***(via Electronic Delivery)***

August 27, 2010

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Chief
Wireline Competition Bureau
Federal Communications Commission
The Portals, TW-A325
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Washington, DC 20554

## *Ex Parte* Presentation

**Schools and Libraries Universal Support Mechanism – CC Docket No. 02-6;**
**A National Broadband Plan for Our Future – GN Docket No. 09-51;**
**Connect America Fund – WC Docket No. 10-90;**
**High-Cost Universal Service Support – WC Docket No. 05-337.**

Dear Ms. Gillett:

As a follow-up to our meeting with you on August 4, 2010, the Schools, Health and Libraries Broadband Coalition ("SHLB Coalition")[1] respectfully submits this additional information concerning the E-rate reform proceeding[2] and the Connect America Fund proceeding.[3]

In this letter, we would like to address the following issues that were raised in our meeting with you and the Wireline Competition Bureau staff:

[1]The "SHLB Coalition" (pronounced "Shell-Bee Coalition") consists of 57 representatives of schools, health care providers, libraries, private sector companies, state and national research and education networks, and public safety and consumer organizations. The SHLB Coalition promotes policies that will encourage the deployment of high-capacity broadband services for schools, libraries and health care providers so that they can enhance the quality and availability of essential services they provide to the general public. A list of our members is available on our web site, www.shlbc.org.
[2] *See, In the Matter of Schools and Libraries Universal Service Support Mechanism, A National Broadband Plan for Our Future*, Notice of Proposed Rulemaking, CC Docket No. 02-6, GN Docket No. 09-51, FCC 10-83 (rel. May 20, 2010) ("*E-rate Notice*").
[3] *Connect America Fund; A National Broadband Plan for our Future; High Cost Universal Service Support,* WC Docket No. 10-90, GN Docket No. 09-51, WC Docket No. 05-337, Notice of Inquiry and Notice of Proposed Rulemaking (rel. April 21, 2010) ("*CAF Notice*").

1. Why the E-rate program should not be extended to include wireless services at the home.
2. Why the leasing and ownership of dark fiber should be added to the Eligible Services List of E-rate supported services.
3. Why the Commission should explicitly allow non-telecommunications carriers to provide Telecommunications Services under the E-rate program.
4. Why the Commission should allow schools and libraries to participate on the boards of broadband providers.
5. Why the Connect America Fund should be designed to promote high-capacity broadband to anchor institutions.

Each of these points is discussed in more detail below.

1. **Expanding the scope of the E-rate program to cover additional services, such as wireless services to the home, would make it more difficult for schools and libraries to obtain the broadband connections that they need.**

The SHLB Coalition opposes expanding the list of eligible services to include wireless services to the home because there is not enough funding in the E-rate program to fund the *existing* broadband needs of schools and libraries. USAC recently estimated that the demand for E-rate support for FY 2010-2011 amounted to $3.92 billion, well over the current cap of $2.25 billion. The actual demand is likely much higher than $4 billion, as many schools and libraries that need funding for Internal Connections (Priority Two) do not bother to apply because they know there are not enough funds available.

This shortage of E-rate funds could become even worse in the future:

- First, the demand for Priority One services (Telecommunications Services and Internet Access) continues to grow under the existing rules. According to the General Accounting Office (GAO), from 1999 through 2007, the amounts committed annually for Telecommunications Services increased each year for a total increase of 79%, while amounts committed annually for Internet Access nearly doubled.[4] The estimated demand for Priority 1 services alone totaled $2.038 billion, which is a little over 90% of the $2.25 billion cap.[5]

[4] "Long-Term Strategic Vision Would Help Ensure Targeting of E-rate Funds to Highest-Priority Uses," General Accounting Office, March 2009, GAO 09-253, p. 19 ("GAO Report").
[5] "Estimate of Demand for Funding Year 2010," letter from Mel Blackwell, Vice President, Schools and Libraries Division, USAC, to Sharon Gillett, Chief, Wireline Competition Bureau, March 10, 2010,

- Second, schools and libraries need additional bandwidth simply to keep pace with the growth of Internet-based instruction, such as online courses, job-training videos, submission of e-government benefits, research, etc. For instance, more people use public access computers in public libraries than ever before. According to the annual Public Libraries and Technology study, 76% of libraries report growth in the use of public access computers in 2009 compared to the year before.[6]

- Third, the proposals to streamline the application process (many of which we support) are likely to increase the demand for E-rate supported services even more. The GAO report estimated that only 63% of schools and libraries applied for E-rate funding in 2005, and the biggest reason cited for non-participation was the complexity of the application process.[7]

- State and local budget shortfalls (due to the current economic recession) are likely to mean that some of today's non-participants may need to apply for E-rate support in the future. According to the National Governors Association, the current economic recession is posing the greatest challenge to state budgets since the Great Depression.[8]

The collection of these trends could mean that there is not enough money to fund all Priority One services in the near future. Extending the E-rate program to cover the costs of extending wireless services used outside of school or library would make the situation even worse. By draining the E-rate fund to pay for these services, even fewer funds would be available for schools and libraries to pay for the broadband connections that they need.

We note that the proposal in the Notice raises several additional questions that create additional uncertainty on the impact on funding for the E-rate program. For instance, what "wireless services" would be covered? If schools are implementing wireless Internet access services already under the current rules, is there any need to change the rules? How do the cost allocation rules work if a student brings her/his own laptop to the school, uses it with the school's wireless service, and then brings the laptop home? Does it matter if the student uses the laptop at home with the school's wireless service

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[6] Public Libraries Funding and Technology Access Study, available at http://www.ala.org/ala/research/initiatives/plftas/2009_2010/index.cfm.

[7] GAO Report, p. 29

[8] National Governors Association, National Association of State Budget Officers, THE FISCAL SURVEY OF STATES: JUNE 2010, p. vii ("Fiscal 2010 presented the most difficult challenge for states' financial management since the Great Depression and fiscal 2011 is expected to present states with similar challenges."), available at http://www.nasbo.org/.

or some other wireless service? How much would such a proposal cost, and how much funding from the E-rate program would be required? How many residential consumers would benefit from this change in the rule? How would the Children's Internet Protection Act (CIPA) rules be implemented and how would a school enforce the requirement that home use be for "educational purposes" only?

Furthermore, this proposal would conflict with the philosophy of the E-rate program, which was created by Congress to promote broadband access to the school and library buildings and classrooms. Crossing that philosophical threshold could potentially open the door to arguments that the E-rate program should also be used to fund other services. We recognize that there is a shortage of broadband capacity and services for many worthwhile services, and the SHLB Coalition supports the goal of increasing broadband access at the home. But the E-rate program, which is already straining to keep up with the existing broadband needs of schools and libraries, is not the best option to pay for improved residential services. [9]

2. **Schools and libraries can achieve significant cost savings if they are explicitly allowed to own and/or lease dark fiber under the E-rate program.**

Dark fiber has become an increasingly popular and valuable part of the telecommunications landscape. There are many private sector companies that specialize in providing dark fiber, including Allied Fiber,[10] Southern Telecom,[11] American Fiber Systems,[12] Lightower,[13] Zayo Bandwidth,[14] Sunesys,[15] FiberTech,[16] XO

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[9] The SHLB Coalition thus opposes the idea of authorizing this program on an interim basis in 2011 until more is known about how the proposal would work. (see E-rate Notice, para. 51).

[10] "With Bandwidth Demand Booming, A New Kind of Optical Network is Born," May 24, 2010, http://gigaom.com/2010/05/24/with-bandwidth-demand-booming-a-new-kind-of-optical-network-is-born/. (discussing Allied Fiber's plan to build a nationwide wholesale dark fiber network spanning 11,548 miles.)

[11] "Southern Telecom announces Dark Fiber Network Expansion in Atlanta," http://dark-fiber.tmcnet.com/topics/dark-fiber/articles/95188-southern-telecom-announces-dark-fiber-network-expansion-atlanta.htm. (Aug. 13, 2010)

[12] "American Fiber Systems Hooks Carson City Up With High Bandwidth," February 1, 2010, http://www.darkfiberresource.com/?p=526.

[13] "Lightower Announces New Hampshire Network Expansion," Jan. 15, 2010, http://dark-fiber.tmcnet.com/topics/dark-fiber/articles/72778-lightower-expands-all-fiber-network-southern-new-hampshire.htm.

[14] "Zayo Group launches new dark fiber services unit," July 8, 2010, http://www.fiercetelecom.com/story/zayo-group-launches-new-dark-fiber-services-unit/2010-07-08.

[15] www.sunesys.com.

[16] "Area Fiber-optic network expected to be up in June," Philadelphia Business Journal, March 6-12, 2009, (discussing FiberTech's provision of dark fiber to the City of Burlington, N.J. School district, including three

Communications[17], and many others, as well as traditional providers such as AT&T, Qwest, and Level3. Dark fiber is often used by large health care providers, financial institutions, local governments, and increasingly by schools and libraries.

Dark fiber can deliver significant cost savings compared to traditional telephone company services. There are two reasons for this cost savings:

First, when a school or library purchases services from a traditional broadband provider, the charges increase based on the amount of capacity purchased from the provider. With dark fiber, however, the bandwidth costs are fixed. For instance, a school or library that has a T1 and seeks to add a second T1 from a commercial carrier must often pay the same amount for the second T1 as it paid for the first T1 (in other words, there is usually no volume discount). In contrast, if a school or library obtains a dark fiber connection, it can upgrade its bandwidth and service levels by purchasing electronics to attach to the fiber; the cost of the fiber is fixed, regardless of the amount of bandwidth that is used. This enables a school or library to build a more robust, on-demand bandwidth network for less than the cost of comparable services through a traditional telephone company.

The costs of "lighting" a dark fiber connection are relatively small compared to the costs of deploying and installing the dark fiber. For instance, Merit, the state Research and Education (R&E) network in Michigan, estimates that a school or library may incur only about $6,750 in one-time costs to "light" a dark fiber connection with a 1 Gigabit connection covering one mile. This cost includes the cost of a 1 Gigabit switch, the optronics (such as a pair of standard GigaBit Interface Connectors, or GBICs), and an installation charge. The cost of the optronics may vary somewhat higher or lower than this amount depending upon the distance to the nearest interconnection point. In fact, it is often more expensive to deploy a slower-speed connection because 1 Gigabit Ethernet technology has become standardized and widespread.

Second, many providers of dark fiber only seek to recover their actual deployment costs over a certain period of time. After their deployment costs are recovered (usually over 3-5 years), their monthly fees to operate the network fall to levels that are extremely cost-effective. In contrast, most traditional commercial providers require the school or

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elementary schools, two middle schools and the high school.) http://fibertech.com/news-events/article-archive/index.cfm?ID=32.

[17] "XO Communications selected by Memphis Coalition for Advanced Networking to Provide Fiber Network," http://findarticles.com/p/articles/mi_pwwi/is_201003/ai_n50371924/. (discussing XO Communications' dark fiber ring around Memphis to serve its universities and hospitals)

library to pay high ongoing monthly charges indefinitely into the future, long after the broadband provider has recovered its deployment/installation costs.

We provide some examples of the cost savings of providing dark fiber to schools and libraries in Attachments 1, 2 and 3. For instance, the Merit Network in Michigan has provided four real-world examples of how schools and libraries were able to reduce their expenses significantly by obtaining dark fiber. (see attachment 1). In each case, the proposed dark fiber services provided by Merit Network resulted in significant cost savings over several years compared to the commercial alternative.

Similarly, the Wasatch School District built its own fiber network and estimates that it saved taxpayers of its communities approximately $4 million over the past 10 years compared to what it would have paid to a commercial provider. (see Attachment 2)

The Utah Education Network also provides an interesting example of the benefits it has provided to school districts in Utah (See Attachment 3).

In addition to the cost savings, there are operating efficiencies from using dark fiber. Despite the arguments made by some commenters in this proceeding, dark fiber is easier to administer than a traditional telecommunications network. There is no additional complexity or overhead associated with dark fiber. A dark fiber network simplifies the overall network management and is more reliable than the services offered by a traditional telephone carrier. Once a fiber link and the appropriate electronics are installed, upgrading the bandwidth often involves a relatively minor software change. There are no additional facilities or equipment that need to be installed.

The addition of dark fiber to the list of eligible services will give schools and libraries an additional option to satisfy their telecommunications and broadband needs. This is not to say that dark fiber will always be the best alternative. Schools and libraries should be encouraged to explore the full range of costs associated with implementing dark fiber to make sure it is the most affordable option. Nonetheless, the school/library is in a much better position than the FCC to make this calculation, and we urge the FCC to allow the schools and libraries to have this option available to them from both telecommunications carriers and non-telecommunications carriers.

At the same time that we urge the Commission to restore dark fiber to the list of Eligible Services, we also urge the Commission to clarify how the rules for dark fiber would

work. Answering these questions will help to reduce confusion and prevent mistakes in filling out E-rate forms. In particular:

a. We urge the Commission to clarify whether month-to-month leases, short-term leases (e.g. five years), IRUs, and/or ownership can all receive support under the E-rate program. The National Broadband Plan suggested that both leasing and ownership of dark fiber should be permitted.[18] The SHLB Coalition respectfully suggests that all options should be available to E-rate applicants, so that E-rate applicants have the maximum amount of flexibility to choose the most cost-effective solution, when taking into account external and internal costs for the solution and the efficient use of limited E-rate funds.[19] We note that the FCC requires cost to be the primary factor in an applicant's decision of which bid to accept. If an applicant chooses to own its own fiber, it must be able to demonstrate that owning the fiber is cost-effective. Furthermore, any costs of ownership should be amortized over several years in order to reduce the draw on the fund.[20]

b. The Commission may wish to clarify what category should apply to dark fiber. Placing dark fiber in the Telecommunications Service category might raise issues of whether dark fiber is subject to unbundling. However, placing dark fiber in the category of Internet Access may raise issues regarding filtering. We suggest that the Commission allow dark fiber to be categorized in the Miscellaneous category, as it was prior to 2003.

c. The SHLB Coalition respectfully suggests that ALL providers – including commercial, non-commercial, Research and Education (R&E) network and municipal – should be eligible to provide dark fiber to eligible schools and libraries. Allowing all types of providers to participate will encourage competition and maximize the school or library's opportunity to obtain the most efficient level of service and lowest price.

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[18] See, National Broadband Plan, p. 237 ("Applicants should be able to acquire the lowest-cost broadband service, whether it is a fully leased or a mixed lease/own solution.")

[19] To the extent the Commission allows schools and libraries to own dark fiber, it will be important for the Commission to clarify the provisions in its rules concerning Wide Area Networks.

[20] By requesting that E-rate applicants be allowed to own their own fiber, we are not requesting that applicants should be allowed to recover the up-front costs of ownership in a single year. Pursuant to the Brooklyn Order, we recognize that the Commission's policies do not permit the recovery of large up-front costs and instead only allows the recovery of large non-recurring costs over several years. See, Brooklyn Order, para. 16 (". . . in light of our past order disfavoring 'advance' payments for services from the universal service fund for multi-year contracts, we conclude that the universal service fund should provide support in this situation only when the eligible school or library applies for funding of the pro rata portion of those non-recurring charges spread out over a multi-year period.") See, File No. SLD-149423, In the Matter of Request for Review of the Decision of the Universal Service Administrator by Brooklyn Public Library, Brooklyn, New York, Sept. 26, 2000 (FCC 00-354)

d. The Commission may wish to clarify how quickly the applicant must use the dark fiber once acquired. In the past, the Commission required the applicant to use the dark fiber "immediately." It is understandable that E-rate support should not be used to "warehouse" dark fiber capacity. On the other hand, allowing an E-rate applicant to acquire dark fiber in bulk to prepare for future growth may be the lowest-cost option.

**3. All providers, including non-telecommunications providers, should be allowed to receive support for providing Telecommunications Services, including "lit" fiber services, under the E-rate program.**

Currently, non-telecommunications carriers are not permitted to receive E-rate support for providing Telecommunications Services to schools and libraries under the USAC practices. As a result, the E-rate program does not allow schools and libraries to benefit from the lower prices and higher quality service offerings of R&E networks and municipalities. We respectfully reiterate our request for the Commission to change its rules and policies to allow non-telecommunications providers to provide and receive support for Telecommunications Services under the E-rate program.

The SHLB Coalition believes that *all* providers, including non-telecommunications carriers such as R&E networks, municipalities and commercial providers, should be eligible to participate in the E-rate program as providers of service even if they are not certificated "telecommunications carriers." In general, state R&E networks are not state-certificated as "telecommunications carriers" because they do not serve the general public.[21] After conducting a quick survey of R&E networks, the SHLB Coalition could find only one state network (Iowa) that is a certificated telecommunications carrier. Even though R&E networks are not certificated, R&E networks often specialize in providing Telecommunications Services and Internet Access services to schools, libraries and other anchor institutions. Unfortunately, the current E-rate limitation makes it difficult for these providers to provide service to many schools and libraries.

When the Commission first established the E-rate program in 1997, it indicated that it wanted to allow non-telecommunications carriers to participate in the E-rate program.[22]

[21] A list of many of the regional and state research and education networks is contained in Attachment 4.
[22] "We also share the Joint Board's preference that we foster competition from non-telecommunications carriers. We, therefore, encourage those providers to enter into partnerships or joint ventures with telecommunications carriers. In addition, pursuant to sections 254(h)(2) and 4(i), we extend support for the provision of discounted services by non-telecommunications carriers, within the overall annual cap mentioned above." In the Matter of Federal-State Joint Board on Universal Service, CC Docket No. 96-45, 1st Report and Order 12 FCC Rcd 8776,9002 (1997) ("1st Report and Order")

The E-rate rules explicitly recognize that telecommunications carriers may qualify to participate in the E-rate program, but the rules do not address non-telecommunications carriers. Section 54.501 of the FCC's rules says:

> § 54.501 Eligibility for services provided by telecommunications carriers.
> (a) Telecommunications carriers shall be eligible for universal service support under this subpart for providing supported services to eligible schools, libraries, and consortia including those entities.

While the above rule does not specifically rule out non-telecommunications carriers, the USAC Form specifies that only telecommunications providers are eligible. Section 8(b) of USAC Form 470. states, "Remember that only eligible telecommunications providers can provide these [eligible Telecommunications] services under the universal service support mechanism." Further, the USAC web site describes the "Telecommunications Services" category as follows:

**Telecommunications Services**

> These are services that are used to communicate information electronically between sites. **The services must be provided by a telecommunications carrier - i.e., an organization recognized by the FCC as providing telecommunications services on a common carrier basis.** Examples of telecommunications services include basic telephone service and digital transmission services such as T-1 lines.[23]

Even though non-telecommunications carriers are excluded from the FCC's rules and USAC practices, the statutory language actually supports allowing non-telecommunications carriers to provide telecommunications services under the E-rate program. For instance, section 254(h)(2) directs the FCC to establish "competitively neutral rules" to enhance the provision of advanced telecommunications and information services for schools, health care providers and libraries. Furthermore, secton 254(b)(6) states that schools, health care providers and libraries "should have access to advanced telecommunications services as described in subsection (h)."

The issue of whether non-telecommunications carriers should be eligible to participate in the E-rate program received extensive discussion by the FCC in its First Report and Order in 1997.[24] The 1st Report and Order explicitly allowed non-telecommunications

[23] http://www.usac.org/sl/applicants/step06/eligible-services-framework.aspx. (emphasis added)
[24] See paragraphs 587 through 600, In the Matter of Federal-State Joint Board on Universal Service, CC Docket No. 96-45, First Report and Order.

providers to provide Internet Access and Internal Connections,[25] but it did not squarely address whether non-telecommunications carriers could provide Telecommunications Services. Some of the language in the 1st Report and Order appears to indicate that non-telecommunications carriers should be permitted to offer Telecommunications Services. For instance:

> We also share the Joint Board's preference that we foster competition from non-telecommunications carriers. We, therefore, encourage those providers to enter into partnerships or joint ventures with telecommunications carriers. **In addition, pursuant to sections 254(h)(2) and 4(i), we extend support for the provision of discounted services by non-telecommunications carriers, within the overall annual cap mentioned above.**[26]
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> Section 254(h)(2), in conjunction with Section 4(i), authorizes the Commission to establish discounts and funding mechanisms for advanced services provided by **non-telecommunications carriers**, in addition to the funding mechanisms for telecommunications carriers created pursuant to sections 254(c)(3) and 254(h)(1)(B). **The language of section 254(h)(2) grants the Commission broad authority to enhance access to advanced telecommunications and information services, constrained only by the concepts of competitive neutrality, technical feasibility, and economical reasonableness.** Thus, discounts and funding mechanisms that are competitively neutral, technically feasible, and economically reasonable that enhance access to advanced telecommunications and information services fall within the broad authority of section 254(h)(2).[27]

At other times, the 1st Report and Order uses language that refers to "telecommunications carriers", although it is not clear that this limitation was intended to be limited only to telecommunications carriers. For instance,

> We adopt the Joint Board's recommendation, supported by many commenters, to provide schools and libraries with the maximum flexibility to purchase **from telecommunications carriers** whatever package of commercially available telecommunications services they believe will meet their telecommunications service needs most effectively and efficiently.[28]

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[25] 1st Report and Order, Para. 590 ("Accordingly, pursuant to authority in sections 254(h)(2)(A) and 4(i) of the Act, non-telecommunications carriers will be eligible to provide the supported non-telecommunications services to schools and libraries at a discount.")
[26] 1st Report and Order, Para. 425. (emphasis added)
[27] 1st Report and Order, Para. 591 (footnotes omitted, emphasis added)
[28] 1st Report and Order, Para. 431 (footnotes omitted, emphasis added)

The only statutory provision that may appear, at first blush, to prevent non-telecommunications carriers from providing Telecommunications Services under the E-rate program is section 254(e), which states that "only an eligible telecommunications carrier designated under section214(e) shall be eligible to receive specific Federal universal service support." Taken in context, however, this provision appears intended to apply to the high-cost component of universal service, not to the E-rate program. Indeed, the Commission explicitly allows non-telecommunications providers to offer Internet Access and Internal Connections, notwithstanding section 254(e).[29] In that Order, the Commission said "we conclude that section 254(e), which provides that 'only an eligible telecommunications carrier designated under section 214(e) shall be eligible to receive specific [f]ederal universal service support,' is inapplicable to section 254(h)(2).

The other relevant statutory provision is section 254(h)(1)(B), which requires telecommunications carriers to provide universal services to schools and libraries. However, this provision does not say that service to schools and libraries may *only* be provided by "telecommunications carriers." It simply imposes a *duty* upon telecommunications carriers to do so. It does not bar a non-telecommunications provider from *voluntarily* offering such services and participating in the program, and it does not bar the FCC from permitting non-telecommunications carriers to provide telecommunications services. In fact, because of the requirement in section 254(h)(2) that the Commission "shall" establish competitively neutral rules, authorizing non-telecommunications carriers to provide Telecommunications Services is statutorily encouraged, if not required.

There are many policy reasons to allow non-telecommunications carriers to provide Telecommunications Services under the E-rate program. In fact, many of the same policy reasons relied upon by the Commission used to allow non-telecommunications providers to provide Internet Access and Internal Connections apply equally well to the Telecommunications Services. To wit:

a. Schools and libraries ought to be given the "maximum flexibility" to choose the telecommunications services they need from the providers that offer the most cost-effective service;
b. "Limiting support to telecommunications carriers would reduce the sources from which schools and libraries could obtain discounted Internet access and Internal Connections, which would reduce competitive pressures on

[29] 1st Report and Order, Para. 592

providers to cut their costs and prices and thus could lead to unnecessarily high pre-discount prices."[30]

Eliminating the current restriction and allowing non-telecommunications providers to offer Telecommunications Services under the E-rate program could enable substantially more schools and libraries to benefit from the lower cost and high-quality telecommunications services offered by these R&E networks.

4. **The Commission should not prohibit schools and libraries from participating on the boards of broadband service providers as a condition of participating in the E-rate program, and should instead design conflict of interest rules to ensure the integrity of the bidding process.**

The SHLB Coalition supports the objective of ensuring a fair and open competitive bidding process. The E-rate program would be jeopardized if the program suffers from waste, fraud and abuse. We do not object to the codification of the fair and open competitive bidding process. We support the Commission's proposal that the flow of information should be fair to all parties, and we also support most if not all of the other proposed safeguards to accomplish this goal.

However, there is one particular proposal that may be counterproductive. The Commission's proposal that "Applicant employees or board members may not serve on any board of any type of telecommunications, Internet access, or internal connections service provider that participates in the E-rate program in the same state;"[31] would have the effect of prohibiting R&E networks and other legitimate broadband operators from participating in the bidding process. We would encourage the Commission not to codify this proposal, as we believe it would essentially eliminate the ability of many state research and education (R&E) networks, and other broadband providers, from participating in the E-rate program.

Many state R&E networks are required by their charters to include schools and libraries on their boards. For instance, six of the 12 board members of MOREnet, the state R&E Network serving Missouri, represent libraries or the K-12 school community.[32] CENIC (California)[33] and WiscNet (Wisconsin)[34] also have board members representing the K-12 and library communities.

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[30] 1st Report and Order, para. 595.
[31] E-rate Order, para. 29.
[32] See, http://www.more.net/content/members.
[33] See, http://www.cenic.org/about/board.html.
[34] See, http://www.wiscnet.net/the-wiscnet-board-of-directors.

In its comments in this proceeding, WiscNet has already provided an important example of why preventing schools and libraries from participating on the boards of R&E providers would be counter-productive. USAC issued a Commitment Adjustment Letter to the Stevens Point (WI) school district because the school district had a staff member on the WiscNet board. The school district filed an appeal with the FCC. After the FCC remanded the case back to USAC, USAC withdrew the COMAD on Nov. 6, 2007 after finding that there had been no violation of the fair and open competitive bidding process.[35] In its comments in this proceeding, WiscNet explained:

> [O]ver 75% of Wisconsin's school districts and 85% of our public libraries are members of WiscNet, Wisconsin's R&E network established as a not-for-profit entity under the auspices of the University of Wisconsin. Representatives from schools and libraries serve on the WiscNet Board and many of its committees too. In 2007 this relationship was subject to a lengthy review by USAC to ensure that there was no conflict of interest.
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> The documentation provided by school representatives on the board and by WiscNet clearly showed that there was no conflict. In brief, it was shown that the cost of a requested service was the primary factor in selection of a service provider; i.e., WiscNet.
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> Not allowing school or library representation on a state R&E network board also will make it more difficult to implement the National Broadband Plan's recommendation 8.22 on the development of Unified Community Area Networks (UCANs). As the Plan acknowledges, there are many ways that R&E expertise can help schools and libraries to obtain sufficient bandwidth and properly manage such bandwidth. As the R&E networks reach out to help the school and library communities these communities obviously want a "seat at the table." To prohibit such involvement will have a chilling effect on school and library participation in UCANs. We recommend the Commission use the WiscNet board review case as a way to address this issue to ensure that schools and libraries can be full partners in evolving UCANs or similar organizations.[36]

Indeed, the mission of many state R&E networks is to serve the unique broadband requirements of schools, libraries and other public institutions, whose needs are often not met by the private sector. The National Broadband Plan encourages partnerships, sharing of networks to obtain lower cost connectivity, and the elimination of silos that discourage cooperation. State R&E networks can aggregate demand from many anchor

[35] See, http://fjallfoss.fcc.gov/ecfs/document/view?id=6519411726.
[36] Comments of WiscNet, p. 4-5 (http://fjallfoss.fcc.gov/ecfs/document/view?id=7020521002).

institutions and to create a community of shared learning and training that will benefit all anchor institutions. This is why so many state R&E networks have received grants to deploy additional broadband facilities under the Broadband Technology Opportunities Program (BTOP). Allowing state R&E networks to have K-12 schools and libraries on their board will help them understand the needs of and adapt their networks to serve the school and library communities.[37]

There are other procedures and safeguards in place to protect the integrity of the bidding process. The Commission and USAC already have procedures in place that prohibit the listed E-rate contact person on Form 470 from having a relationship with a service provider.[38] The E-rate applicant is already required to demonstrate that the price of the competing bids was the primary factor in its decision to accept a contract from a particular bidder. There does not appear to be any reason to take the next step of prohibiting any employee of an E-rate applicant from participating on the board of an E-rate bidder absent any showing of harm.

Nonetheless, if the Commission decides it must take an additional step to protect the integrity of the bidding process, we respectfully suggest that there are mechanisms that can be used to safeguard the integrity of the process other than prohibiting board members. For instance, the Commission could require that K-12 school or library board members recuse themselves from participating on the board when the board considers a proposal to bid on an E-rate project. The Commission could also direct E-rate applicants to verify that they have adopted procedures to limit the flow of information between applicants and bidders so that there is no bias in the process. Such rules would address the specific concern (that some bidders would have a competitive advantage because of access to information) and would not have the overly broad effect of eliminating R&E networks from the E-rate bidding process altogether.

**5. In designing the Connect America Fund, the FCC should require that recipients of funding in high-cost areas ensure that community anchor institutions (as well as residences) receive adequate broadband connections. This could be enforced through a reporting requirement.**

In addition to the reforms to the E-rate program articulated above, the SHLB Coalition proposes one additional but fundamentally important idea: recipients of High-Cost

[37] We note that the USAC itself has representatives of schools and libraries on its board, presumably for similar reasons.
[38] See, In Request for Review by Mastermind Internet Services, Inc., CC Docket Nos. 96-45, Order, 16 FCC Rcd, 4028, FCC 00-167 (rel. May 23, 2000).

Fund/Connect America Fund support (whomever they may be and however the amount of funding is determined) should be required to ensure that community anchor institutions in the region have sufficient and affordable high-capacity broadband capabilities available to them as a condition of receiving that support.

While the CAF Notice correctly identifies the great need for residential consumers in unserved areas to have access to broadband, we respectfully suggest that the CAF should also recognize the broadband needs of community anchor institutions as well. High-capacity broadband is vitally important for anchor institutions to serve the needs of their communities. Anchor institutions – the schools, health care providers, libraries and others – have unique broadband needs that are very different from the needs of residential consumers, yet equally important.

Because the general *public* will fund the Connect America Fund, at least a portion of these funds should benefit *public* institutions such as schools, libraries and health care providers. If these institutions do not have sufficient affordable broadband capacity, then broadband providers who receive High-Cost /Connect America Fund support should be required to meet the broadband needs of these institutions. In some cases, the community anchor institutions may have adequate broadband already. In this case, it may be sufficient for the recipient of funding to report to the FCC that the schools, libraries and health providers are already served. If they do not have adequate broadband, however, then the recipients of funding should, at a minimum, be required to report to the Commission how it plans to address that need as a condition of receiving High Cost/Connect America Fund support.[39]

[39] We respectfully suggest that this idea is consistent with one of the goals of the National Broadband Plan to "redirect[] assets that government controls or influences in order to spur investment and inclusion. . "; NBP, p. 5.

Therefore we ask the Commission to develop reporting requirements and enforcement measures to ensure that broadband providers who receive High-Cost and/or Connect America Fund support in unserved areas will meet the needs of anchor institutions in those areas for high-capacity broadband.

Sincerely,

John Windhausen, Jr.
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## ATTACHMENT 1

## EXAMPLES OF DARK FIBER PROVISIONING TO COMMUNITY ANCHOR INSTITUTIONS
## SUBMITTED BY MERIT - THE STATE "RESEARCH AND EDUCATION" NETWORK IN MICHIGAN
**August xx, 2010**

The following are real-world examples that Merit has encountered in the course of delivering broadband services to community anchor institutions in Michigan. These examples demonstrate the potential benefit of Dark Fiber for Community Anchor Institutions. These examples focus on savings in the price of connectivity, or the physical connection itself. They do not take into account savings or price discrepancies for usage or services. While Merit retained ownership of the fiber and leased it to the community anchor institution in each of the following examples, Merit believes that even more anchor institutions would be able to obtain these benefits if community anchor institutions were permitted to own the dark fiber itself.

The examples below show that dark fiber benefits Community Anchor Institutions (CAI) in two ways:

1.) Leasing dark fiber from a non-commercial provider such as Merit substantially reduces the ongoing, circuit costs when compared to the monthly per-circuit charges that would be paid in perpetuity by the CAI to a private-sector provider.
2.) Dark fiber provides the CAI with the flexibility to expand capacity simply by changing the optronics without any increase in the monthly circuit charges. Once the one-time costs of the optronics are paid for over time (perhaps 2 to 4 years), the annual cost to the institution is the same as it was before the upgrade in capacity occurred. This allows the CAI to expand services used by the CAI, consolidate resources among CAIs, and share services between CAIs.

**EXAMPLE #1:**
**District Library A**

Problem:
District Library A needed more broadband capacity to meet the needs of its constituents.
Options:

1.) Contract with a private-sector provider to provision a T3 circuit with 45 Mbps capacity. The cost for the circuit alone (only for the capacity and not the cost for usage ) is $27,000[40] annually paid in perpetuity.
2.) Contract with a private-sector provider to provision six (6) T1 circuits at 1.5 Mbps capacity each. The cost for the circuits alone (only for the capacity and not the cost for usage ) is $32,900 annually paid in perpetuity.
3.) Merit built a fiber lateral with a capacity of 1 Gbps from its backbone into District Library A. Merit covered the cost to construct the lateral up front. District Library A then pays Merit for the cost to construct the lateral over five (5) years. The cost for the lateral is $10,800 paid over 5 years (about $2200 per year). Merit retained ownership of the dark fiber, and the Library pays an annual maintenance fee of $900 paid annually in perpetuity.

Cost Comparison (Example #1):
<u>Option 1.)</u>
$27,000 annually + $12,500 one-time (cost for optronics, light both ends) + $750 one-time (cost of installation) for a maximum of 45 Mbps connectivity.
Cost over first five (5) years = $148,250
Annual cost after five (5) years = $27,000
<u>Option 2.)</u>
$32,900 annually + $5,000 one-time (cost for optronics, light both ends) + $750 one-time (cost of installation) for a maximum of 9 Mbps connectivity.
Cost over first five (5) years = $170,250
Annual cost after five (5) years = $32,900
<u>Option 3.)</u>
$10,800 paid over five (5) years + $900 annually (for maintenance) + $8,500 one-time (cost for optronics, light both ends) + $750 one-time (cost of installation) for a maximum of 1 Gbps connectivity.
Cost over first five (5) years = $24,550
Annual cost after five (5) years = $900

***Cost Savings for District Library A (comparing Options 1 & 3):***
*Over first five (5) years = $123,700 Savings with 1 Gbps Fiber Lateral from Merit*
*Annual ongoing = $26,100 Savings with 1 Gbps Fiber Lateral from Merit*

[40] The private sector prices quoted in this and the following examples are determined from actual prices offered by the private sector company.

***EXAMPLE #2***

**Four-year College B**

Problem:

Four-year College B needed to expand capacity to account for students' increase in usage.

Options:

1.) Contract with a private-sector provider to provision a T3 circuit with 45 Mbps capacity. The cost for the circuit alone (only for the capacity and not the cost for usage) is $31,000 annually paid in perpetuity.
2.) Merit built a fiber lateral with a capacity of 1 Gbps from its backbone into Four-year College B. Merit covered the cost to construct the lateral up front. Four-year College B then pays for the cost to construct the lateral back to Merit over five (5) years. The cost for the lateral is $111,800 paid over 5 years. There is an annual maintenance fee of $3,300 paid annually in perpetuity.

Cost Comparison (Example #2):

<u>Option 1.)</u>

$31,000 annually + $12,500 one-time (cost for optronics, light both ends) + $750 one-time (cost of installation) for a maximum of 45 Mbps connectivity.

Cost over first five (5) years = $168,250

Annual cost after five (5) years = $31,000

<u>Option 2.)</u>

$111,800 paid over five (5) years + $3,300 annually (for maintenance) + $8,500 one-time (cost for optronics, light both ends) + $750 one-time (cost of installation) for a maximum of 1 Gbps connectivity.

Cost over first five (5) years =$137,550

Annual cost after five (5) years = $3,300

***Cost Savings for Four-year College B (comparing Options 1 & 2):***

*Over first five (5) years = $30,700 Savings with 1 Gbps Fiber Lateral from Merit*

*Annual ongoing = $27,700 Savings with 1 Gbps Fiber Lateral from Merit*

***EXAMPLE #3:***

**Intermediate School District C**

Problem:

In preparation for consolidation, Intermediate School District C needed more capacity to centralize services.

Options:

1.) Contract with a private-sector provider to provision a T3 circuit with 45 Mbps capacity. The cost for the circuit alone (only for the capacity and not the usage) is $27,000 annually paid in perpetuity.
2.) Merit built a fiber lateral with a capacity of 1 Gbps from its backbone into Intermediate School District C. Merit covered the cost to construct the lateral up front. Intermediate School District C then pays for the cost to construct the lateral back to Merit over five (5) years. The cost for the lateral is $55,870 paid over 5 years. There is an annual maintenance fee of $4,300 paid annually in perpetuity.

<u>Cost Comparison #3:</u>

<u>Option 1.)</u>

$27,000 annually + $12,500 one-time (cost for optronics, light both ends) + $750 one-time (cost of installation) for a maximum of 45 Mbps connectivity.

Cost over first five (5) years = $148,250

Annual cost after five (5) years = $27,000

<u>Option 2.)</u>

$55,870 paid over five (5) years + $4,300 annually (for maintenance) + $8,500 one-time (cost for optronics, light both ends) + $750 one-time (cost of installation) for a maximum of 1 Gbps connectivity.

Cost over first five (5) years = $86,620

Annual cost after five (5) years = $4,300

***Cost Savings for Intermediate School District C (comparing Options 1 & 2):***

*Over first five (5) years = $61,630 Savings with 1 Gbps Fiber Lateral from Merit*

*Annual ongoing = $22,700 Savings with 1 Gbps Fiber Lateral from Merit*

**EXAMPLE #4:**
**District Library D**

Problem:
District Library D had completely outgrown its then-current capacity and needed to expand.
Options:

1.) Contract with a private-sector provider to provision three (3) T1 circuits at 1.5 Mbps capacity each. The cost for the circuits alone (only for the capacity and not the cost for bandwidth or to light) is $21,600 annually paid in perpetuity.
2.) Merit built a fiber lateral with a capacity of 1 Gbps from its backbone into District Library D. Merit covered the cost to construct the lateral up front. Intermediate District Library D then pays for the cost to construct the lateral back to Merit over five (5) years. The cost for the lateral is $21,465 paid over 5 years. There is an annual maintenance fee of $3,100 paid annually in perpetuity.

<u>Cost Comparison #4:</u>

<u>Option 1.)</u>
$21,600 annually + $4,500 one-time (cost for optronics, light both ends) + $750 one-time (cost of installation) for a maximum of 45 Mbps connectivity.
Cost over first five (5) years = $113,250
Annual cost after five (5) years = $21,600
Option 2.)
$21,465 paid over five (5) years + $3,100 annually (for maintenance) + $8,500 one-time (cost for optronics, light both ends) + $750 one-time (cost of installation) for a maximum of 1 Gbps connectivity.
Cost over first five (5) years = $46,215
Annual cost after five (5) years = $3,100

***Cost Savings for District Library D (comparing Options 1 & 2):***
*Over first five (5) years = $67,035Savings with 1 Gbps Fiber Lateral*
*Annual ongoing = $18,500 Savings with 1 Gbps Fiber Lateral*

## ATTACHMENT 2

Wasatch School District Area Fiber Optic Project

The project began as an idea that the schools in Wasatch County, Utah, could be connected together in a Wide-Area-Network (WAN) using fiber optic technology. District technology staff made a proposal to the Wasatch School Board to secure an agreement between the local power company to connect several of the district's schools with fiber optic cable and others with wireless radio links. In the spring of 1996, Wasatch School District signed an agreement with Heber Light and Power for right-of-way and pole attachment access. By summer of 1996, the district was ready to install the first fiber line. Over the next year, the District connected the high school and middle school via fiber and three elementary schools via wireless radios to complete a WAN network and deliver Internet service via one aggregation point (the District Office).

Over the years, the District has added one fiber trunk at a time and reduced the wireless radios. As new schools were built, the cost of fiber and equipment were included into the cost of the bond for construction. The District has managed all of the fiber construction projects and has good relationships with the local vendors. The District also has certified fiber technicians and equipment for termination and emergency repair. The equipment and training is very expensive, but the District received industry grants to assist with these costs.

Lessons Learned
From Karl Buchanan: Wasatch District Technology Director

We learned that since we were "early adopters", there were few regular funding sources to help us with the fiber projects, and so we have built our networks slowly and carefully over the past 14 years. In 1999, we partnered with the County on a small piece of fiber, and then in 2001 with the sale of a building to Heber City, a section of fiber passed between the public entities that were managed by the County.

In 2003, Wasatch School District, Wasatch County, Heber Light and Power, and a few other small entities began meeting on a regular basis to plan for the future and how we could manage all of the public fiber in Wasatch County. This public technology group directs a cooperative effort to manage the fiber needs of the public entities in Wasatch County to help each group secure resources they might need in adding lines or working with outside entities in developing their networks.

At the present time, the Wasatch County Area Fiber Group is working on a central fiber hub building, due to be completed sometime in the next 6 months. It will be a hub point for multiple fiber trunks that previously terminated near the old Wasatch High School building. It will also rack switching equipment and serve as a monitoring point for some of the members of the group. We are also working with

Heber Light and Power to install 96-strand fiber to 4 of their substations in the far regions of the valley. This will give us additional dark fiber capacity in some areas where fiber may be needed in the future.

Here is a brief summary of the Wasatch County stakeholders and the fiber services:

Wasatch School District - Fiber to 8 schools all 10GB fiber links

Utah Valley University Wasatch Campus to J.R. Smith Elementary
J.R. Smith Elementary to Wasatch District Office – 24 strand
Wasatch District Office to County Hub Building-96 strand
Wasatch District Office to County Hub Building-24 strand
County Hub Building to Wasatch High School- 96 strand
County Hub Building to Heber Valley Elementary 24 strand
Heber Valley Elementary to Rocky Mountain Middle School- 48 strand
Rocky Mountain Middle School to Midway Elementary 48 strand
County Hub Building to Old Mill Elementary School – 48 strand
County Hub Building to Timpanogos Intermediate School – 24 strand
County Hub Building to County Administration Offices- 24 strand

Wasatch County/Wasatch Sheriff/Heber City/Heber Police

Admin to Hub-96 strand
Admin to Sheriff-24 strand
Admin to Heber Valley Elementary – 96 strand
Health to Admin- 24 strand
Hub to County Sheriff- 24 strand

Central Utah Water Conservancy District
Jordanelle to Substation- 96 strand
Office to Lowerstation- 96 strand

Heber Light and Power
Substation to Utah Valley University Wasatch Campus- 96 strand
Main to Generation Station – 24 strand

## ATTACHMENT 3

Utah Education Network (www.uen.org) Dark Fiber Projects

UEN has done a number of aerial and buried dark fiber projects with Utah school districts over the past several years. Typically, UEN has a Gigabit (1000MB) Ethernet Connection to a High School or Middle School through an incumbent Local Exchange Carrier (LEC), and we have done competitive bids to build dark fiber from the high school or middle school to the connecting building. The building must be in close enough proximity and the right-of-way issues manageable to be able to do a dark fiber build. We have worked with school districts to identify the aggregation site to terminate dark fiber. We review required network resources and mitigate right- of-way issues where necessary. This only works if the schools are managed within the same district Wide-Area-Network (WAN) and IT department/staff. We also have done a dark fiber project with two charter schools that are in close proximity. We had to work out special financial arrangements with the school that has the 1000MB WAN Ethernet connection from UEN, as they were concerned about the other charter school's utilization of that bandwidth and support and maintenance issues. We also had one dark fiber project in a rural area for an elementary school that was abandoned due to a right of way issue crossing a private landowner that could not be resolved.

Contact:

| | |
|---|---|
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| Associate Director, Administration | E-mail: dsampson@uen.org |
| Utah Education Network | |

**ATTACHMENT 4**

## Some Regional and State Research and Education Networks

| Regional or State Network | State(s) | Website |
|---|---|---|
| Three Rivers Optical Exchange | PA, WV | http://www.3rox.net/ |
| Arkansas Research and Education Optical Network | AR | http://areon.net/ |
| Albuquerque GigaPoP | NM | http://abqg.unm.edu/ |
| Corporation for Education Network Initiative in California | CA, AZ, NV | http://www.cenic.org/ |
| Florida LambaRail | FL | http://www.flrnet.org/ |
| Front Range GigaPoP | CO, WY | http://www.frgp.net/ |
| Great Plains Network | OK, SD, KS, MO, NE, AR | http://www.greatplains.net/ |
| Indiana GigaPoP | IN | http://indiana.gigapop.net/ |
| Idaho Regional Optical Network | ID | http://www.ironforidaho.net/ |
| Kansas Research and Education Network | KS | http://www.kanren.net/ |
| Kentucky Regional Optical Network | KY | http://kyron.ky.gov/ |
| Lonestar Education and Research Network | TX | http://www.tx-learn.org/ |
| Louisiana Optical Network Initiative | LA | http://www.loni.org/ |
| MAGPI | PA, DE, NJ | http://www.magpi.net/ |
| Mid-Atlantic Crossroads | DC, VA, MD | http://www.maxgigapop.net/ |
| Merit Network, Inc. | MI | http://www.merit.edu/ |
| Metropolitan Research and Education Network | IL | http://www.mren.org/ |
| Missouri Research and Education Network | MO | http://www.more.net/ |
| MCNC | NC | http://www.mcnc.org/ |
| NetworkVirginia | VA | http://www.networkvirginia.net/ |
| Northern Lights GigaPoP | MN | http://www.northernlights.gigapop.net/ |
| Northern Crossroads | CT, MA, ME, NH, RI, VT | http://www.nox.org/ |

| Regional or State Network | State(s) | Website |
|---|---|---|
| New York State Education and Research Network | NY | http://nysernet.org/ |
| NJEDge | NJ | http://njedge.net/ |
| OneNet | OK | http://www.onenet.net/ |
| Oregon GigaPoP | OR | http://www.ogig.net/ |
| Ohio Academic Resources Network | OH | http://www.oar.net/ |
| OSHEAN | RI | http://www.oshean.org/ |
| Pacific/Northwest GigaPoP | AK, HI, WA, ID, MT | http://www.pnw-gigapop.net/ |
| Southern Crossroads | AL, GA, FL, MS, SC, TN | http://www.sox.net/ |
| Utah Education Network | UT | http://www.uen.org/ |
| Wisconsin Research and Education Network | WI | http://www.wiscnet.net/ |