii. The largest cell radius would be used where the land is very flat and the smallest cell radius would be used where the land is extremely rugged. To determine whether the land is flat or rugged, the NBP model calculates the standard deviation of elevation for each census tract. Those census tracts with a small standard deviation used large cell radii, had fewer towers and thus lower costs than census tracts with high standard deviations, low cell radii and many towers.[26]

The standard deviation approach, however, can be very misleading and can result in an inappropriate measure of cell tower configuration. For example, a census tract that is relatively flat but with one high point can have a standard deviation much greater than a census tract with a number of rolling hills, even though the census tract with the one high point could be served with much fewer towers than the census tract with rolling hills.

Because using propagation models and geographic data provides reasonable estimates of tower requirements and because the algorithm adopted by the NBP model can provide inaccurate tower requirement estimates, the PaPUC urges the FCC to discard the NBP model algorithm and to adopt a reasonable method for estimating tower requirements.

2. The assumption that fixed wireless providers will use the 700 MHz decreases the cost of wireless service.

[26] At least in principle, this is the case. See OBI technical Paper No. 1, pages 50-51. However, we have not been able to review how this principle was applied or at what levels of standard deviation were the cell radii reduced from 8 miles to 5 miles.

The use of the 700 MHz spectrum generates a low cost estimate compared to providers that use alternative parts of the spectrum. However, it has come to our attention that many of the fixed wireless providers, the small wireless Internet Service Providers ("WISPS") and ILECs that prefer to provide wireless broadband rather than replacing very long cable runs, use the unlicensed spectrum. Thus, the cost of fixed wireless should also reflect the costs of providing service using unlicensed spectrum.

3. Spectrum auction procedures should be revised to favor carriers that will serve the unserved areas.

Spectrum auctions in the future, especially in rural unserved areas, should favor entities that are willing to take on COLR responsibilities and small businesses who are concerned with serving rural areas. These entities have a very hard time competing with the large wireless carriers for spectrum because they cannot afford to make a one-time up-front payment for spectrum. To offset the buying power of the large carriers, spectrum in remote areas should be reserved for those who are willing to provide service with a particular build-out schedule, service quality, and retail price. The service provider would have to pay the FCC a reasonable annual fee rather than a huge one time up-front payment.

E. Is spectrum an incremental cost?

The NBP model does not count the cost of spectrum as an incremental cost of broadband service. However, if it is not incremental to the service, then it must have already been purchased. If it had already been purchased, then the service provider would already be providing voice service. However, the NBP model asserts that voice revenue is incremental revenue for the fixed wireless provider. This is a clear inconsistency. Either spectrum must have

already been purchased and the provider is already selling voice service, and thus voice revenue is not incremental revenue, or the provider purchases spectrum and therefore, both voice revenue and spectrum cost are incremental.

Alternatively, the provider could use unlicensed spectrum and therefore, have no spectrum costs. However, in that instance, the cost of providing fixed wireless must be based on using the unlicensed spectrum rather than the 700 MHz spectrum.

F. Adopting the HCPM structure distribution assumption is inconsistent with the brownfield model concept.

The HCPM structure distribution assumption requires that percentages of aerial, buried and underground cable vary by density cell but are constant for all study areas. For example, in the lowest density cell, distribution cable is 60 percent buried and 40 percent aerial, while in the highest density, distribution cable is 90 percent underground and 10 percent aerial. These structure percentages are same in the forests of Maine, in the granite hills of Vermont and across the deep prairies of Iowa. While the HCPM structure assumptions may be appropriate in a standardized green field model which was based on many national average assumptions, they are clearly inappropriate in a brownfield model because the brownfield model's task is to determine the cost in a particular existing environment. To replace the HCPM assumption, the PaPUC recommends that the FCC obtain the actual structure percentages used in each region of the country.

G. Second mile and middle mile costs

The NBP model appears to develop second and middle costs on a TELRIC basis. That is, the rate for these services equals the forward-looking total element incremental cost of providing the service. However, for most carriers, these functions are provided by other carriers at special access rates. Special access rates are substantially higher than TELRIC costs. Therefore, the NBP model must either use special access rates to determine the cost or the FCC must adopt TELRIC rates for special access services. Until such time as the FCC adopts TELRIC as the standard for special access services, the NBP model has substantially underestimated middle and second mile costs. However, on an interim basis, the FCC could adopt the direct transport TELRIC rates that have been approved by state commissions. Such actions would accelerate the reduction of special access rates and would allow use of cost based middle mile and second mile estimates.

H. Gap calculation

The broadband availability gap is calculated as the difference between total incremental cost and revenue for counties with a negative gap. The total incremental cost is determined as the cost of the second best technology. The model documentation asserts that the two lowest cost technologies are 12 kft DSL and fixed wireless. Thus, the model uses the cost of the higher cost technology to determine the gap. Revenue is the incremental revenue. The broadband gap calculation is improper and should be revised.

1. The broadband gap calculation should be based on the least cost technology and not on the second best technology.

The NBP model estimates the gap to be $23.5 billion based on the costs of using the second best technology. The gap, however, is only $8 billion based on the cost of the least cost

technology. The $15 billion savings can be used to support existing providers of broadband services or to support the provision of higher broadband service speeds.

The rationale for using the second best technology is that in a market based auction option, the lowest cost provider would not bid his own cost. Instead, the low cost provider would use a type of limit price bid, where his bid would be one dollar below the cost of the next lowest cost provider. This assumption, while believable, contradicts the rationale for using the market based auction option. That rationale is that market based options would generate efficient low cost provision of service. In this case, the market based option triples the cost of universal service.

2. The cost of providing service to the most expensive 250,000 housing units appears to exceed the benefits of using those funds to support the provision of broadband service and to enhance broadband services currently being provided.

According to the NBP, the cost of providing service to the most expensive 250,000 housing units is over $13.4 billion. These 250,000 housing units represent less than 0.2 percent of the housing stock. Moreover, it has not been verified that these housing units are occupied on a regular basis. In fact, many of these units could represent seasonal or occasionally occupied housing units.

This extremely high support level should be compared to the cost of other programs. For example, the FCC should provide an estimate of the number of low income households that could receive funding under a broadband Lifeline program for $13.4 billion. Alternatively, the FCC should estimate the impact on existing broadband providers of shifting funds from the existing providers to support the build-out to the last 0.2 percent of housing units.

The PaPUC recommends that the FCC should make these comparisons prior to committing funds to the provision of broadband service to the most expensive 250,000 housing units. It appears that a reasonable cost-benefit analysis would lead the FCC toward a decision that expands broadband availability to a high percentage of housing units but not 100 percent of all available housing units, and would reserve the limited federal universal service fund resources for the purpose of supporting affordable rates and the provision of service. This recommendation would not prevent any state from using its own funds to support the build-out of broadband network facilities to 100 percent of the housing units.

3. The use of incremental revenues without considering the incremental cost required to generate those revenues is inappropriate.

The NBP model includes incremental revenues in instances where additional facilities allow carriers to provide additional services. However, in several instances, when it includes the incremental revenue, it does not include the incremental cost associated with the provision of the revenues. For example, when the additional facilities allow for the provision of video, content costs associated with video services have not been included in cost estimates. Second, additional spectrum costs have not been assigned to fixed wireless service provision even though the additional spectrum costs are a cost of providing broadband wireless service. This mismatch between incremental revenue and incremental costs distorts the calculation of the broadband gap and should be corrected.

4. Switching from a revenue enhancing mechanism to capital grants could affect the tax treatment of universal service funds.

Recently several carriers have attempted to obtain refunds of taxes associated with universal service support. These carriers claimed that the support is a capital grant. In two

cases, the Justice Department prevailed by convincing the court that the universal service support should be treated as revenue.[27] However, if the FCC switches to funding initial capital outlays rather than retaining mechanisms that support the provision of services, it is likely that the courts would reverse their rulings.

5. The cost of capital and the discount factor used to evaluate investment should encourage the use of the Rural Utility Services' loan programs.

With regard to the capital costs, the FCC should provide incentives to use the Rural Utility Services (RUS) loan program. Using that loan program would allow the cost of money to decrease from 11.25 percent to 5 percent. Depending on the loan period, the RUS loan program could leverage the available level of support by 10 to 15 times. Thus, a $2 billion CAF could support an initial investment of $20 to $30 billion. Leveraging CAF support through the use of the RUS loan programs would potentially allow the FCC to establish a broadband lifeline program and retain funds to support the provision of broadband service.

I. The proposed technology must be able to meet the FCC's short-term goal of 4Mbps downstream and 1 Mbps upstream service for every customer.

The NBP model suggests that the two lowest cost technologies are DSL service and fixed wireless service. The NBP model uses these two technologies to determine the broadband gap.

DSL service using currently available technology such as ADSL2+ with no copper loops longer than 12,000 feet can provide broadband service to 100% of subscribers at 4 Mbps downstream and 1 Mbps upstream.

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[27] See *United States v. Coastal Utilities, Inc.*, 483 F. Supp. 2d 1232 (S.D. Ga. 2007), *aff'd* 514 F.3d 1184 (11th Cir. 2008); *AT&T Inc. v. United States*, No. SA-07-CV-0197, 2009 WL 1256931 (W.D. Tex. May 4, 2009).

However, it is clear that fixed wireless service cannot provide 4Mbps downstream and 1 Mbps upstream service to every customer under anything like the network design parameters used in the NBP model. To understand why, it is necessary to review those assumptions and to understand how those assumptions affect the quality of the fixed wireless service to be provided.

First, the NBP model assumes that a carrier will use paired 20 MHz channels to provide service.[28] To begin with, this is a heroic assumption because it is very unlikely that one carrier has obtained spectrum in 20 MHz blocks within the 700 MHz band. Next, to reduce the complexity of the arithmetic, the model dedicates the entire spectrum to broadband service and assumes that the carrier can provide voice service using a different spectrum allocation.

Second, translating spectrum megahertz capacity into broadband Mbps capacity requires an assumption about the efficiency of the wireless service. The most efficient technologies currently available such as LTE allow for approximately 1.5 megabits for every megahertz of spectrum capacity. Thus, a 20 MHz radio channel would have a capacity of 30 Mbps. This would provide sufficient capacity for 30/4 = 7.5 simultaneous 4 Mbps sessions.

The NBP model notes that spectral efficiency can be enhanced by using directional antennas.[29] If the enhanced spectral efficiency can be obtained, then a 20 MHz radio channel would have the capacity of 50 Mbps and sufficient capacity for 12.5 simultaneous 4 Mbps sessions.

Assuming that a tower has three such antennas with complete beam separation, that would allow 7.5*3=22.5 simultaneous sessions using current best technology. Using the alternative enhanced spectral efficiency, there could be 12.5*3= 37.5 simultaneous sessions.

[28] OBI Technical Paper No. 1, pps. 60-61.
[29] OBI Technical Paper No.1, page 72.

However, it is claimed that each tower in the NBP model is designed to serve 650 customers.[30] This produces an oversubscription ratio of 29 to one. Viewed another way, less than 4 percent of subscribers have the ability to simultaneously obtain 4 Mbps broadband service. Allowing for enhanced spectral efficiency decreases the oversubscription to 17 to one, and allows less than 6 percent of subscribers to have simultaneous 4 Mbps broadband service.

Compared to the DSL solution where 100% of the customers can simultaneously obtain broadband service, this result implies that deploying fixed wireless service rather than DSL service requires accepting a serious degradation in service quality.

The NBP model, however, disregards the fact that its design for fixed wireless service will not provide 4Mbps service to every customer. Instead, the NBP model bases its fixed wireless service cost on expected demand at the busy hour. To determine the expected demand at the busy hour, the NBP model develops a term called the average busy hour offered load (BHOL). According to Exhibit 4-BS, the average BHOL is expected to be 444 kbps in 2015. However, the NBP model did not use its own expected average BHOL to determine network requirements and costs. Rather, the NBP model further noted that by eliminating the usage of the heaviest 10 percent of the users, the average BHOL decreases to 160 kbps, and it is that number that is used to size and determine the cost of fixed wireless service. This assumption distorts the results of the NBP model and calls into question the ability to rely on any of the NBP model outputs for the purposes of reforming universal service policy.

To understand how radical is the BHOL assumption of 160 kbps, we need to assume for the moment that the task is to determine the electricity generation needs of the United States. If we build our network without capacity for residential air conditioning usage, we would expect

[30] OBI Technical Paper No. 1, page 61.

blackouts across the entire United States on every summer afternoon. Luckily, broadband service in one area of the country can be isolated from the provision of broadband telecommunications services in other areas of the country. Thus, the harm from the NBP model average BHOL assumption will be felt only in those currently unserved areas where the broadband service will be extended using the very limited wireless infrastructure envisioned by the NBP model.

In order to fully understand the effect of the NBP model's restricted assumptions, it is necessary to rerun the model twice. The first runs should use a BHOL of at least 444 kbps. The second run should provide enough capacity so that every customer can simultaneously obtain 4 Mbps downstream service. Until the FCC directs its staff to rerun the model based on these more reasonable assumptions, it is impossible to know the impact of the restricted assumptions. Therefore, it is impossible to support or reject the NBP model results suggesting that fixed wireless service is the cheapest way to provide broadband service in the vast majority of unserved areas. Nevertheless, it does seem likely that using more reasonable assumptions must lead to reduction in the currently perceived competitive advantage of fixed wireless service.

J. The short-term goal conflicts with the FCC's interim and long term goal of providing broadband access at 50 and 100 Mbps.

The service quality standard used of 4Mbps downstream and 1 Mbps upstream could confine rural Americans to second-class service because the model standard is substantially below the FCC's long term and interim goals. The long term goal is that "at least 100 million US homes should have affordable access to actual download speeds of at least 100 Mbps and actual upload speeds of at least 50 Mbps."[31] The interim goal is that by 2015, "100 million US

[31] National Broadband Plan, page 9.

homes should have affordable access to actual download speeds of 50 Mbps and actual upload speeds of 20 Mbps."[32] If the FCC supports with CAF money a lower service quality, then providers may install equipment that could limit the ability to meet those higher service quality goals in the future. For example, the remote electronic transmission equipment used to provide DSL service cannot be used to provide fiber to the home (FTTH) services. Thus, if the FCC only supports DSL service today, then five years later when it is time to upgrade service availability, the carriers will be stuck with obsolete equipment. Carriers may be reluctant to invest in that equipment because they would have to amortize the old equipment while investing in new equipment. Moreover, it is not clear whether the FCC's CAF would support the changeover at the later time period. Thus, the requirement to invest in facilities that provide DSL service could be counterproductive because it runs against reasonable expectations and reasonable business decisions. At the same time, more advanced telecommunications technologies and networks capable of retail broadband service delivery in the gigabit per second (Gbps) range can be more extensively deployed in the United States and are already being deployed abroad with a parallel pricing affordability for end-user consumers.

On the other hand, the FCC is worried that building a higher quality of service network immediately might be too expensive. A compromise solution would be to invoke a principle used in the development of HCPM. That guideline did not require the investment to include broadband facilities. Instead, it required that the network modeled "not impede the provision of advanced services."[33] In the context of the NBP model, a similar provision would be that the network design used in the broadband plan should not impede the provision of 50 Mbps service.

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[32] Id.
[33] Universal Service Order, FCC 97-157, released May 8, 2007, ¶ 250.

In addition, a policy decision that limits rural or underserved areas to 4 Mbps compared to 100 Mbps may not comply with the Section 254 mandate that federally supported services provide comparable service at comparable rates.

IV. Federal And State Issues

A. Maintenance of Universal Service

1. Maintenance of universal service is a joint federal-state responsibility

The maintenance of universal service within the United States and within individual states is a joint federal and state responsibility. Although this goal for many decades has largely focused on the affordability and availability of the legacy wireline and narrowband voice telephony services, various federal and state statutory mandates and regulatory policies have worked in a synergistic fashion in accomplishing this goal. Both the federal and individual state universal service fund (USF) mechanisms have contributed to the accomplishment of this goal. This synergistic paradigm must continue as both the definition and the applicable parameters of universal service incorporate broadband connectivity.

2. Broadband connectivity and traditional universal service

The introduction of broadband connectivity to the universal service concept and its parameters cannot and does not translate to the abandonment or degradation of the more traditional aspects of universal service such as the voice grade access to the public switched telephone network (PSTN), access to 911/E911 services, access to long-distance services, etc. Such universal service aspects, when they are offered by regulated telecommunications carriers, are primarily policed by state utility regulatory commissions in a number of respects, e.g., pricing, service quality and reliability, etc. This approach offers a great measure of protection to

end-user consumers of regulated telecommunications services. Naturally, there must be the appropriate degree of federal-state jurisdictional collaboration so that the interests of end-user consumers continue to be protected when these aspects of universal service are and will be provided through broadband connectivity facilities and services where such facilities often are under joint federal and state jurisdiction.

B. Carrier/Provider of Last Resort And Universal Service

1. Carrier/Provider of Last Resort and broadband connectivity

Traditionally, - albeit not exclusively - ILECs have fulfilled the duties and/or responsibilities of the carriers of last resort (COLRs).[34] The duties and/or responsibilities of COLRs include not only the provision of ubiquitous narrowband voice services at just, reasonable and affordable retail rates under state regulatory oversight and quality of service standards, but also include the provision of wholesale access and interconnection facilities and services to other telecommunications carriers and other communication services providers. COLRs often are the backbone providers of critical connectivity facilities and services for the processing of 911/E911 emergency calls, whether or not such calls have originated from their own retail end-user customers. In short, COLRs – and by implication the ILECs – have provided and continue to provide many of the traditional universal service aspects to the public at large.

Under conditions of competition and the increasing deployment of broadband facilities and services by multiple providers, the traditional concepts for the duties and/or responsibilities of COLRs need to be jointly re-examined in a coordinated fashion by both the FCC and the state utility regulatory commissions. The proposed reforms of the federal USF and the refocusing of

[34] Peter Bluhm, Phyllis Bernt, *Carriers of Last Resort: Updating a Traditional Doctrine*, (National Regulatory Research Institute, Washington, D.C., July 2009), at 2-3.

its support funding to broadband deployment are not separate and distinct from the necessary, joint, and coordinated federal-state re-examination of COLR duties and/or responsibilities. For example, an alternative provider of last resort (POLR) may undertake the responsibility of providing ubiquitous broadband connectivity services to qualified customers within a prescribed geographic region.[35] What COLR duties and/or responsibilities will be retained by, e.g., an ILEC that is already providing service to this specific geographic region, and which ones if any will be assumed by the broadband connectivity POLR with a potential allocation of federal USF support?

Such issues are of material interest and concern to the PaPUC.[36] The PaPUC not only exercises its intrastate regulatory jurisdiction over a number of incumbent and competitive telecommunications carriers, it also oversees the statutorily mandated deployment of broadband facilities and services by ILECs that have COLR duties and/or responsibilities in Pennsylvania. As of December 31, 2008, two non-rural ILECs have reached a 70%-87% level of broadband deployment with a scheduled completion date in 2015. Two major rural ILECs have reached an 87%-91% level of deployment with a targeted completion date of 2013, while a large number of smaller rural ILECs have completed their respective broadband deployments. Since 2005, the PaPUC has approved on a cumulative annual basis not less than $399.53 million in revenue and rate increases for the regulated services of these ILECs. At the same time, Pennsylvania is a net contributor state to the federal USF with an annual net contribution level that increased from approximately $101 million in 2004 to $176 million in 2008 or at an annual compound rate of 14.89%. At the same time, Pennsylvania has undertaken and continues to address intrastate

[35] Bloom and Bernt, at 62-63.
[36] The PaPUC has commented in the past on issues relating to federal USF support and POLR obligations. *See generally* The Comments of the Pennsylvania Public Utility Commission, *In re High-cost Universal Service Support et al.*, Docket No. WC 05-337 and CC Docket No. 96-45, submitted April 17, 2008.

intercarrier compensation reforms with the assistance of its own state-specific USF. Simply put, Pennsylvania ILECs do not have $4 or $10 monthly rates for basic residential local exchange service (the existing and currently under re-examination basic residential rate cap for rural ILECs operating in Pennsylvania is at $18 per month).[37] Thus, the interaction and coordination of the federal-state effort in defining the COLR and POLR duties and/or responsibilities as broadband connectivity becomes part of the overarching universal service goal, is of great importance to both Pennsylvania and the other states.

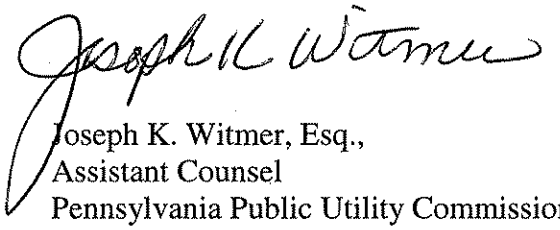
2. The States must set priorities for broadband deployment

The states must be able to set priorities for their respective deployments of broadband facilities and services that are and will be supported by both the federal USF and other sources. First, the individual states are in a better position to know and to manage their respective broadband deployment needs. Second, as the PaPUC has already demonstrated, Pennsylvania's unique early adopter status with respect to broadband deployment by its ILECs underlines the need for managing the continuous flow of the necessary federal USF support with the necessary and coordinated re-examination of the COLR duties and/or responsibilities of various telecommunications carriers that operate under the PaPUC's intrastate jurisdiction.

[37] *See also* Comments of the Pennsylvania Public Utility Commission, *In re High-Cost Universal Service Support et al.*, WC Docket No. 05-337 *et al.*, filed November 26, 2008.

The PaPUC thanks the FCC for providing the PaPUC with an opportunity to file these Comments.

Respectfully submitted,
On behalf of the Pennsylvania Public Utility Commission



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APPENDICES

Appendix 1

An alternative proposed rule for legacy federal high cost programs

1. Definitions

   a. Support areas
      i For Interstate Common Line, Local Switching, and High Cost Loop Support, the support area is the study area
      ii For Intestate Access Support, the support area is sum of the zone(s) that receive support
      iii For model support, the support area is the sum of the wire centers that receive support
   b. Broadband standard is a downstream speed that is required to be provided to every residential customer in order to obtain federal USF support.
   c. Percent availability equals the number of residential lines where the broadband standard is met divided the number of residential lines in the support area.
   d. The maximum percent availability is the percent availability that allows a carrier to retain its total preliminary support in each year.
   e. The minimum percent availability is the percent availability below which a carrier receives zero percent of its preliminary support in each year.
   f. Preliminary support is the current year support that the carrier receives.

2. Transition Percentages

   a. The broadband standard is 768 kbps in year one, 1.5mbps in year three and 4 mbps in year 5.
   b. The maximum percent availability is 90 percent in year one, 95 percent in year 3 and 98 percent in year 5.
   c. The minimum percent availability is 40 percent in year one, 50 percent in year three and 60 percent in year 5.

3. Support

   a. A carrier that has a percent availability equal to or greater than the maximum ercent availability retains its preliminary support.
   b. A carrier that has a percent availability below the minimum percent availability receives zero support.
   c. A carrier that has a percent availability between the maximum and minimum percent availability receives a pro rata share of its preliminary support base on the following formula:

      1-{(Max-Carrier availability)*100/(Max-Min)}*Preliminary Support

Appendix 2

1. Provide a list of the currently installed and used DLCs. For each DLC provide the following information:

    a. The wire center that the DLC is connected to.
    b. The street address of the DLC remote terminal.
    c. Indicate whether the DLC is a universal or integrated DLC.
    d. Indicate whether the feeder cable connecting the DLC to the wire center is copper or fiber cable.
    e. The installation year.
    f. The residential switched access lines served.
    g. The business switched access lines served.
    h. The total switched access lines served.
    i. Indicate whether the DLC has DSLAM functionality. Having DSLAM functionality means that customers can purchase and use ADSL service. DLCs without this functionality prohibit customers from obtaining ADSL services.
    j. Capacity as measured by maximum number of lines that can be served.
    k. Indicate the technology vintage, such as SLC 96, TR-08, GR-303.
    l. Indicate whether the transmission path connecting the remote terminal to the wire centers operates using only TDM, or only packet signaling or both procedures.

TABLES

Table 1 Interstate Universal Support By Carrier for Rural Carriers 2010 Projections

State	SAC	Study Area Name	Rural	Type	Model Support	High Cost Loop Support	Interstate Access Support	Local Switching Support	Interstate Common Line Support	Total Annual Support
PA	170145	BENTLEYVILLE TEL CO	R	A		-	-	97,497	245,109	342,606
PA	170149	FRONTIER-BREEZEWOOD	R	C		-	83,892	66,936	-	150,828
PA	170151	BUFFALO VALLEY TEL	R	A		-	-	242,394	1,112,052	1,354,446
PA	170152	FRONTIER-CANTON	R	C		-	22,074	53,388	-	75,462
PA	170156	CITIZENS - KECKSBURG	R	A		-	-	81,954	354,402	436,356
PA	170161	COMMONWEALTH TEL CO	R	A		-	-	-	16,062,432	16,062,432
PA	170162	THE CONESTOGA TEL	R	A		-	-	-	2,639,430	2,639,430
PA	170165	DENVER & EPHRATA	R	A		-	-	-	2,363,790	2,363,790
PA	170168	FRONTIER-PA	R	C		-	-	373,704	-	373,704
PA	170170	VERIZON N-PA(CONTEL)	R	C		-	1,712,928	-	-	1,712,928
PA	170171	HICKORY TEL CO	R	A		20,694	-	91,428	137,514	249,636
PA	170175	IRONTON TEL CO	R	A		-	-	105,651	424,464	530,115
PA	170176	WINDSTREAM PA	R	C		-	-	-	2,306,834	2,306,834
PA	170177	LACKAWAXEN TELECOM	R	C		-	-	221,616	157,908	379,524
PA	170178	FRONTIER-LAKEWOOD	R	C		-	-	45,564	-	45,564
PA	170179	LAUREL HIGHLAND TEL	R	A		-	-	164,280	482,970	647,250
PA	170183	MAHANOY & MAHANTANGO	R	C		-	-	68,220	184,422	252,642
PA	170185	MARIANNA - SCENERY	R	C		-	-	100,740	176,754	277,494
PA	170189	ARMSTRONG TEL CO-PA	R	C		447,918	-	301,608	490,254	1,239,780
PA	170191	NORTH EASTERN PA TEL	R	A		150,375	-	441,168	1,066,962	1,658,505
PA	170192	NORTH PENN TEL CO	R	C		626,733	-	339,000	971,136	1,936,869
PA	170193	NORTH PITTSBURGH TEL	R	A		-	-	-	2,880,408	2,880,408
PA	170194	FRONTIER-OSWAYO RIVR	R	C		-	51,363	191,940	-	243,303
PA	170195	ARMSTRONG TEL NORTH	R	A		31,467	-	70,692	82,848	185,007
PA	170196	PALMERTON TEL CO	R	A		-	-	239,526	816,303	1,055,829
PA	170197	PENNSYLVANIA TEL CO	R	A		19,758	-	66,048	145,794	231,600
PA	170200	PYMATUNING IND TEL	R	A		-	-	109,197	184,626	293,823
PA	170201	VERIZON N-PA(QUAKER)	R	C		-	1,632,060	-	-	1,632,060
PA	170204	SOUTH CANAAN TEL CO	R	A		40,950	-	119,340	276,618	436,908
PA	170206	SUGAR VALLEY TEL CO	R	C		41,178	-	42,360	103,902	187,440
PA	170209	UTC OF PENNSYLVANIA	R	C		-	5,075,568	-	-	5,075,568
PA	170210	VENUS TEL CORP	R	A		21,006	-	100,716	151,104	272,826
PA	170215	YUKON - WALTZ TEL CO	R	A		23,124	-	105,072	110,148	238,344
PA	170277	WEST SIDE TEL CO-PA	R	A		5,577	-	9,324	17,622	32,523
		Pennsylvania Total			-	1,428,780	8,577,885	3,849,363	33,945,806	47,801,834

Table 2 Interstate Support for Non-Rural Carriers

State	SAC	Study Area Name	Rural	Type	Model Support	High Cost Loop Support	Interstate Access Support	Local Switching Support	Interstate Common Line Support	Total Annual Support
PA	170169	VERIZON NORTH-PA	N	C	-	-	2,651,757	-	-	2,651,757
PA	175000	VERIZON PENNSYLVANIA	N	C	-	-	8,364,207	-	-	8,364,207
		Pennsylvania Total			-	-	11,015,964	-	-	11,015,964

Table 3 Interstate Support for CLECs

State	SAC	Study Area Name	Rural	Type	Model Support	High Cost Loop Support	Interstate Access	Local Switching	Interstate Common	Total Annual Support
PA	179001	VERIZON BUSINESS GLOBAL LLC	N	X			20,661			20,661
PA	179004	NPCR, INC.	R	X		20,119	4,296	74,055	913,770	1,012,240
PA	179009	D&E SYSTEMS, INC.	R & N	X	-		3,984			3,984
		Pennsylvania Total			-	20,119	28,941	74,055	913,770	1,036,885

Table 4 Total Pennsyvlania Support

		Type of Carrier			Model Support	High Cost Loop Support	Interstate Access Support	Local Switching Support	Interstate Common Line Support	Total Annual Support
		ILEC Rural Carrier Support				1,428,780	8,577,885	3,849,363	33,945,806	47,801,834
		ILEC Non-Rural Carrier Support			-	-	11,015,964	-	-	11,015,964
		CLEC Support			-	20,119	28,941	74,055	913,770	1,036,885
		Total Pennsylvania Support			-	1,448,899	19,622,790	3,923,418	34,859,576	59,854,683

Grand Total Pennsylvania Support			-	1,448,899	19,622,790	3,923,418	34,859,576	59,854,683

Table 5
Impact of Proposed ICLS Change on Pennsylvania ILECs

Table 5: Impact of Proposed ICLS Change on Pennsylvania ILECs

state	sac	study area	2010 Lines	2010 ICLS Annual Support	current per-line support	line count base on five year change in lines	Support in 2015
PA	170145	BENTLEYVILLE TEL CO	2,365	$ 245,109	$ 103.64	1,699	176,088
PA	170151	BUFFALO VALLEY TEL	18,133	$ 1,112,052	$ 61.33	14,804	907,917
PA	170156	CITIZENS - KECKSBURG	4,119	$ 354,402	$ 86.04	3,201	275,431
PA	170161	COMMONWEALTH TEL CO	244,569	$ 16,062,432	$ 65.68	188,404	12,373,686
PA	170162	THE CONESTOGA TEL	45,695	$ 2,639,430	$ 57.76	35,659	2,059,752
PA	170165	DENVER & EPHRATA	49,311	$ 2,363,790	$ 47.94	42,110	2,018,614
PA	170171	HICKORY TEL CO	1,271	$ 137,514	$ 108.19	1,184	128,138
PA	170175	IRONTON TEL CO	4,618	$ 424,464	$ 91.92	3,857	354,526
PA	170176	WINDSTREAM PA	186,054	$ 2,306,834	$ 12.40	149,230	1,850,260
PA	170177	LACKAWAXEN TELECOM	3,023	$ 157,908	$ 52.24	2,268	118,451
PA	170179	LAUREL HIGHLAND TEL	5,114	$ 482,970	$ 94.44	4,316	407,643
PA	170183	MAHANOY & MAHANTANGO	3,465	$ 184,422	$ 53.22	2,913	155,065
PA	170185	MARIANNA - SCENERY	2,077	$ 176,754	$ 85.10	1,618	137,652
PA	170189	ARMSTRONG TEL CO-PA	1,447	$ 490,254	$ 338.81	1,188	402,609
PA	170191	NORTH EASTERN PA TEL	11,005	$ 1,066,962	$ 96.95	9,453	916,478
PA	170192	NORTH PENN TEL CO	4,951	$ 971,136	$ 196.15	4,285	840,429
PA	170193	NORTH PITTSBURGH TEL	55,249	$ 2,880,408	$ 52.14	40,367	2,104,549
PA	170195	ARMSTRONG TEL NORTH	491	$ 82,848	$ 168.73	446	75,330
PA	170196	PALMERTON TEL CO	8,595	$ 816,303	$ 94.97	5,790	549,853
PA	170197	PENNSYLVANIA TEL CO	1,297	$ 145,794	$ 112.41	1,192	134,015
PA	170200	PYMATUNING IND TEL	1,861	$ 184,626	$ 99.21	1,418	140,700
PA	170204	SOUTH CANAAN TEL CO	2,524	$ 276,618	$ 109.60	2,054	225,148
PA	170206	SUGAR VALLEY TEL CO	1,048	$ 103,902	$ 99.14	894	88,600
PA	170210	VENUS TEL CORP	1,253	$ 151,104	$ 120.59	1,138	137,198
PA	170215	YUKON - WALTZ TEL CO	757	$ 110,148	$ 145.51	570	82,967
PA	170277	WEST SIDE TEL CO-PA	39	$ 17,622	$ 451.85	37	16,762
		Total	660,331	$ 33,945,806		520,097	26,677,861