Before the
Federal Communications Commission
Washington, D.C. 20554

	)	
In the Matter of	)	
	)	
Connect America Fund	)	WC Docket No. 10-90
	)	
High-Cost Universal Service Support	)	WC Docket No. 05-337
	)	

COMMENTS OF THE NATIONAL ASSOCIATION OF STATE UTILITY CONSUMER ADVOCATES ON MODEL DESIGN AND DATA INPUTS FOR PHASE II OF THE CONNECT AMERICA FUND

Charles A. Acquard
Executive Director

NASUCA
8380 Colesville Road, Suite 101
Silver Spring, MD 20910
Phone (301) 589-6313
Fax (301) 589-6380

July 9, 2012

TABLE OF CONTENTS

Before the
Federal Communications Commission
Washington, D.C. 20554

	)	
In the Matter of	)	
	)	
Connect America Fund	)	WC Docket No. 10-90
	)	
High-Cost Universal Service Support	)	WC Docket No. 05-337
	)	

COMMENTS OF
THE NATIONAL ASSOCIATION OF STATE UTILITY CONSUMER ADVOCATES
ON MODEL DESIGN AND DATA INPUTS
FOR PHASE II OF THE CONNECT AMERICA FUND

I. INTRODUCTION AND EXECUTIVE SUMMARY

The National Association of State Utility Consumer Advocates ("NASUCA") hereby submits these Comments in response to the Wireline Competition Bureau's ("Bureau's") request for comment on model design and data inputs for Phase II of the Connect America Fund.[1] The Bureau seeks comment on "threshold decisions regarding the design of and data inputs to the forward looking cost model and on other assumptions in the cost models currently in the record."[2] The Bureau notes that the Notice is "the next step of an open, deliberative process to

[1] NASUCA is a voluntary association of advocate offices in more than 40 states and the District of Columbia, incorporated in Florida as a non-profit corporation. NASUCA's members are designated by laws of their respective jurisdictions to represent the interests of utility consumers before state and federal regulators and in the courts. Members operate independently from state utility commissions as advocates primarily for residential ratepayers. Some NASUCA member offices are separately established advocate organizations while others are divisions of larger state agencies (e.g., the state Attorney General's office). NASUCA's associate and affiliate members also serve utility consumers but are not created by state law or do not have statewide authority. These comments were prepared with the assistance of Dr. Robert Loube and Susan Baldwin.

[2] Public Notice, DA-12-911 (Rel. June 8, 2012) ("Notice"), Notice, ¶1.

develop the final model design and inputs."[3] NASUCA looks forward to participating further in this process.

As a preliminary matter, we wish to bring to the attention of the Federal Communications Commission ("FCC" or "Commission") two additional factors, not specifically discussed in the Notice, that constrain the analysis of the model. First, because the budget constraint limiting the size of the federal fund determines the absolute amount of support, the choices made regarding the notice's questions affect the *relative* amount of support rather than the *total* amount of support to be provided. Thus, even though the green-field cost is greater than the brown-field cost in some circumstances, that difference will not cause the amount of total support, i.e., the size of the fund, to increase. Second, the technology built by carriers will be determined by the public service obligations defined by the Commission, and not by the model design. For example, if carriers believe that the 4/1 speed requirements will be stable over the foreseeable future, then the carriers may have a tendency to extend existing DSL platforms. If, on the other hand, the carriers expect the Commission to increase the broadband requirements, there will be a tendency to construct fiber networks.

NASUCA offers three overarching points in response to the request for comment on threshold issues:

•It is imperative that the process is truly open and affords the opportunity for careful consideration of the model design and inputs by all interests with a stake in the outcome of the process, including consumer advocates and states. At this point in time, the proprietary restrictions on the model reduce the ability to examine the model, and even

[3] Id., ¶5.

individuals who have signed the applicable nondisclosure agreements have difficulty examining the model. One outcome of this process should be a model that is publicly available and can be used by states, and consumer advocates, as a tool for determining network costs. To the greatest extent possible, model users should have the ability to identify and adjust model assumptions and inputs so that they can run different cost scenarios.

•Since the Commission's goal is for a model to be truly forward-looking, the model should assume a network design that follows a "green-field" approach. As NASUCA has pointed out in previous comments,[4] if public support is to be used to fund broadband, the networks constructed should be scalable, that is, able to evolve to support changing demand for services. As discussed below, a brown-field approach is not forward-looking, not scalable, would produce inefficient cost estimates and would require the collection of vast amounts of data that would be extremely difficult to collect and utilize.

•The model should estimate the total cost of the network, incorporating all of the services that use the network. While the networks supported by the CAF are intended to provide broadband service, these networks will also provide voice service, which remains an

---

[4] In the Matter of Connect America Fund, WC Docket No. 10-90; A National Broadband Plan for Our Future, GN Docket No. 09-51; Establishing Just and Reasonable Rates for Local Exchange Carriers, WC Docket No. 07-135; High-Cost Universal Service Support, WC Docket No. 05-337; Developing a Unified Intercarrier Compensation Regime, CC Docket No. 01-92; Federal-State Joint Board on Universal Service, CC Docket No. 96-45; Lifeline and Link-Up, WC Docket No. 03-109; Universal Service Reform – Mobility Fund, WT Docket No. 10-208,Comments of the National Association of State Utility Consumer Advocates, Maine Office of the Public Advocate, The New Jersey Division of Rate Counsel, and The Utility Reform Network, June 18, 2012, at pp. v, 10, 20.

essential service and the only service thus far designated as a "universal service" by the federal-state joint board and the Commission. Thus, the model should address back-up power and sustainability during power outages. NASUCA recommends that the Commission seek comment regarding how to design the network so that communications are sustained after the presumed 8-hour battery life of customer premises batteries. NASUCA also recommends that the Commission seek comment regarding whether such sustainability should be part of a carrier's public service obligation.

NASUCA addresses the following additional points in response to questions posed in the Notice regarding network design and inputs:

•The model should assume Fiber-to-the-Premises ("FTTP") because this meets the Commissions broadband speed goal and allows the modeled network to be scaleable;

•The Commission should use book terminal value based on the Commission authorized service lives, and as a related matter, should indicate unambiguously that it intends to continue broadband high-cost support as long as it is needed;

•The model should use Shapely Values to determine the allocation of shared costs;

•The Bureau should use E911 databases to obtain accurate location information for all customers, including business and anchor institutions; and

•The Commission should invite states to verify broadband location maps used in the model.

II. THE MODEL SHOULD USE A GREEN-FIELD APPROACH

The Notice asks for comment on whether the model should use a green-field or brown-field approach.[5] The model should use a green-field approach rather than a brown-field approach. The green-field approach provides each carrier with a similar construction path and is a better tool for use in meeting the Commission's goals. The brown-field approach would require the collection of excessively large amounts of data, data that would be difficult to obtain and incorporate in the model. This would greatly, and unnecessarily, increase the complexity of the development and utilization of the model.

A. The Green-field Approach Has Several Advantages.

The green-field approach provides each carrier with a similar construction path because it starts with a scorched-node environment (based on the existing wire center locations and boundaries but assuming zero investments). Under the green-field approach, the model constructs the network that an efficient carrier would design based on the use of the most efficient telecommunications technology currently available and the lowest cost network configuration. The modeling effort, while complex, is similar to earlier efforts associated with the existing Synthesis model and models that were used to determine the cost of unbundled network elements. Many stakeholders are familiar with these types of models and would be able to join in a cooperative effort to generate a new broadband model.

---

[5] Notice, ¶¶ 16-18.

Moreover, the Bureau's concern regarding the impact of the green-field model on the number of locations that will be supported may be misplaced.[6] While the green-field model will most likely increase the average cost relative to the brown-field model, this does not mean that use of a green-field model would either reduce the total number of lines eligible for support or require higher levels of support per location. The number of locations supported depends not only on the cost per-location, but also on the size of the wire centers and the FCC's decisions regarding the two cost benchmarks - the "low-end" benchmark that delineates the cost above which CAF II broadband support will be provided, and the "high-end" benchmark delineates the cost above which Remote Area Fund will be provided instead of the CAF II support. For example, if the use of a green-field assumption increases the model's cost result relative to the result under a brown-field assumption, with wire centers in many locations shifting from below the low-end benchmark to above that benchmark and simultaneously causing the cost of some number of very small, wire centers in particularly remote areas to exceed the high-end benchmark, then it is possible that the green-field model will support more locations than would the brown-field model. In other words, the use of the green-field approach may "disqualify" some very small wire centers because it will "bump" them into the Remote Area Fund, but would likely render more not-as-small wire centers to be eligible for the CAF II support than would be eligible under the brown-field approach. Using the green-field approach, the support per-location likely would be lower for the relatively larger wire center than the average support per-location for the relatively smaller wire centers that are shifted above the second, Remote

[6] Notice, ¶33: "Relative to a brown-field model, a green-field model using any technology is likely to calculate higher costs and require higher support levels per location (i.e., fewer locations covered for a fixed sum of funding)."

Area Fund benchmark. The aggregate consequence of using the green-field approach likely would be to increase the total number of lines eligible for support (either CAF II support or Remote Area Fund support) and perhaps to lower the average CAF II support provided.

B. The Brown-field Approach Has Significant Disadvantages.

In contrast to green-field models, brown-field models require substantial data inputs, incorporate inefficient designs, are not scalable, and penalize early adopters.

Input data requirements include knowledge of the type of location of most of the remotes currently in-service in order to determine how to add on to that remote to provide service. For example, if the remote is currently connected to the wire center via copper cable then the cable plant will have to be upgraded to fiber in order to provide broadband service. This is illustrated by experience with discovery conducted in a proceeding before the Maine Public Utilities Commission. Appendix A is a copy of a data request regarding remotes.[7] One problem with the information received in response to that data request is that the companies used different internal data bases when supplying the address data and, in many instances, it was not possible to locate a remote using street maps or geo-coding techniques. If the Commission were to opt for a brown-field design, it could expect this problem with the collected data to be endemic. In addition, if the model shares resources with non-supported areas, information regarding the equipment and facilities in the non-supported areas must be collected. This information would include data pertaining to depreciation reserves, average remaining lives, size and fill of cables, and capacity

[7] Maine Public Advocate, First Data Request of the Public Advocate, Re: Investigation Into Line Sharing Pursuant to State Law, MPSC Docket No. 2004-809, filed January 6, 2005.

of circuit equipment. Collecting and incorporating that data into a model is an enormous and overwhelming task.

Second, existing networks contain numerous design and technical characteristics that would not be considered to be efficient in the current environment. Eliminating these inefficiencies could increase the cost of providing service. Retaining the inefficiencies, on the other hand, might lead to substantial reductions in the grade of service. The decision regarding whether to eliminate or retain the inefficiencies would have to be made on a case by case basis and would be extremely time consuming.

Third, most brown-field additions will use digital subscriber line ("DSL") technology. That technology limits the amount of data that can be transmitted. Unless substantial technological breakthroughs occur, data transmission speeds of 100 mbps (the goal of the FCC's National Broadband Plan) cannot be provided with DSL technology. Moreover, even if the data transmission capacity of the additions that will serve current unserved areas is substantial, it is possible that the existing facilities that connect the newly served areas to the Internet may limit through put. In such instances, if the decision is made to allow the new higher speed parts of networks to work at full capacity, it would be necessary to include the upgrade of existing facilities to the cost estimate generated by the brown-field model.

Fourth, under the brown-field model, early adopters of broadband will be penalized because their remaining broadband unserved areas will likely be in extremely high-cost remote regions. Those high-cost areas will probably be above the second benchmark and therefore, not supported by the CAF II model. Instead, those areas will be relegated to the Remote Area fund support, which is limited in size and is likely to only cover a small number of locations with a lesser quality of service. On the other hand, carriers that have done nothing or very little to deploy broadband in high-cost areas will have a large number of brown-field areas that are low-

cost locations. Thus, the brown-field model would penalize carriers that have been attempting to provide high quality service and reward carriers that have been delinquent in providing service.

III. THE MODEL SHOULD USE AN FTTP DESIGN.

The Notice asks for comment on whether the model should use a FTTP, DSL or Fiber-to-the-node design.[8] The model should use a FTTP design. An FTTP design will yield a cost estimate of a network that meets the Commission's long run goal of 100 mbps broadband service. In addition, the FTTP network design is desirable because it is scalable. If carriers install FTTP networks to meet the Commission's current standard of 4 mbps downstream and 1 mbps upstream they can relatively easily upgrade the network later to provide higher speeds by installing alternative electronic plug-ins at either end of the fiber cable.

On the other hand, if the carrier meets the Commission's current broadband service requirements using DSL and copper, then the carrier would have to change the locations of remote electronics each time the Commission changes its broadband speed service quality standards. To meet a higher standard, the carrier would have to steadily move the remote equipment, increasing the length of the fiber feeder and reducing the length of the copper distribution cable. Eventually, the carrier would have to deploy a FTTP network.

Of course, the model criteria do not require a carrier to invest in the network that the model network design incorporates. For carriers that receive universal service support, the service requirements that are incorporated into the network that the carrier actually builds are governed by the Commission's current broadband public service obligations. However, by

---

[8] Notice, ¶¶19-21.

choosing a FTTP model design for its broadband cost model, the Commission would signal clearly to carriers that the Commission intends to meet its long run broadband deployment goal. The choice of an FTTP design would also warn carriers that expect to receive funding after the first five years of the CAF II that future funding may require a network that offers speeds that are not available over copper. If a carrier chooses nonetheless to build a DSL network (based on today's service obligations), that carrier may be forced to rip out the network in order to receive funding in the future, but at least the carrier would have been forewarned by the Commission's unambiguous commitment to achieving its long term goal of 100 mbps service.

IV. THE MODEL SHOULD USE BOOK TERMINAL VALUE BASED ON THE COMMISSION AUTHORIZED SERVICE LIVES.

The Notice asks for comment on the terminal value that should be used in the model.[9] The terminal value is the value of the model investment at the end of the period under examination. It is equal to the gross investment minus the accumulated depreciation. The period under examination is assumed to be the five years that the FCC has announced that the model will be used to determine CAF II support. The terminal value should reflect the use of reasonable depreciation service lives so that the cost reflects the practices of an efficient carrier.[10]

---

[9] Notice, ¶¶ 22-28.

[10] Service life is the total period during which the asset remains in use or ready for use and is the term that will be used in this discussion of the terminal value. It is a more general term than either projection life or average remaining life. The projection life of an asset is defined as the average life expectancy of new additions to plan. Because the green-field model assumes that the entire network is built in the first year of the calculation, the model should use the projection life. If the FCC were to use a brown-field model, the depreciation rates should reflect the average remaining lives of the assets.

As this section discusses in more detail, the period of time that the FCC intends to provide broadband cost support bears directly on the selection of efficient terminal values for the relevant investment being made by the carriers that receive support. The terminal value, the accumulated depreciation and annual depreciation are jointly determined by the service life of the investment. For example, if the model requires an investment of $100,000 and the service life is five years, the annual depreciation is $20,000, the accumulated depreciation would be $100,000 at the end of five years and the terminal value would be zero.[11] Increasing the service life to 10 years reduces the annual depreciation to $10,000 per year, the accumulated depreciation would be $50,000 at the end of the five years and the terminal value would be $50,000.

The efficient carrier would use service lives that allow the carrier to recover its investment and that reflect the physical and technological life of the investments. The physical life is associated with the ability to sustain service over time. The technological life reflects obsolescence and replacement by more advanced devices. In general, for telephone equipment and facilities, the technological life is shorter than the physical life.

A. Book Terminal Value Is the Most Reasonable Option for the Model.

The Notice requests comment on three alternative ways to determine the service life and terminal value of the investments: book value, commercial value and zero value.[12]

---

[11] The example uses straight line depreciation and does not reflect the difference between tax and book accounting or whether there is a salvage value associated with the asset. Introducing tax depreciation or a salvage value does not change the basic logic of the example, but will change the calculation.

[12] Id.

1. Book Terminal Value

The process of estimating book value has changed over time. Before the Telecommunications Act of 1996, regulatory depreciation rates were determined through three-way meetings among the federal and state regulators and the carriers. Since the Act, the carriers are no longer required to participate in those meetings and, to our knowledge, those meetings no longer occur. Instead, the carriers have relied on generally accepted accounting practices ("GAAP") standards to determine depreciation rates and book values. GAAP lives are based on the principle of conservatism and are usually shorter than the lives that had been adopted by regulatory agencies.[13] The Commission, however, found that it was inappropriate to use the GAAP service lives for use in a forward-looking model.[14] The Commission stated that "The depreciation values used for financial reporting are intended to protect investors by preferring a conservative understatement of net assets, partially achieving this goal by erring on the side of over-depreciation. These preferences are not compatible with the accurate estimation of the cost of providing services that are supported by the federal high-cost mechanism."[15] Instead, the Commission relied on the service lives that were incorporated in the HAI model. Those service lives were within the ranges authorized by the Commission. The ranges were determined based on estimates of technological obsolescence and equipment replacement projections and therefore, reflected the economic lives of the equipment and facilities.[16] This is significant for

---

[13] Richard B. Lee, "Selection of Plant Lives for Use in Forward-Looking Economic Cost Calculations," Snavely King Majoros O'Connor and Lee, Inc. February, 1997.

[14] In state investigations of the total element long run incremental cost of unbundled network elements, some states have rejected carriers' proposed use of GAAP lives and relied instead on the FCC's prescribed lives.

[15] In the Matter of Federal-State Joint Board on Universal Service, CC Docket No. 96-45, Tenth Report and Order, FCC 99-304, released November 2, 1999 ("Inputs Order"), ¶ 429.

[16] Id., ¶ 426.

reasons discussed more fully below. It appears that the CQBAT model as sponsored by the ABC Coalition also incorporated the Commission-authorized depreciation rates into the CQBAT's cost estimates. NASUCA agrees with the previous findings of the Commission, and recommends that the Commission retain its adopted service life ranges for the purposes of determining forward-looking costs in the broadband cost model.

The use of book values by an efficient carrier, however, is predicated on the expectation that the investment will be recovered. That expectation is only justified, however, if the carrier expects that the support will continue after the initial five years of the program. Given that obtaining model support for the initial five years of the program will provide the carriers who accept such support such a large first-mover advantage due to the presence of the investment and customer contact, it is reasonable to assume that a carrier that accepts CAF II model support would automatically win any auction that may occur in any future.[17] Under those circumstances, the carrier would expect to receive support after the initial five years and the efficient carrier would use the book terminal value. Therefore, NASUCA recommends that the Commission use book terminal value based on the Commission authorized service lives in the forward-looking model that its adopts, and, furthermore, that the Commission indicate unambiguously that it intends to continue broadband high-cost support as long as it is needed.

2. Commercial Value

As the Bureau points out, determining commercial terminal value relies on factors that are, at present, unknown. The use of commercial terminal value would require forecasts of

[17] Because of the first mover advantage, there is no reasonable expectation that the auction process would be efficient and therefore, NASUCA recommends that the model be retained after the first five years of the program.

revenue and profit compared to ongoing cost at the end of the five-year period for which support is currently available. The use of commercial terminal value would be highly speculative and should not be adopted.

3. Zero Value

Of the three values, the zero value approach is the easiest to estimate, and, if adopted, the service lives of the investments would then be five years, which correspond with the proposed time period for the support provided based on the use of the broadband cost model. If carriers believe that it is necessary to have support in order to invest in the supported areas, and if the carriers also believe that they will lose that support at the end of the five years, the zero terminal value is the efficient carrier solution. In this instance, imperfect information (that is, carriers' lack of certainty as to whether their support will be renewed) could lead to an economically inefficient outcome. If the FCC intends to discontinue the broadband cost support in five years, or if carriers believe the support will cease in five years, and if the FCC believes that support is necessary to encourage carriers to invest in the designated areas, then the zero terminal value may be appropriate. If, however, the FCC intends to renew the support, the use of a terminal value that corresponds with a short, five-year period will lead to inefficiently high cost estimates, which, in turn will deplete the limited broadband fund unnecessarily. Absent clarity from the FCC of its longer-term intentions, it would not be appropriate to adopt a zero terminal value. Moreover, the zero terminal value approach is inappropriate because it assumes the service lives for all types of plant are five years. As discussed below, this assumption is unreasonable and would result in unreasonably high expenses.

B. Assumptions Regarding Service Lives Significantly Impact Expenses.

Associated with adopting particular service lives is the fact that the relative cost of various investment items and expenses varies with the service life estimates. For example, a $100,000 investment with a five-year life and a capital cost of 11.25% has a monthly cost of $2,187. If the service life is ten years, the monthly cost decreases to $1,391, and if the service life is twenty years, monthly cost is only $1,049.[18] Given that poles and cables have relatively longer service lives than electronic circuit equipment, shortening all service lives to five years by adopting a zero terminal value would increase the cost of poles and cables relative to the cost of circuit equipment. For example, a $100,000 investment in poles with a twenty-year service life and a $100,000 investment in circuit equipment with a ten-year life, generates a monthly cost of $2,441, while reducing the service lives to five years generates the monthly cost of $4,373. Besides increasing the total cost of the project, poles represent 43% of the cost with the longer service lives, while poles represent 50% of the cost with 5 year service lives. This change in relative costs will change the relative positions of different wire centers when comparing a wire center's cost to the selected benchmark because the optimal network prescribed for each wire center selects different inputs. This change in relative position is the practical consequence of adopting different terminal values: modifying the terminal values for the various investment categories will alter the way funding is directed among wire centers and carriers. Generally, reducing the service lives will increase capital costs relative to expenses, which in turn affects

[18] Monthly costs are determined using the Excel PMT function, ignoring the impact of the corporation income tax and tax depreciation rates. This function determines the equivalent mortgage payment associated with the investment.

the relative positions of wire centers to the threshold, and thus also affects the relative amount of funding available to the carriers participating in the CAF II model support.

V. THE MODEL SHOULD ESTIMATE THE TOTAL COST OF THE NETWORK.

The Notice requests comment on whether the model should estimate the total cost of the network, or only the standalone costs of areas eligible for support.[19] The model should estimate the total network cost. This is necessary so that the costs generated by the model will reflect economies of scale and scope between the unsupported and supported portions of the network and among the various services that the network supports.

An efficient carrier would design its network to provide service to both unsupported and supported areas. In particular, feeder plant would connect both areas where there is an alternative broadband provider and areas where there is not an alternative broadband provider to the central office. That feeder plant would also share structure, and perhaps cable costs, with distribution cable in areas where there is an alternative broadband provider. In addition, it is likely that substantial portions of the central office equipment would also be shared.

With regard to multiple services, first, it is necessary to realize that it appears that the current ABC Coalition cost estimates do not include the cost of providing voice services[20]. The Transformation Order *requires* carriers that receive high-cost support to provide voice services.[21]

---

[19] Notice, ¶¶ 40-45.

[20] Letter from Jonathan Banks, USTelecom to Marlene Dortch, FCC, WC Docket No. 10-90, July 29, 2011, Attachment 3: Model Description, Page 9.

[21] In the Matter of Connect America Fund, WC Docket No. 10-90; A National Broadband Plan for Our Future, GN Docket No. 09-51; Establishing Just and Reasonable Rates for Local Exchange Carriers, WC Docket

(continued…)

Thus it will be necessary to add the cost of equipment and facilities required for the provision of voice service to the ABC Coalition cost estimates and to allocate those costs among supported and unsupported areas. The importance of modeling the cost of back-up power is discussed in more detail, below.

In addition, equipment and facilities associated with the provision of special access services must be included in the network design. Cost associated with special access must be accounted for by one of two methods. One alternative would be to subtract directly assigned cost and a portion of shared costs from the cost of supported services when comparing the cost of supported services to the benchmark. A second alternative would be to include special access revenues as a source of funds to support the network along with other retail revenue and universal service support.

VI. THE MODEL SHOULD USE SHAPELY VALUES TO DETERMINE THE ALLOCATION OF SHARED COSTS.

The Notice requests comment on the specific methodology to use to assign shared costs.[22] The model should use Shapely values to determine the allocations of shared costs.

(Continued from previous page)

No. 07-135; High-Cost Universal Service Support, WC Docket No. 05-337; Developing a Unified Intercarrier Compensation Regime, CC Docket No. 01-92; Federal-State Joint Board on Universal Service, CC Docket No. 96-45; Lifeline and Link-Up, WC Docket No. 03-109; Universal Service Reform – Mobility Fund, WT Docket No. 10-208, Report and Order and Further Notice of Proposed Rulemaking, released: November 18, 2011, FCC 11-161, (Transformation Order) , ¶ 75; 47 C.F.R. Sec. 54.101 (a).

[22] Id., ¶50-56.

The Shapely value is the weighted average of the costs of additions or subtractions of areas for which each area has an equal opportunity of being first, second, third or any position in the order of the total number of projects to be considered. Thus, the use of Shapely values determines an allocation of costs that is not biased by the order of construction of additional projects. This is a type of subtraction model that allows for incremental cost to be determined through allowing each area to be the starting place of the analysis. This type of analysis is appropriate in a green-field scorched earth analysis because the starting point is not pre-determined. Each area has an equal probability of being the first area constructed and all other areas in a region can be randomly added to the first area.

In a brown-field analysis, the incremental additions to plant are determined by the historical evolution of construction projects and therefore, it is possible to subtract the additional plant from the existing plant. Because NASUCA is recommending that Commission use the green-field method, the Shapely value allocation approach, which is consistent with the green-field method, should also be adopted.

VII. THE CENSUS BLOCK SHOULD NOT BE THE AREA USED TO DETERMINE SUPPORT

The Census block should not be the area used to determine support because the model does not determine cost at the census block.The detailed model output posted on the CostQuest web page shows that the ABC support calculation starts with the determination of support at the census block level. The support can then be rolled up to the wire center, study areas or holding level. An examination of the model output shows that there are a small but substantial number of census blocks that have multiple costs and the multiple costs associated with the census blocks can place a census block in more than one support category. That is, a census block can have areas with less than $80 (unsupported), between $80 and $256 (supported), and above $256

(designated as a remote area). Therefore, the support area must be aligned with an area defined to have the same costs. In a DSL model, the smallest unit would be the distribution area served by a remote. In a fiber passive optical network ("PON") model, the smallest area may be the area served from a cabinet that houses one or multiple splitters.

X. DATA INPUTS

A. Wire Center Boundaries Should Be as Accurate as Possible.

The Notice asks for comment on data inputs to determine wire center boundaries.[23] The Bureau posed three possibilities – use of a commercial data set, efficient routing or the development of a new data source, such as the new data collection addressed in the Bureau's request for comment in DA 12-868. The best option would be the use of a new, reliable, data set that the Bureau is in the process of developing.

Wire center boundaries should be determined as accurately as possible. Given the long time period that will be required to reach agreement on the model, it should be reasonable to wait until the mapping solution, similar to that proposed in DA 12-868, is developed.[24] The Commission must already realize that the Bureau will not achieve the January 1, 2013 start date for CAF II. Waiting until July 2013 or January 2014 to more fully implement CAF II with a more accurate data set would require an extension of the current frozen support for a small period of time, but that wait is reasonable given that the work required to obtain reasonable boundaries can be accomplished in that time frame. Thus, the Commission should not rely on commercial data bases or efficient routing. Instead, the model should incorporate accurate maps,

[23] Notice, ¶¶ 73-80.

[24] Notice, ¶75, fn 74.

based on the data set being compiled by the bureau. The process should involve state commissions being given the opportunity to verify the maps produced by the Commission. The accuracy of these maps can be improved by adopting the two steps addressed below – requiring unsubsidized providers to provide definitive maps of their service territories, and the use of E911 databases to provide accurate customer location data.

B. The Broadband Database Must be Improved

The existing broadband data base is unacceptable because serving one customer in a census block would cause the entire census block to be excluded from support. Indeed, the Bureau recognizes that a data source for the footprints of unsubsidized carriers is essential.[25] To remedy this problem, unsubsidized providers should be required to provide definitive maps of the extent of their service within each franchise area. To validate those maps, the unsubsidized providers should be required to provide geo-coded addresses in Census blocks at the edge of their serving area, or Census blocks where the ratio of subscribers to households is well below the provider's ratio for its entire franchise area, or where households per road-mile are less than the normal cut-off found in many cable franchises.

C. The Bureau Should Use E911 Data Bases to Obtain Location Information for Customer Locations.

The Notice recognizes that the model will require data on business locations, including anchor institutions.[26] With regard to all locations, including residential, business and anchor institutions, the best alternative is to obtain the E911 data bases. These data bases provide the

---

[25] Id., ¶81.

[26] Id., ¶85.

location of all customers. The FCC staff can translate the addresses into geo-codes that can be used by the forward-looking model. In this way, the data can remain under proprietary seal and will not be available in the public domain. While the principle use of the data bases is for public safety, some carriers have used the data bases to support claims of competition in various regions of the country.[27] The other government data bases, such as Census data, are inferior to the E911 data base but could be used if the Commission is reluctant to obtain the E911 information. If other government data bases are used in lieu of the E911 data bases, they should be augmented by geo-coded data provided by the carriers in census blocks above a certain size. These additional data are required in large census blocks because in those blocks a random allocation of locations along the road network could bias the outcome of the cost model.

With regard to consumer locations, as noted above with regard to the business locations, the best alternative is to use the E911 data bases. The FCC staff can geo-code the locations in the E911 data bases and enter that data into the broadband model. If the Commission is reluctant to obtain the E911 information, then either commercial or government data bases should be augmented by geo-coded data provided by the carriers in census blocks above a certain size. These additional data are required in large census blocks because in those blocks a random allocation of locations along the road network could bias the outcome of the cost model. Moreover, even if some carriers have not geo-coded their customer data base, it is relatively easy

---

[27] *See*, e.g., Reply Testimony of Paul B. Vasington, on behalf of Verizon, at 36-38, In the Matter of the Board's Investigation Regarding the Reclassification of Incumbent Local Exchange Carrier (ILEC) Services as Competitive – Phase II, New Jersey Board of Public Utilities Docket No. TX11090570. *See also*, Before the Corporation Commission of the State Of Oklahoma; Application Of Southwestern Bell Telephone, L.P. D/B/A SBC Oklahoma For The Classification Of Intrastate Retail Telecommunications Services As Basket 4 Services Pursuant To OAC 165:55-5-Cc(4); Cause No. PUD 200500042; Direct Testimony of David Brevitz, C.F.A. on behalf of AARP filed May 23, 2005, at page 143; Before the Public Service Commission of Maryland; In the Matter of the Appropriate Forms Of Regulating Telephone Companies; Verizon-Maryland Alternative Form of Regulation; Case No. 9133; Reply Testimony of David Brevitz, C.F.A. on behalf of the Maryland Office of People's Counsel filed August 28, 2008, at pages 69-70.

for the Commission staff to do so for an address list, if the carrier cannot provide the geo-coded information. Verification issues are difficult with all of the data requirements. The state commissions could verify a stratified sample of the information, where the stratification would emphasis areas where accuracy may be suspect. For example, we would not expect the need to include addresses such as 445 12th Street Southwest, Washington DC 20554 in a sample.

D. The Bureau Should Address the Plant Mix in Relation to Expenses.

The Notice seeks comment on outside plant mix data.[28] While we agree that plant mix should be based on provider-submitted data, we are concerned with the relationship between the plant mix and expenses. The prior Commission modeling effort used a national average plant that varied by density zone but not by geographic region or carrier. This choice matched the expense calculation that was also developed at a national average level. Therefore, if plant mix is based on carrier data, then expense must be de-averaged also. The Commission in the past was reluctant to de-average expenses because such activity may lead to the inclusion of carrier specific inefficiencies and may not lead to efficient expense estimation. However, if the Commission retains national average expenses using carrier specific plant mix could bias the resulting estimates. With regard to verification provider data, state commission could verify a stratified sample of the information.

[28] Id., ¶¶ 94-97.

E. Data on Age of Plant Should Not be Collected.

The Notice seeks comment on whether data concerning the age of plant should be collected.[29] The bureau should not collect data on age of plant because, as discussed above, the total data resource needs of brown-field estimation is so excessive that the Commission should not use the brown-field method. The green-field method does not require the collection of data regarding the age of plant.

F. The Bureau Should Consider Utilizing RUS Data to Validate Inputs.

Validation of inputs is more difficult today than in the past because mergers have reduced the number of stakeholders willing to debate these points, unbundled network element ("UNE") cases are now held very infrequently, and the Commission no longer requires the filing of Automated Reporting Management Information System ("ARMIS") reports by many of the large price cap carriers. A comparison to Rural Utility Service ("RUS") data would provide an upper bound on the cost of inputs because the price cap carriers should be able to purchase equipment at cheaper prices than carriers that borrow from the RUS.

VIII. THE TERM "BROADBAND AVAILABILITY" MUST BE CLEARLY DEFINED.

The term "broadband availability" must be clearly defined in order to estimate the cost of service. In the ABC plan, the model considers the costs associated with 90 percent of the model

---

[29] Id., ¶ 99.

defined locations.[30] There is no defense of this percentage. In addition, standard practice does not build all of the facilities necessary to provide a service until the service is demanded. For example, if there is already a copper plant and fiber cable is installed, fiber drops and terminal devices are not installed until the customer requests a service that requires fiber. Where there is DSL and digital subscriber line access multiplexers ("DSLAMS"), line cards and other equipment are not placed for 100% of the customers. We recommend that the Commission's model recognize these practices by including a broadband penetration variable as an input that modifies equipment associated with penetration. For example, in areas where there is an alternative broadband provider, the model could assume only 30% of the residential locations would have fiber drops and terminal equipment, while in areas where there is no alternative broadband provider the model could assume 70% of the locations have fiber drops and terminal equipment. While the 30 and 70 percent estimates appear reasonable given current take rates, the determination of the rates is not important at this time. However, it is important the model contain variables and source code that allow for the adoption of penetration variables.

IX. A FORWARD LOOKING MODEL MUST ADDRESS BACK-UP POWER AND SUSTAINABILITY DURING OUTAGES.

Traditionally copper telephone networks are powered from the central office. If electric utilities suffer outages, the central offices have back-up generators and batteries that sustain the telephone network. In contrast, in FTTP networks, central office power is separated from the

[30] Letter from Jonathan Banks, USTelecom to Marlene Dortch, FCC, WC Docket No. 10-90, July 29, 2011, Attachment 3: Model Description, Page19.

distribution network. Terminating equipment (e.g., optical network units) is powered from the end-users' electrical outlets. The telephone carrier, in some instances, provides the end-user with a back-up battery that has a maximum life when installed of eight hours (although many customers receive less than the assumed eight hour maximum battery life). As the battery ages, the number of hours that the battery can provide power to the equipment decreases. Moreover, the time-period is not only the period when the telephone is in use, but also includes non-usage time because the terminating equipment draws power continuously.

Recent electric outages demonstrate the vulnerability of the telephone network to those outages. In some instances E911 did not function.[31] Anecdotal evidence supports claims of the lack of service from cable telephony providers, wireless signal strength substantially reduced, wireless callers receiving "all circuits are busy" notices and in some instances, plain old telephone customers not being able to make calls.

If, as NASUCA recommends, the network is sustainable when there are electric outages, it is necessary to add a number of inputs to the forward-looking model. These inputs would include the back-up generators and large batteries in the central offices, and the smaller batteries at the customer's premises. More importantly, NASUCA recommends that the Commission seek comment regarding how to design the network so communications are sustained after the 8-hour battery life of the customer premise batteries. For example, the Commission could ask whether it is possible to retain the copper system so that the copper system could provide power to the

---

[31] "911 problems in Northern VA. Stretch into Monday; county leaders unhappy with Verizon," Washington Post, July 2, 2012. http://www.washingtonpost.com/local/911-mostly-working-again-in-northern-virginia-after-being-knocked-out-by-friday-storm/2012/07/02/gJQAFm0QIW_story.html

terminating equipment. NASUCA also recommends that the Commission seek comment regarding whether sustainability should be part of a carrier's public service obligation.

X. CONCLUSION

NASUCA appreciates the opportunity to comment on the cost model design issues NASUCA urges the Bureau to:

- Ensure that both the process of developing the cost model and the model itself are open and transparent;
- Adopt a green-field approach to model design;
- Ensure that the model estimates the total cost of the network, including the back-up power requirements necessary to support voice service that is reliable during power outages; and
- Adopt the proposals in these comments to ensure the most accruate data set possible.

Respectfully submitted,

Charles A. Acquard
Executive Director

NASUCA
8380 Colesville Road, Suite 101
Silver Spring, MD 20910
Phone (301) 589-6313
Fax (301) 589-6380

July 9, 2012

Appendix One[32]

1. Please provide a list of the currently installed and used DLCs. Please response to this request using an Excel spread sheet. Do not provide a pdf file. Specify the date associated with the requested line count data. If possible use December 31, 2007 for the date of the line count data. If it is not possible to obtain December 31, 2007 line count data, use the most current date for which these data are available. For each DLC provide the following information:

    a. The wire center that the DLC is connected to.

    b. The street address including zip code of the DLC remote terminal.

    c.. Indicate whether the feeder cable connecting the DLC to the wire center is copper or fiber cable.

    d. The residential switched access lines served.

    e. The business switched access lines served.

    f. The total switched access lines served.

    g. 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.

    h. The longitude associated with DLC remote terminal.

    i. The latitude associated with DLC remote terminal.

    j. The number of DSL lines served.

    k. Indicate whether the DLC is a universal or integrated DLC.

---

[32] Maine Public Advocate, First Data Request of the Public Advocate, Re: Investigation Into Line Sharing Pursuant to State Law, MPSC Docket No. 2004-809, filed January 6, 2005.

l. The installation year.

m. Indicate the technology vintage, such as SLC 96, TR-08, GR 303

n. Indicate whether the transmission path connecting the remote terminal to the wire center operates only TDM, or only packet signaling or both procedures.