**All Wired Up: An Analysis of the FCC's Order to Internally Connect Schools**

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> There are thousands of buildings in this country with millions of people in them who have no telephones, no cable television, and no reasonable prospect of broadband services. They are called schools. [1]

## I. Introduction

In the Telecommunications Act of 1996 (Act or 1996 Act),[2] Congress transcended traditional concepts of universal service. Universal service, an articulated goal of telephone regulation since the 1960s,[3] has historically connoted the availability of telephone lines to every U.S. residence and the charging of lower rates to people with lower incomes.[4] In the past, these goals have been accomplished through internal cross-subsidization in the pricing of phone services.[5] Through the Act, Congress codified the principle of universal service and extended universal service support to, inter alia, schools and libraries.[6] Specifically, the Act directed the Federal Communications Commission (FCC or Commission) to convene a Federal-State Joint Board (Joint Board)[7] to propose a new set of universal service support mechanisms (methods to raise and distribute funds) sufficient to preserve and advance the universal service principles enumerated in the statute.[8] On November 8, 1996, the Joint Board released a decision recommending that all eligible

schools and libraries receive discounts of between twenty and ninety percent on all telecommunications services, Internet access, and internal connections, subject to a 2.25 billion dollar annual cap.[9] While the *Recommended Decision* earned praise from much of the educational community, as well as some consumer advocate and public utility organizations,[10] critics denounced the subsidy as unsupported by the Act's language and outside the FCC's authority.[11] In a *Report and Order* dated May 8, 1997, the FCC adopted, with slight modifications, the Joint Board's *Recommended Decision*.[12] Less than six weeks later, SBC Communications, Inc. filed suit in the Eighth Circuit requesting the court to "hold unlawful, vacate, enjoin, and set aside" the Commission's Order.[13] SBC denied that it was attempting to impede education, and instead accused the FCC of "not following what Congress intended when it wrote the law."[14]

This Note asserts, based on a plain reading of the statute, on case law that classifies inside wiring as a service, and on legislative history, that Congress indeed contemplated support for the internal connections of classrooms. In addition, this Note argues that the Commission properly exercised discretion in allocating a potential fund of 2.25 billion dollars. First, universal service support for internal connections promotes competition between wireline and wireless technologies. Likewise, because the Act's deregulation of telecommunications markets will promote competition and increase profits, carriers will have little need to shift "losses" to consumers. Finally, through careful scrutiny of schools' technology plans, the Commission can ensure the efficient use of telecommunications services and technology.

Part II of this Note outlines the statutory language of section 254, the universal service provision of the Act, as it relates to support for elementary and secondary schools. Part II then explores the legislative intent of the provision, considering the particular issue of internal connections for schools. In Part III, this Note reviews the Commission's *Report and Order*, which mandates universal service support for the inside wiring of schools. Part III concludes that the Act contemplated support for internal connections and that the Commission did not exceed its discretion in allocating a potential fund of 2.25 billion dollars.

## II. The Universal Service Provision of the Act as it Relates to Schools

The drafters of the Act make reference to schools throughout section 254, the universal service provision. It is therefore instructive to review section 254 generally before examining the statutory language and legislative history that specifically addresses schools.

### *A. Universal Service Language Generally*

The Act defines universal service generally in section 254(c) as "an evolving level of telecommunications services that the Commission shall establish periodically . . . taking into account advances in telecommunications and information technologies and services."[15] The following considerations should shape the definition of universal service: whether the telecommunications service is essential to public health and education; whether a majority of residential customers subscribe to the service; whether telecommunications carriers deploy the service in public networks; and whether the service is consistent with the public interest, convenience, and necessity.[16] The Act then grants the Joint Board authority to periodically recommend modifications in the definition of the services supported.[17]

Supplementing the definition of universal service, section 254(b) offers core principles upon which the Joint Board and the Commission should base their policies.[18] First, universal service should provide quality services at just, reasonable, and affordable rates, and should ensure access to advanced telecommunications and information services for consumers in all regions of the Nation.[19] In addition, consumers, even in rural, insular, and high-cost areas, should have access to telecommunications and information services that are reasonably comparable to the services provided and rates charged in urban areas.[20] Also, all providers of telecommunications services should make an equitable contribution to the Universal Service Fund, and the federal and state support mechanisms should be sufficient to preserve and advance universal service.[21] Furthermore, elementary and secondary schools and classrooms, health care providers, and libraries should have access to advanced telecommunications services.[22] Finally, Congress encouraged the Joint Board and the Commission to consider any additional principles consistent with the Act and necessary and

appropriate for the protection of the public interest.

The 1996 Act funds universal service through the equitable and nondiscriminatory contributions of every telecommunications carrier that provides interstate and intrastate telecommunications services.[24] If the public interest so requires, the Commission may compel other telecommunications providers, such as cable providers and Internet Service Providers, to contribute as well.[25] Section 254(h)(1)(B) requires that a telecommunications carrier providing services to schools shall either apply the amount of discount to its universal service obligations or shall be reimbursed for that amount from the support mechanisms.[26]

*B. Plain Reading of Language Addressing Schools*

In five separate places throughout the universal service section, Congress directs the Commission to act with respect to schools.[27] Significantly, the Act lists access to telecommunications services as one of the universal service principles on which to base policy.[28] Also, under the definition of universal service, the Act privileges schools and libraries to receive any "special services" the Commission may designate for the purpose of subsection (h).[29] Finally, subsection (h) represents the essence of universal service as it applies to schools. Section 254(h)(1)(B) addresses general services relating to educational providers and libraries:

> All telecommunications carriers serving a geographic area shall, upon a bona fide request for any of its services that are within the definition of universal service . . . provide such services to elementary schools, secondary schools and libraries for educational purposes at rates less than the amounts charged for similar services to other parties. The discount shall be an amount that the Commission, with respect to interstate services, and the States, with respect to intrastate services, determine is appropriate and necessary to ensure affordable access to and use of such services by such entities.[30]

Subsection (h)(2)(A) instructs the Commission to establish competitively neutral rules to "enhance, to the extent technically feasible and economically reasonable, access to advanced telecommunications and information services for all public and nonprofit elementary and secondary classrooms, health care providers, and libraries." [31]

Undeniably, Congress afforded the Commission broad discretion in shaping universal service policy with regard to schools. For example, Congress charged the Commission with defining "special services" for schools under subsection (c)(3).[32] Similarly, the Commission, mindful of its obligation to "ensure affordable access" to those special services, was responsible for determining the discounted rate for services to schools.[33] Finally, the Commission needed to interpret "access to advanced telecommunications" and establish competitively neutral rules to "enhance" these services.[34] Not surprisingly, the Commission relied on legislative history in formulating universal service support for schools.

*C. Legislative History of Universal Service Support for Schools*

Attacks on the Commission's *Report and Order* frequently target the extraordinary figure of 2.25 billion dollars, the proposed sum of contributions to the support mechanisms. Because much of this money will fund internal connections for schools,[35] congressional intent regarding the inside wiring of schools represents a threshold issue in the ongoing debate.

1. The Birth of Universal Service for Schools

A Conference Committee, comprised of both House and Senate members, created universal service for schools. The managers of both houses convened this Conference Committee to resolve disagreement among the chambers regarding the Telecommunications Act generally.[36] The House had in fact struck all of Senate bill 652 (the Senate's proposed Act) after the enacting clause and had inserted a substitute text.[37] The Conference Committee submitted a substitute bill, called the Conference Report or the Telecommunications Act of 1996, that [38]

ultimately passed. While the Conference Report adopted language from the universal service proposals of both houses, the joint conferees relied primarily on section 310 of Senate bill 652 (the Snowe-Rockefeller-Exon-Kerrey provision), and supplemented the proposals of both chambers with wholly new language.[39] The Joint Explanatory Statement of this Conference Committee, as well as debate on the Snowe-Rockefeller provision are therefore most indicative of legislative intent.

2. Legislative History and Internal Connections for Schools

Language in the Act itself and in the Joint Explanatory Statement illuminates the debate over inside wiring of schools. Two subsections of the Act specifically contemplate the extension of telecommunications and other services directly to classrooms, in addition to schools. In subsection 254(b)(6), Congress lists access to advanced telecommunications services for "elementary and secondary schools and *classrooms*" as a general principle of universal service.[40] Then in subsection 254(h)(2)(A), Congress instructs the Commission to establish competitively neutral rules to "enhance . . . access to advanced telecommunications . . . services for . . . elementary and secondary school *classrooms* . . . ."[41]

The Joint Explanatory Statement reiterates this language. With respect to ordinary universal service support, the joint conferees wrote, "New subsection (h) . . . is intended to ensure that health care providers for rural areas, elementary and secondary school *classrooms*, and libraries have affordable access to modern telecommunications services that will enable them to provide medical and educational services to all parts of the Nation."[42] The Joint Explanatory Statement also addresses advanced telecommunications and information services:

> New subsection (h)(2) requires the Commission to establish rules to enhance the availability of advanced telecommunications and information services to public institutional telecommunications users. For example, the Commission could determine that . . . services that constitute universal service for *classrooms* and libraries shall include dedicated data links and the ability to obtain access to educational materials . . . .[43]

Plainly, these references to "classrooms" both in the language of the Act and in the Joint Explanatory Statement of the Conference Committee demonstrate the joint conferees' intent to provide internal connections.

During Senate floor debate on the Snowe-Rockefeller provision, an amendment was proposed to delete the language entirely.[44] The Senate defeated this amendment, and the joint conferees ultimately incorporated the provision, with modifications, into new section 254 of the Act. Thus, a review of the debate is particularly instructive. Senator Snowe, discussing the "gap" between the high expectations of our technology-driven society and the inability of most schools to sufficiently prepare students to enter that society, noted, "Almost 90 percent of K through 12 *classrooms* lack even basic access to telephone service. Telephone lines are used to hook up modems to the Internet."[45] Then, emphasizing her concern for the cost of these lines, she continued:

> When classrooms do have phone lines, schools are typically charged at the corporate rate for service. Schools and libraries in rural areas often pay more for access to information services because the information service providers are not located in the local calling regions, meaning they have to make long-distance calls.[46]

Building on Senator Snowe's reasoning, co-sponsor Senator Rockefeller cited a 1995 study by the National Center for Education Statistics that reported that only three percent of classrooms in public schools were connected to the Internet. He questioned the cause of this low number and concluded:

> One reason has to be the lack of funds to even buy the equipment. But another reason, which becomes more serious as schools do scrape together the money for the one-time expense of buying equipment, is their inability to pay excessive rates to hook into those services. It is one thing to have the computer on the table or the desk. It is another to have that hooked up to the wall and then through that wall to the other wall. That is expensive.[47]

Finally, in a letter to the members of the Joint Board, twenty-six senators, including the four sponsors of the Snowe-Rockefeller provision, expressed their intent to provide internal connections. "For schools, we believe that connecting the *classrooms* is necessary to truly enhance education so connectivity should be defined to include *internal connections* in ways that are technology neutral."[48]

However, the Snowe-Rockefeller provision did not go unchallenged. Proponents of the amendment to defeat the language objected to universal service for schools generally, rather than specifically disputing internal connections.[49] Representatives in the House, although generally enthusiastic about the Conference Report,[50] and thus the incorporated Snowe-Rockefeller provision, did not directly comment on internal connections during floor debate. But in a letter to the members of the Joint Board, House Telecommunications and Finance Subcommittee Chairman Fields objected to the support of inside wiring of schools, calling the proposal a "well-intentioned suggestion" that did not comport with the "letter of the law."[51]

In summary, the Senate approved the Snowe-Rockefeller provision by a vote of fifty-eight to thirty-six with six senators abstaining.[52] Both legislative bodies then adopted the Conference Agreement (and necessarily the Snowe-Rockefeller provision) with near unanimity.[53] Immediately, the FCC began a fifteen-month process to implement section 254, organizing the Joint Board, issuing a *Notice of Proposed Rulemaking*, and ultimately releasing a *Report and Order* on universal service.

## III. Analysis of the Commission's *Report and Order*

Criticism of the Commission's *Report and Order* generally takes two forms. First, some assert that the Act never contemplated support for internal connections of schools based on a narrow reading of the term "service." While other critics concede that Congress may have intended the inside wiring of schools, they argue that the Commission exceeded its discretion in allocating a potential fund of 2.25 billion dollars. An overview of the Commission's *Report and Order* provides a foundation on which to analyze the merits of each position.

### *A. Content of the Report and Order*

Relying on subsections 254(c)(3) and 254(h)(1)(B), the Commission adopted the Joint Board's recommendation that eligible schools receive discounts of between twenty and ninety percent on all telecommunications services, Internet access, and internal connections, annually limited to 2.25 billion dollars.[54]

With regard to telecommunications services, the Commission resolved to provide schools with the maximum flexibility to create "whatever package of commercially available telecommunications services" that most effectively and efficiently satisfies their needs.[55] Not wishing to substitute its judgment for that of individual school administrators, the Commission rejected requests that discounts apply only to a single set of services.[56] In its recommendation to the Commission, the Joint Board found support for these unique packages in the Joint Explanatory Statement, which instructed the Commission to consider the "particular needs of K-12 schools and libraries."[57]

Addressing Internet access, the Commission adopted the Joint Board's recommendation to discount "basic conduit" access to the Internet.[58] Such access includes information services provided by entities that consist of:

> i. the transmission of information as a common carrier;
>
> ii. the transmission of information as part of a gateway to an information service, where that transmission does not involve the generation or alteration of content of information but may include data transmission . . . and navigational systems that enable users to access information services that do not affect the presentation of such information services to users; and
>
> iii. electronic mail services [e-mail].[59]

For authority, the Commission relied on the joint conferees who stated, "[T]he Commission could determine that telecommunications and information services that constitute universal service for classrooms and libraries shall include . . . information services which can be carried over the Internet."[60]

With respect to internal connections, the Commission concluded that Congress intended telecommunications and information services to extend directly to classrooms.[61] Services are eligible for support as internal connections "only if they are necessary to transport information all the way to individual classrooms."[62] Discounts are thus available on routers, hubs, network file servers, and wireless LANs, as well as on their installation and basic maintenance. However, the definition of internal connections excludes personal computers, fax machines, modems, and asbestos removal, as the Commission believed that these services and equipment were unnecessary to transmit information to individual classrooms.[63]

Consistent with congressional instructions to "ensure affordable access,"[64] the Commission adopted a matrix providing discounts ranging from twenty percent to ninety percent on all commercially available telecommunications services, Internet access, and internal connections.[65] A school's level of economic disadvantage, as well as its location in an urban or rural area, determines its discount amount.[66] "Economic disadvantage" is measured using the school's eligibility for the national school lunch program, as it boasts a well-defined set of criteria and is implemented nationwide.[67] Desiring to foster a competitive environment, the Commission encouraged schools to "aggregate their demand with others to create a consortium with sufficient demand to attract competitors and thereby negotiate lower rates or at least secure efficiencies, particularly in lower density regions."[68]

To take advantage of the supported services, schools must prepare technology plans covering the near term and the future, which specify how they intend to integrate requested services into their curriculum.[69] In addition, applicants must submit a technology inventory/assessment including: the computer equipment currently available; any internal connections already in place; any available computer software necessary to communicate with other computers over an internal network; the experience and training received by staff in the use of equipment; existing or budgeted maintenance contracts; and the capacity of the school's electrical system to manage simultaneous uses.[70] Because many schools have already undertaken technology initiatives, the Commission's *Report and Order* permits automatic certification of plans approved for participation in other state or federal programs.[71] In all other cases, an independent agency must review and approve the plan, ensuring that each school's plan is "based on the reasonable needs and resources of the applicant and [is] consistent with the goals of the program."[72]

*B. The Act Contemplated Support for Internal Connections*

In alleging that the Act does not contemplate universal service support for the internal connections of schools, proponents of this position narrowly interpret the term "service." First, these parties classify inside wire as "plant" or "equipment" or "facility," not as a telecommunications "service." In addition, they argue that the various subsections of section 254 referring to "services" should be read in concert.

Critics of the Commission's *Report and Order* rely on *National Association of Regulatory Utility Commissioners* (*NARUC*) *v. FCC*[73] for the classification of internal connections as facilities.[74] In that case, state utility commissioners sought review of an FCC Order preempting state regulation of the installation and maintenance of inside wiring used for both interstate and intrastate telephone communications.[75] The D.C. Court of Appeals defined inside wiring as "`the telephone wires within a customer's home or place of business that are on the customer's side of the point of intersection between the telephone company's communications facilities and the customer's facilities.'"[76] Critics thus reason that "facilities" on the customer's premises cannot constitute a service provided by telecommunications carriers.

The Consumer Federation of America (CFA) drew on this logic when it argued that including internal connections within the definition of universal service would be in direct conflict with the Commission's position that wire inside the home is "the property and responsibility of the property owner."[77] Similarly, FCC Commissioner Rachelle B. Chong, writing separately in concurrence and dissent, concluded that from the *NARUC* language it is "apparent that

inside wire is not a `service' within the meaning of the 1996 Act, but, consistent with our prior decisions and policy, a facility."[78] Finally, in his letter to the Joint Board, House Telecommunications and Finance Subcommittee Chairman Fields maintained that "[t]he letter of the law is clear that the federal universal service fund can only support subsidies for *services*, not plant and equipment."[79]

Although critics of the Joint Board's decision cite *NARUC* as evidence that inside wire is a facility, the same opinion offers language more on point. Construing a statute at issue in the case, the court reasoned, "[E]ven if the statute could be interpreted to read `intrastate common carrier communications service,' inside wiring would still fall within it as a facility *or service* offered `for or in connection with' a common carrier communication service, namely, intrastate telephone service."[80] Plainly, inside wire represents either a facility or a service. Additional excerpts from the opinion underscore this conclusion, as the court repeatedly refers to inside wiring as a service: "[C]harges for inside wiring services are separated from charges for basic transmission service;"[81] and "the Commission may properly proscribe state tariffs that would result in the subsidization of the installation and maintenance of inside wiring by the general ratepayers because it would allow telephone companies to undercut alternative providers of inside wiring services."[82] Thus, the Commission accurately determined that "the installation and maintenance" of inside wire constitutes a service.[83]

Critics also challenge the Commission's authority to fund internal connections, as this would extend universal support beyond *telecommunications* services. For example, AT&T maintains that references to "additional services" in section 254(c)(3)[84] relate back to the "telecommunications services" mentioned in section 254(c)(1).[85] By reading all references to "services" in concert, critics would deny support for any service that is not pure telecommunications. However, the Commission offered a more logical interpretation of the various uses of the term "service":

> The generic universal service definition in section 254(c)(1) and the rate provision regarding special services for rural health care providers in section 254(h)(1)(A) are both explicitly limited to telecommunications services. In
> the education context, however, the statutory references are to the broad class of "services," rather than the narrower class of "telecommunications services." Specifically, section 254(c)(3) refers to "additional services," while section 254(h)(1)(B) refers to "any of its services"; neither provision refers to the narrower class of telecommunications services.[86]

Plainly, Congress intended to fund such "additional services" as internal connections, especially in light of the references to "classrooms" throughout the Act's legislative history.[87]

Part II.C of this Note offers the statutory language "classroom" as evidence of congressional intent to provide intraschool and intralibrary connections. The same part additionally reviews legislative history, again discovering reference to "classrooms" and connectivity, in the Joint Statement and in Senate floor debate. The proper interpretation of inside wire as a *service*, as well as a more logical reading of "additional services" confirms the Act's contemplation of support for the internal connections of schools.

*C. The Commission Properly Exercised Discretion*

Those parties who insist that inside wiring is a facility necessarily disagree that section 254 mandates support for inside wiring because subsections 254(c)(3) and (h)(1)(B) direct the Commission to provide support for telecommunications *services*.[88] Likewise, those who relate all references to "services" back to "telecommunications services" deny that section 254 mandates support for inside wiring, because subsection (h) is entitled "*Telecommunications* Services for Certain Providers."[89] Yet, even these parties must acknowledge that subsection (h)(2)(A) grants the Commission discretion to support internal connections. Recall that this portion instructs the Commission to "establish competitively neutral rules to enhance, to the extent technically feasible and economically reasonable, access to advanced telecommunications and information services for all public and nonprofit elementary and secondary school classrooms."[90] Logically, connecting computers in each room to a telecommunications network will enhance classroom access to advanced services.

A substantial portion of the 2.25 billion dollar universal service fund will support the internal connections of schools and libraries.[91] While Parts II.C.2 and III.B of this Note demonstrate that Congress intended to provide some amount of service directly to classrooms, concerned parties wonder whether the Commission exceeded its discretion when it allocated such costly support for internal connections of schools. In other words, even if the Commission can provide support for inside wiring, should it fund so much support at this time? Some telecommunications carriers balk at supporting internal connections because they fear unintended market consequences. In addition, consumers worry that they will "pay for" internal connections in the form of rate increases. Finally, Americans hesitate to endorse extensive support for internal connections without assurance that schools can use technology efficiently.

1. Unintended Market Consequences

While state and local governments continue to regulate most telecommunications services, internal connections have been unregulated for a number of years.[92] Therefore, concerned parties assert that because internal connections are likely available at marginal cost today (due to competitive forces in the unregulated market) "it would be impossible to provide significant discounts to schools and libraries without permitting them to pay less than the long run incremental cost of the service."[93] They reason that the unregulated market will provide schools with the opportunity to solicit bids and negotiate for discounts.[94] These parties anticipate that such discounts will distort the telecommunications market by allowing schools and libraries to make inefficient choices.[95]

While this "market consequences" theory merits attention, the Commission could not deny support for internal connections without skewing competition between wireline and wireless technologies. Citing a report which found that wireless service would be the more efficient for twenty-five percent of public schools,[96] and recognizing that wireless services to schools were indisputably eligible for universal service support, the Commission reasoned:

> If schools and libraries could not receive discounts from telecommunications carriers for internal connections through inside wiring, but could receive discounts from telecommunications carriers using wireless service for this purpose, however, the discount mechanism would favor wireless technologies over wireline service. Because . . . competitive neutrality . . . is an explicit requirement under section 254(h)(2)(A), we conclude that Congress also intended to permit schools purchasing wireline intra-school connections to purchase those services from telecommunications carriers at discounted prices.[97]

Confronted with two potential market impediments (discounts in an already deregulated market and skewed competition between wireless and wireline technologies), the Commission adopted the alternative that serves the dual purposes of a competitive market and universal service for schools.

2. Consumer Concerns

Concerned parties also fear that telecommunications carriers who pay for internal connections will shift this expense to consumers in the form of rate increases.[98] Indeed, the goal of subsidized services to particular groups seems inconsistent with the goal of a pro competitive, deregulated market. Congress recognized the tension between these goals and offered insight to the resolution. In section 254 of the Act, Congress established universal service to ensure quality service at affordable rates to consumers in all regions of the nation, especially those in rural, insular, and high cost areas. Within this provision Congress particularly privileged schools, libraries, and health care providers with access to advanced telecommunications and information services. Then, in section 251, Congress preempted the AT&T and GTE antitrust consent decrees, thereby permitting entry by the Bell Operating Companies into the interLATA (Local Access and Transport Areas) telephone market.[99] Likewise, in section 301, the Act repeals the FCC's "telco-cable cross-ownership" restrictions.[100] The deregulation of these markets will generally promote competition, supply consumers with services at more affordable rates, and *increase profits for service providers.* With these profits in mind, Senator Rockefeller illustrated a balance between the competing goals:

> The telecommunications bill . . . presents us with an opportunity that will not come again. It is time to unleash an industry into the realm of competition, innovation, job creation and profit. But in return . . . we

should make sure that the most basic institutions of our community and our society can hitch a ride onto this great journey.[101]

Arguably, telecommunications carriers will have little need to recoup "losses" incurred by contributions to the universal service fund.

3. Efficiency Concerns

Eighty percent of Americans believe that teaching students computer skills is "absolutely essential."[102] However, before endorsing a 2.25 billion dollar national commitment, these citizens need assurance that schools can efficiently utilize the telecommunications and information services. Specifically, classroom access to information networks must serve important educational goals. In addition, access to these services must be technically feasible and economically reasonable. Finally, classroom teachers must possess adequate knowledge to fully integrate networked computers into daily lessons.

Connecting kindergarten through twelfth grade classrooms to the National Information Infrastructure (NII) is a worthwhile undertaking. The NII includes any public or private networks accessible through computers, video equipment, or telephones.[103] These networks offer classrooms various information resources including timely news reports, electronic libraries of government documents, and on-line encyclopedias. The NII can connect students to human resources as well: teachers at other schools and colleges; experts from museums, libraries, and research institutes; and peers from around the world.[104] Significantly, proper use of these resources contributes to increased educational achievement. A review of 254 controlled studies found that appropriate use of technology in the classroom reduces the time needed to master particular types of knowledge by as much as thirty percent.[105] In addition, student writings tend to be of higher quality when prepared for transmission to other students over a network, than when prepared for in-class use only.[106] Finally, telecommunications enables students to solve real-world problems. For example, after discovering that carbon dioxide levels in their classrooms were higher than normal, students at an elementary school in Texas accessed a computer network to consult with an environmental scientist. They later distributed results of the experiment to other schools via the network, and these schools conducted similar experiments. As a result of the experiment, the school board repaired the school's ventilation system.[107]

Internally connecting schools to valuable information systems is technically feasible and economically reasonable. Based on the *McKinsey Report*, the Commission estimated that the full cost of the telecommunications-related portion of internal connections, prior to the application of discounts, would just exceed 4 billion dollars.[108] In addition, the Commission offered the success of NetDays as proof of feasibility.[109] NetDays is a grassroots volunteer effort to wire schools so that they can network classroom computers and connect them to the Internet. Volunteers, including companies, unions, parents, and teachers, provide labor and materials.[110] Largely through the efforts of NetDay volunteers, Florida may become the first state to wire all its public schools.[111] The coordi
nator of NetDay2000 Florida estimates that by the end of 1997, volunteers will have wired one hundred percent of the state's schools.[112] On a national level, classroom access to the Internet tripled in only one year, from three percent in 1994 to nine percent in 1995;[113] in the fall of 1996, fourteen percent of public school classrooms were connected to the Internet.[114] Finally, the Commission's approval of "consortia" will enable schools to aggregate their demand, attract competitors, and negotiate lower rates.[115]

Citizens next question the ability of classroom teachers to efficiently use the supported services. Indeed, the *McKinsey Report* found that nearly fifty percent of teachers have little or no experience with educational technology.[116] After completing a six-month teaching assignment in the rural Carolinas, one professor/teacher commented that "while some teachers were having their 4th grade students complete book reports using PowerPoint technology, others did not even know how to turn on the computers in their classrooms."[117] While teacher competency is a significant concern, it does not render the goal of networked classrooms unachievable. Rather, the Commission and school administrators should heed the advice of Secretary of Education Riley: "This is no time to think short term. Our elementary and secondary schools and libraries must have access to telecommunications services to provide quality education to our children,

now and in the future."[118] Accordingly, schools must design and the Commission must approve plans that utilize the talents of technology-literate teachers today, while preparing inexperienced teachers for the advanced telecommunications of tomorrow. For example, school administrators might request a telecommunications package that tracks the "Partial Classroom" model outlined in the *McKinsey Report*.[119] Furthermore, the Commission and reviewing agency must carefully scrutinize schools' technology plans to ensure that they are consistent with the abilities and experience of classroom teachers.[120] Finally, schools must aggressively train teachers both in the use of technology and in the integration of the technology into the curriculum. In this vein, the *McKinsey Report* designed a five-stage professional developmental model in which a school district that begins with basic "Adoption and Adaption" training can build a population of appropriately skilled teachers within six to seven years.[121]

## IV. Conclusion

The Commission's *Report and Order* faces legal challenge and criticism from concerned parties. The following principles should guide those who contemplate the merits of the *Report and Order*.

First, statutory language in section 254, as well as relevant legislative history, evidences congressional intent to provide intraschool connections. Specifically, the Act grants the Commission authority to establish support for telecommunications services, additional services, and advanced telecommunications and information services. Legislative history supports this language, as the Act's sponsors advocated universal service support for classrooms in addition to schools. Significantly, Congress considered universal service a "national priority"[122] and deemed schools, libraries, and health care providers particularly worthy to receive discounted service. In the same vein, legislators feared creation of a society of information haves and have-nots. Senator Rockefeller warned, "If you want to have a two-class society in this country, those who know and those who do not, then you vote with [Senator McCain] because that is what you will have."[123] Obviously, wealthy schools can already afford to wire classroom computers to a central telecommunications network. Students in these schools can access information throughout the schoolday, and teachers in these schools can integrate and supplement daily lessons with the advanced research capacity of the computers in their rooms. However, those schools that must rely on the kind of universal service support that extends service only to the school's door represent the have-nots. These schools can at most install a few computers in a central location, and entire classes can then rotate in and out of the location during weekly forty-five minute intervals. This limited service is inconsistent with a national policy of universal service and the accompanying principle that classrooms in all regions of the nation should have access to advanced telecommunications services.

Second, in light of explicit statutory language and zealous congressional support, the Commission properly exercised discretion in allocating a potential fund of 2.25 billion dollars. Faced with two potential market impediments—discounts in an already deregulated market and skewed competition between wireless and wireline technologies—the Commission adopted the alternative that promotes competition and provides support for schools. Likewise, the deregulation of telecommunications markets will promote competition, supply consumers with services at more affordable rates, and increase profits for service providers. With these profits in mind, Senator Rockefeller reasoned:

> All we are doing in our provision is to say, in return for this explosion of excitement and opportunity and profits,
> which create, indeed, more opportunity for all of that growth, for all of those profits that you will now be able to get your hands on, make sure that you bring libraries, schools, and hospitals along with you.[124]

Senator Rockefeller called this exchange a "fair deal."[125]

Finally, classroom technology contributes substantially to a quality education, and internally connecting classrooms is both technically feasible and economically reasonable. With careful scrutiny of schools' technology plans, especially as they relate to teacher competence, the Commission can effectuate congressional intent through generous support of internal connections.

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1. 141 Cong. Rec. S7984 (daily ed. June 8, 1995) (statement of Sen. Snowe, quoting FCC Chairman Reed Hundt).

2. Telecommunications Act of 1996, Pub. L. No. 104-104, 110 Stat. 56 (codified at scattered sections of 47 U.S.C.A. (West Supp. 1997)).

3. Thomas G. Krattenmaker, *The Telecommunications Act of 1996*, 49 Fed. Comm. L.J. 1, 21 (1996) (citing Milton Mueller, *Universal Service in Telephone History*, Telecomm. Pol'y, July 1993, at 355).

4. *Id*.

5. Thomas G. Krattenmaker, Telecommunications Law and Policy 467 (1994). Because the Bell system was so thoroughly integrated and powerful in all markets—equipment, local loop, and long-distance—the prices it charged for one service did not necessarily have to reflect the cost of that particular service. AT&T only needed to make an overall profit, and thus several cross-subsidies were often hidden in the company's rates. *Id*.

6. Telecommunications Act of 1996, sec. 101(a), § 254, 47 U.S.C.A. § 254 (West Supp. 1997).

7. The Act required that "[O]ne member of the Joint Board be a State-appointed utility consumer advocate nominated by a national organization of State utility consumer advocates." *Id.* § 254(a)(1). FCC Chairman Reed Hundt was also a member of the Joint Board.

8. *Id.*

9. Federal-State Joint Bd. on Universal Serv., *Recommended Decision*, 12 FCC Rcd. 87, para. 440, 5 Comm. Reg. (P & F) 1 (1996) [hereinafter *Universal Serv. Recommended Decision*], *amended and adopted by Report and Order*, 7 Comm. Reg. (P & F) 109 (1997).

10. *See* Bill Pietrucha, *FCC Recommends Internet Discounts For Schools, Libraries*, Newsbytes, Nov. 8, 1996, *available in* 1996 WL 12026900 (reporting that Scholastic Network, the largest on-line service for the classroom, applauded the FCC's initiative in recommending discounted rates to schools); *see also Internet Discounts Are a Good Idea*, Wis. St. J., Dec. 11, 1996, *available in* 1996 WL 13791696 (conceding that the bigger the discounts, the more rate payers will have to subsidize schools and libraries, but concluding that the more telecommunications services that schools can take advantage of, the better for America's common good).

11. *See* Bob Metcalfe, *ISPs Should Help Kids and Libraries, but Forced Discounts Repeat Mistakes*, Infoworld, Dec. 9, 1996, *available in* 1996 WL 14455689 (encouraging ISPs to resist any extension of universal service that would require them to contribute to the possible $2.25 billion fund); *See also Fields Says Interconnection Order Not Compatible with Telecom Act*, Wash. Telecom News., Nov. 25, 1996, *available in* 1996 WL 8147928 (reporting House Telecommunications and Finance Subcommittee Chairman Jack Field's accusation that the $2.25 billion fund amounts to the "subsidization of unregulated services [and should therefore] be considered a tax").

12. Federal-State Joint Bd. on Universal Serv., *Report and Order*, 7 Comm. Reg. (P & F) 109 (1997) [hereinafter *Universal Serv. Report and Order*].

13. Laurie Becklund, *Telcos Attack FCC's School-Wiring Order*, Wired News & 10 (June 27, 1997) <http://www.wired.com/news/news/politics/story/4765.html> (quoting SBC spokesman Selim Bingol). On July 3, 1997, SBC asked the FCC to stay its Universal Service *Report and Order* or, "`at a minimum,'. . . [to] stay those parts of the Order that provide federal support to schools and libraries for Internet access and inside wiring, to hospitals for toll-free access to Internet service providers, and to other `non-telecommunications providers.'" *SBC Asks FCC to Stay Universal Service Order*, Comm. Today, July 8, 1997, *available in* 1997 WL 10864264.

14. Becklund, *supra* note 13.

15. Telecommunications Act of 1996, sec. 101(a), § 254(c)(1), 47 U.S.C.A. § 254(c)(1) (West Supp. 1997).

16. *Id.*

17. *Id.* § 254(c)(2).

18. *Id.* § 254(b).

19. *Id.* § 254(b)(1)-(2).

20. *Id.* § 254(b)(3).

21. *Id.* § 254(b)(4)-(5).

22. *Id.* § 254(b)(6).

23. *Id.* § 254(b)(7).

24. *Id.* § 254(d).

25. *Id.* The Commission ultimately decided to require contributions from telecommunications carriers only. However, both telecommunications carriers and nontelecommunications carriers can collect universal service support based on discounts afforded to eligible schools on Internet access and internal connections, because contribution obligations will be based solely on revenues from telecommunications. *Universal Serv. Report and Order*, 7 Comm. Reg. (P & F) 109, para. 597 (1997).

26. 47 U.S.C.A. § 254(h)(1)(B)(i)-(ii).

27. To qualify for preferential treatment under § 254(h), schools must satisfy the statutory definition of an elementary or secondary school found in the Elementary and Secondary Education Act of 1965. *Id*. § 254(h)(5)(A). These include nonprofit institutional day or residential schools that provide elementary or secondary education, as determined under state law. Elementary and Secondary Education Act of 1965, 20 U.S.C. § 8801(14), (25) (1994). In addition, schools must not operate as for-profit institutions and must not have an endowment exceeding $50 million. 47 U.S.C.A. § 254(h)(4).

28. 47 U.S.C.A. § 254(b)(6).

29. *Id.* § 254(c)(3).

30. *Id.* § 254(h)(1)(B).

31. *Id.* § 254(h)(2)(A).

32. *Id.* § 254(c)(3).

33. *Id.* § 254(h)(1)(B).

34. *Id.* § 254(h)(2)(A).

35. The Joint Board considered the McKinsey Report which estimated that internal connections would initially cost over $5 billion and then $410 million per year in ongoing costs, using the "Partial Classroom" model. *Universal Serv. Recommended Decision*, 12 FCC Rcd. 87 para. 469, 5 Comm. Reg. (P & F) 1 (1996), *amended and adopted by Report and Order*, 7 Comm. Reg. (P & F) 109 (1997) (citing McKinsey & Company, Connecting K-12 Schools to the Information Superhighway 57 (1995)).

36. Joint Explanatory Statement of The Committee of Conference, H.R. Conf. Rep. No. 104-458, 113 (1996), *reprinted in* 1996 U.S.C.C.A.N. 124.

37. *Id.*

38. *Id*. at 113, *reprinted in* 1996 U.S.C.C.A.N. 124.

39. *Id.* at 131-33, *reprinted in* 1996 U.S.C.C.A.N. 124, 142-45.

40. Telecommunications Act of 1996, sec. 101(a), § 254(b)(6), 47 U.S.C.A. § 254(b)(6) (West Supp. 1997) (emphasis added).

41. *Id.* § 254(h)(2)(A) (emphasis added).

42. H. R. Conf. Rep. No. 104-458, at 132, *reprinted in* 1996 U.S.C.C.A.N. 124, 144 (emphasis added).

43. *Id.* at 133, *reprinted in* 1996 U.S.C.C.A.N. 124, 145 (emphasis added).

44. 141 Cong. Rec. S7972 (1995).

45. *Id.* at S7978 (statement of Sen. Snowe) (emphasis added).

46. *Id.*

47. *Id.* at S7981 (statement of Sen. Rockefeller).

48. *Universal Serv. Recommended Decision*, 12 FCC Rcd. 87, para. 481, 5 Comm. Reg. (P & F) 1 (1996) *amended and adopted by Report and Order*, 7 Comm. Reg. (P & F) 109 (1997) (quoting letter from 26 senators to members of the Federal-State Joint Board on Universal Service (Sept. 26, 1996)) (emphasis added by *Recommended Decision*).

49. For example, Sen. Ashcroft believed it was unnecessary to "micromanage" telecommunications in the manner that the Snowe-Rockefeller provision would necessitate. "[A] bureaucracy to start setting rates and to regulate the rates and to provide special subsidies for one part of our society as opposed to another is not only unnecessary but is counterproductive." 141 Cong. Rec. S7975 (1995) (statement of Sen. Ashcroft). Likewise, Sen. McCain highlighted the fact that nearly every state has already passed legislation that in some way offers telecommunications services at discounted rates for schools. He then complained of the absence of means testing within the provision. "If [the sponsors of the provision] had . . . brought in some kind of provision for means testing as to who needs it and who does not before we proposed this unfunded mandate, I would have been much more open to some compromise or agreement on it." *Id.* at S7983 (statement of Sen. McCain).

50. *See, e.g.*, 142 Cong. Rec. H1163 (daily ed. Feb. 1, 1996) (statement of Rep. Lincoln: "I also would like to recognize the House's wisdom in accepting the Snowe-Rockefeller provision in the Senate bill to supplement distance learning and telemedicine."); *id*. at H1173 (statement of Rep. Orton: "I am proudest of . . . the provision which promotes affordable access for schools, libraries, and rural hospitals.").

51. *Universal Serv. Recommended Decision*, 12 FCC Rcd. 87, para. 470, 5 Comm. Reg. (P & F) 1 (1996) (quoting letter from Rep. Jack Fields to Sharon Nelson, Chairperson, Washington Utilities and Transportation Commission, and all members of the Federal-State
Joint Board on Universal Service (Oct. 17, 1996)).

52. 141 Cong. Rec. 7990 (daily ed. June 8, 1995).

53. *See* 142 Cong. Rec. S720 (daily ed. Feb. 1, 1996) (recording the Senate roll call vote: yeas 91 and nays 5); 142 Cong. Rec. H1179 (daily ed. Feb. 1, 1996) (recording the House roll call vote: yeas 414 and nays 16).

54. *Universal Serv. Report and Order*, 7 Comm. Reg. (P & F) 109, para. 425 (1997).

55. *Id.* para. 431.

56. *Id.* para. 432.

57. *Universal Serv. Recommended Decision*, 12 FCC Rcd. 87, para. 459, 5 Comm. Reg. (P & F) 1 (1996), *amended and adopted by Report and Order*, 7 Comm. Reg. (P & F) 109 (1997) (referring to Joint Explanatory Statement of the Committee of Conference, H. R. Conf. Rep. No. 104-458, 113, 133 (1996), *reprinted in* 1996 U.S.C.C.A.N. 124, 145).

58. *Universal Serv. Report and Order*, 7 Comm. Reg. (P & F) 109, para. 436.

59. *Id.* para. 444.

60. *Id.* para. 442 (citing H. R. Conf. Rep. No. 104-458, at 133, *reprinted in* 1996 U.S.C.C.A.N. 124, 145).

61. *Id.* para. 450.

62. *Id.* para. 459.

63. *Id.* para. 460.

64. Telecommunications Act of 1996, sec. 101(a), § 254(h)(1)(B), 47 U.S.C.A. § 254(h)(1)(B) (West Supp. 1997).

65. *Universal Serv. Report and Order*, 7 Comm. Reg. (P & F) 109, para. 492.

66. *Id.* para. 520. For example, in a school where 20% to 34% of the students are eligible for the national school lunch program, the school could purchase services at a discount of 50% (if located in an urban district) or 60% (if located in a rural district). *Id*. (illustrating through a "Schools and Libraries Discount Matrix").

67. *Id.* para. 509.

68. *Id.* para. 476. Eligible schools will qualify for universal service discounts if the consortia they join only includes other eligible schools, libraries, rural health care providers, or governmental customers. *Id.* para. 478.

69. *Id.* para. 573.

70. *Id.* para. 572.

71. *Id.* para. 574.

72. Ideally, a state agency that regulates schools and libraries will approve applicants' plans. *Id*.

73. *NARUC*, 880 F.2d 422 (D.C. Cir. 1989).

74. *Universal Serv. Recommended Decision*, 12 FCC Rcd. 87, para. 470, 5 Comm. Reg. (P & F) 1 (1996), *amended and adopted by Report and Order*, 7 Comm. Reg. (P & F) 109 (1997) (referring to Further Comments of GTE, Sprint, USTA, and US West).

75. *NARUC*, 880 F.2d at 424-25.

76. *Universal Serv. Recommended Decision*, 12 FCC Rcd. at 554, 5 Comm. Reg. (P & F) at 222-23 (separate statement of FCC Commissioner Rachelle B. Chong, concurring in part and dissenting in part) (quoting *NARUC*, 880 F.2d at 425).

77. *Id.* para. 461 (citing Further Comments of CFA at 5-6).

78. *Id.* at 554, 5 Comm. Reg. (P & F) at 223 (separate statement of FCC Commissioner Rachelle B. Chong, concurring in part and dissenting in part).

79. *Id.* para. 470 (quoting letter from Rep. Jack Fields to Sharon Nelson, Chairman, Washington Utilities and Transportation Commission and all members of the Federal-State Joint Board on Universal Service (Oct. 17, 1996)).

80. *NARUC*, 880 F.2d at 428 (emphasis added).

81. *Id.* at 430.

82. *Id.*

83. *Universal Serv. Report and Order*, 7 Comm. Reg. (P & F) 109, para. 452 (1997).

84. This subsection reads: "In addition to the services included in the definition of universal service under paragraph (1), the Commission may designate additional services for such support mechanisms for schools, libraries, and health care providers for the purposes of subsection (h). Telecommunications Act of 1996, sec. 101(a), § 254(c)(3), 47 U.S.C.A. § 254(c)(3) (West Supp. 1997).

85. *Universal Serv. Report and Order*, 7 Comm. Reg. (P & F) 109, para. 438.

86. *Id.* para. 437 (footnotes omitted).

87. *See supra* Part II.C.2.

88. As previously stated, subsection (c)(3) permits the Commission to designate "additional services" for schools, and subsection
(h)(1)(B) provides these services at discounted rates. 47 U.S.C. § 254(c)(3), (h)(1)(B).

89. *Id*. § 254(h) (emphasis added).

90. *Id.* § 254(h)(2)(A).

91. *See supra* text accompanying note 35.

92. *Universal Serv. Recommended Decision*, 12 FCC Rcd. 87, 552, 5 Comm Reg. (P & F) 1, 222 (1996) (separate statement of FCC Commissioner Rachelle B. Chong, concurring in part and dissenting in part), *amended and adopted by Report and Order*, 7 Comm. Reg. (P & F) 109 (1997).

93. *Id.* para. 483, (citing Further Comments of Air Touch at 10-11).

94. *Universal Serv. Report and Order*, 7 Comm. Reg. (P & F) 109, para. 451 (1997) (citing Comments of Cincinnati Bell at 14).

95. *Universal Serv. Recommended Decision*, 12 FCC Rcd. at 552, 5 Comm. Reg. (P & F) at 222 (separate statement of FCC Commissioner Rachelle B. Chong, concurring in part and dissenting in part); *see also id.* para. 483 (citing Further Comments of Air Touch at 10-11).

96. *Universal Serv. Report and Order*, 7 Comm. Reg. (P & F) 109, para. 457.

97. *Id*.

98. Commissioner Chong cautioned the Joint Board to meet the "mandatory" obligations to all groups covered by the Act before expanding the definition of services to schools and libraries. *Universal Serv. Recommended Decision*, 12 FCC Rcd. at 556, 5 Comm Reg. (P & F) at 223 (separate statement of FCC Commissioner Rachelle B. Chong, concurring in part and dissenting in part). Likewise, Air Touch worries that discounts for inside wiring may "place a heavy financial burden on telecommunications users." *Id.* para. 462. Finally, Rep. Jack Fields warned that the Joint Board's misinterpretation of the law would force consumers to finance billions of dollars worth of subsidies. *Fields Tells Hundt FCC `Missed' Hill Intent on Interconnection*, Comm. Daily, Oct. 24, 1996.

99. *See generally* Telecommunications Act of 1996, sec. 101(a), § 251, 47 U.S.C.A. § 251 (West Supp. 1997).

100. *See generally id.* § 301.

101. 141 Cong. Rec. S7980 (daily ed. June 8, 1995) (statement of Sen. Rockefeller).

102. *Hearing on Universal Service Before the Federal Communications Commission in CC Dkt. No. 96-45* (Apr. 12, 1996) [hereinafter *FCC Universal Serv. Hearing*] (testimony of Richard W. Riley, Secretary of Education) (available at

<http://www.ed.gov/Technology/nprm.html>) (citing Public Agenda Foundation, Assignment Incomplete: The Unfinished Business of Education Reform (1995)).

103. McKinsey & Company, Connecting K-12 Schools to the Information Superhighway iv (1995) [hereinafter McKinsey Report].

104. *Id.*

105. *Id.* at v.

106. *FCC Universal Serv. Hearing*, *supra* note 102 (testimony of Richard W. Riley, Secretary of Education) (citing Margaret Riel, *The Impact of Computers in the Classrooms*, 22 J. of Res. on Computing in Educ. 180-89 (1989)).

107. *Id.*

108. *Universal Serv. Report and Order*, 7 Comm. Reg. (P & F) 109, para. 454 n.1180 (1997) (quoting McKinsey Report, *supra* note 103, at 57.). The *McKinsey Report* designed three "deployment models" for connecting the nation's classrooms to the NII by the year 2000 or 2005.

109. *Id.* para. 454.

110. *Id.* para. 454 n.1181.

111. Laurie Becklund, *NetDay Digs in Its Heels; Florida Draws Goal Line in the Sand* (visited Sept. 4, 1997) <http://www.schoolwire.org>.

112. *Id*.

113. *FCC Universal Serv. Hearing*, *supra* note 102 (testimony of Richard W. Riley, Secretary of Education) (citing U.S. Dep't. of Educ., Nat'l. Ctr. for Educ. Statistics, Advanced Telecommunications in the U.S. Public Elementary and Secondary Schools, 1995 (Feb. 1996)).

114. *Universal Serv. Report and Order*, 7 Comm. Reg. (P & F) 109, para. 454 n.1180 (1997) (citing U.S. Dep't. of Educ., Nat'l. Ctr. for Educ. Statistics, Advanced Telecommunications in the U.S. Public Elementary and Secondary Schools, 1996 (1997).

115. *See supra* note 68 and accompanying text.

116. McKinsey Report, *supra* note 103, at viii.

117. Letter from James R. Delisle, Ph.D., Kent State University, letter to Roxana Cook (Aug. 5, 1997) (on file with author). After discussing areas of concern within the universal service provision, Delisle concluded, "Some of us remember manual typewriters, slide rules and teachers who would not allow calculators in math class; to deny this generation the tools of the 21st century—computers, software, and people who know how to use both—is a shortsighted approach to intellectual and academic growth." *Id*.

118. *FCC Universal Serv. Hearing*, *supra* note 102 (testimony of Richard W. Riley, Secretary of Education).

119. McKinsey Report, *supra* note 103, at 23. The "Partial Classroom" model represents a plan to connect half of each school's classrooms, at a ratio of five students per computer, within five years. A school would begin deployment with teachers experienced in the relevant technology, while remaining faculty participated in training.

120. Recall that, in order to apply for discounted services, a school administrator must submit a technology assessment that includes the relevant experience and training of faculty. *See supra* text accompanying note 70.

121. McKinsey Report, *supra* note 103, at 44.

122. 141 Cong. Rec. S7981 (daily ed. June 8, 1997) (statement of Sen. Snowe).

123. *Id.* at S7974 (statement of Sen. Rockefeller).

124. *Id.* at S7980 (statement of Sen. Rockefeller).

125. *Id.*