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March 10, 2006

The Honorable Kevin J. Martin
Chairman
Federal Communications Commission
Washington, DC 20554

Re: *Amendment of Parts 1, 21, 73, 74 and 101 of the Commission's Rules to Facilitate the Provision of Fixed and Mobile Broadband Access, Educational and other Advanced Services in the 2150-2162 and 2500-2690 MHz Bands – WT Docket No. 03-66*
WRITTEN EX PARTE COMMUNICATION

Dear Chairman Martin:

The Commission is evaluating a proposal by some within the Educational Broadband Service ("EBS") community to reinstate the former fifteen year maximum permissible term of any lease of EBS spectrum. The Wireless Communications Association International, Inc. ("WCA") and a wide range of 2.5 GHz broadband system operators and EBS licensees oppose that proposal because a fifteen year term is simply too short to allow an adequate return on the multi-billion dollar investment needed to fully develop the 2.5 GHz band. WCA has explained that reimposing a fifteen year maximum term limit would be contrary to the policies underlying the Commission's *Secondary Market* policies and will drive investment to other spectrum bands to the detriment of the very educators that the proposal purports to benefit. There is no valid policy reason for that to occur – EBS licensees are well-equipped to negotiate leasing arrangements that fully protect their current and future educational needs, and lessees are willing to accommodate those needs, without arbitrary "one size fits all" Commission restrictions.

In an effort to provide empirical evidence to assist the Commission in understanding the practical impact of a fifteen year lease term, WCA commissioned Dr. Michael Pelcovits, a principal in the consulting firm MiCRA, Inc. and former Senior Staff Economist in the Commission's Office of Plans and Policy, to evaluate the impact of lease terms on investment in the 2.5 GHz band. A Declaration from Dr. Pelcovits setting forth his conclusions is attached. As you will see, Dr. Pelcovits has utilized an economic model to examine the cash flows of a potential entrant in the wireless broadband arena utilizing leased 2.5 GHz band spectrum, and concludes that a fifteen year term limit "will reduce significantly the value of the spectrum" to potential lessees to the point that "there are likely to be a wide range of conditions under which

the [potential lessee] would not be willing to invest in a wireless system even at a zero lease price and incur the risk of stranded investment after fifteen years."[1] Indeed, Dr. Pelcovits finds that "[a]ny lease period shorter than 35 years will expose the investor to a substantial possibility of earning inadequate returns on investments," depending on the circumstances.[2] He establishes that "[t]erm limits are not in the public interest," that they "limit the utility of the spectrum to potential lessees," "reduce the likelihood that the spectrum will be put to its best use," and "are unnecessary and counterproductive to achieving the [Commission's] educational goals."[3] Accordingly, he recommends that the Commission:

> allow the negotiations between the license holders and the potential lessees to move ahead without an artificial constraint on the terms of a lease. This will allow leasing arrangements that put the spectrum to its highest and best use and redound to the benefit of all parties, i.e. the public, educational institutions, and commercial carriers.[4]

In short, Dr. Pelcovits' analysis confirms that the Commission's decision in the *Report and Order* in this proceeding to apply the unrestricted leasing framework of the *Secondary Markets* proceeding to the 2.5 GHz band (thereby eliminating the former limit on the maximum term of an EBS lease) maximizes both the educational and broadband deployment objectives which formed the underpinnings of this proceeding. His results support the conclusion that a fifteen year maximum lease term will substantially reduce investment in the band, and that even a 35 year maximum lease term may prove problematic under certain scenarios. He establishes that EBS lease terms are totally unnecessary because each EBS licensee can maximize its own benefits through fully-negotiated arrangements with prospective lessors.

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[1] *See* Declaration at ¶ 10.

[2] *See id.* at 16 n.9.

[3] *Id.* at ¶¶ 4-5.

[4] *Id.* at ¶ 52.

Pursuant to Section 1.1206(b)(1) of the Commission's Rules, a copy of this letter is being filed electronically through the Electronic Comment Filing System.

Respectfully submitted,

/s/ Paul J. Sinderbrand

Paul J. Sinderbrand

Counsel to the Wireless Communications Association International, Inc.

Attachment

cc: Hon. Michael J. Copps
Hon. Jonathan S. Adelstein
Hon. Deborah Taylor Tate
Fred Campbell
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Joel Taubenblatt
John Schauble
Leslie Marx
Evan Kwerel
Walter Strack
Wayne Leighton

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

In the Matter of	)	
	)	
Amendments of Parts 1, 21, 73, and 101 of	)	WT Docket No. 03-66
The Commission's Rules to Facilitate the	)	
Provision of Fixed and Mobile Broadband	)	
Access, Educational and Other Advanced	)	
Services in the 2150-2162 and 2500-2690	)	
MHz Bands	)	

DECLARATION OF DR. MICHAEL D. PELCOVITS

I. INTRODUCTION

1. My name is Michael Pelcovits. I am a principal in the consulting firm MiCRA, Inc. My business address is 1155 Connecticut Avenue, Washington, D.C. 20036. I joined MiCRA in October 2002. Since joining MiCRA, I have filed several declarations before the Federal Communications Commission on a wide range of common carrier, wireless, and international telecommunications policy issues. Prior to my employment at MiCRA, I was Vice President and Chief Economist at WorldCom. In this position, and in a similar position at MCI prior to its merger with WorldCom, I was responsible for directing economic analysis of regulatory and antitrust matters, before federal, state, foreign, and international government agencies, legislative bodies, and courts. Prior to my employment at MCI, I was a founding principal of the consulting firm, Cornell, Pelcovits & Brenner. From 1979 to 1981, I was Senior Staff Economist in the Office of Plans and Policy,

Federal Communications Commission. I have testified or appeared before the Federal Communications Commission, many state regulatory commissions, the Office of Telecommunications (Oftel) of the UK government, the European Commission, the Ministry of Telecommunications of Japan, and the Civil Aeronautics Board. I have lectured widely at universities and published several articles on telecommunications regulation and international economics. I hold a B.A. from the University of Rochester (*summa cum laude)* and a Ph.D. in Economics from the Massachusetts Institute of Technology, where I was a National Science Foundation fellow.

2. I have been asked by the Wireless Communications Association International ("WCA") to analyze the economic effect of term limits on spectrum leases in the EBS bands. In order to conduct this analysis, I have conducted several discussions with industry engineering and business personnel, reviewed a variety of industry publications, and read relevant FCC rules and orders.

3. At present there is some controversy concerning the rules governing lease terms in the EBS bands. Some parties advocate a 15-year limit on leases of this spectrum. Any renewal of the lease would be at the option of the licensee, so whether there would be continued access to the spectrum, and the financial terms of any access would be uncertain at the time the initial lease was signed.[1] From an economic standpoint, this means that the lessee would face significant risk

[1] Although leases are limited by the term of the spectrum license, parties may enter into leases that provide for renewal terms that will commence automatically subject only to renewal of the license by the Commission. For purposes of the economic analysis of this paper, I will treat automatic renewals as an extension of the length of the original lease.

with regard to the profitability of investments with an economic life longer than 15 years.

4. Term limits are not in the public interest. Constraints on lease terms will limit the utility of the spectrum to potential lessees and reduce the likelihood that the spectrum will be put to its best use. In the section below, I present an economic analysis of the potential effect of lease term limits on investments in fixed and mobile broadband facilities in the 2.5 GHz bands. Based on this analysis, I then discuss the likely public interest benefits from greater investment and utilization of the 2.5 GHz bands.

5. Because this spectrum has been assigned to educational institutions to enable them to provide instructional programming, it is critical to consider the possible effect of term limits on these educational objectives. Limits on the length of leases for this spectrum are unnecessary and counterproductive to achieving the educational goals. To the extent a station licensee does not want to offer a long term lease in order to preserve more spectrum for its own use, there is nothing compelling it to do so. On the other hand, to the extent that a long term lease will help generate substantial additional funding for the educational institution, this will help promote the goals established by the Commission. Therefore, the educational and commercial goals for use of this spectrum are in harmony. The last two sections of this declaration address these public interest issues as well as other points raised by parties favoring term limits.

II. ECONOMIC BENEFITS OF LONGER LEASE PERIODS

6. Many transactions involve a long-term commitment in order to protect the interests of the parties. Commitments can take many forms, such as leases on real property, long-term sales contracts, or franchise agreements. The alternative to a long-term commitment is repeated bargaining at the end of each contract period. The economic rationale behind long term contracts is that "when exchange involves significant *relationship-specific capital*, an exchange relationship that relies on repeated bargaining is unattractive."[2] The reason is that once the investment is sunk into the "relationship-specific capital," the party that has made the investment can be subjected to "hold-up" or opportunism by the other party to the exchange. Once the lessee has invested in the property, he could be forced to pay far more than the normal market value to renew the lease, because of the sunk cost investments that are tied to the property. The only two alternatives to renewal are either to shut down operations or pay the full cost of moving operations to a new location, including making additional investment at the new property. In order to avoid the potential for hold-up, the two parties will enter into a long-term agreement that specifies the terms of the exchange sufficiently far into the future to protect the long-term value of these sunk investments.

7. The key factor affecting the importance and length of long-term contracts is the size of the relationship-specific capital, relative to the total cost of the transaction. One of the categories of relationship-specific capital discussed in the economics

[2] Paul L. Joskow, "Contract Duration and Relationship-Specific Investments: Empirical Evidence from Coal Markets," *The American Economic Review 77, March, 1987*, at 169 (emphasis added).

literature is "physical asset specificity," which occurs when one or both of the parties make investments that are worth less in alternative uses (either because of the high cost of moving the assets or because there is no good alternative use for the assets).[3] Conversely, when investments are easily transported to another location, or can serve an alternative use, it is not necessary to enter into a contract that matches the economic life of the investment.

8. One example that highlights this economic relationship is the leasing of land for real estate development. A developer will be very reluctant to build a large office building on land that is leased for only a short period of time relative to the expected life of the building. Thus, unimproved land is usually leased by the owner to the developer for a period of at least 50 years.[4] Real estate leases must "allow sufficient time for return of capital invested and amortization of debt," and indeed lenders are reluctant to finance projects unless the term of the lease is at least as long as the amortization period on the debt.[5] Further, the lease must allow for the delay imposed by the construction period, which can expose the developer to additional risk.[6] To accommodate these different factors, ground leases to developers, including options to renew, may be as long as 99 years.[7]

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[3] Oliver E. Williamson, "Credible Commitments: Using Hostages to Support Exchange," *The American Economic Review 73*, September, 1983.
[4] David Dale-Johnson, "Long-Term Ground Leases, the Redevelopment Option and Contract Incentives," *Real Estate Economics* 29, Fall, 2001.
[5] Id., at 455.
[6] S.R. Grenadier, "Equilibrium with Time to Build: A Real Options Approach," *Project Flexibility, Agency, and Competition: New Developments in the Theory and Application of Real Options*, Brennan and Trigeorgis, editors, Oxford University Press, 1999.
[7] Id.

9. By contrast, most tenants will enter into leases for periods of time, e.g. five years, much shorter than the life of the building. The reason for this is simple. Tenants will not sink much money into the building relative to the amount of the lease, and therefore will have many alternatives to renewing their lease. Therefore, the building owner cannot hold up the tenant at the end of the lease. Similarly, the building owner cannot be held-up by the tenant, because there are many prospective tenants always shopping for new space. With limited possibility of opportunistic behavior from either party to the transaction, there is no compelling reason for a long term contract relative to the economic life of the asset.

A. Economic Model

10. In this section, I describe a stylized model of a company investing in and operating a 2.5 GHz wireless system to show the significance of the length of a lease to the company's decision on whether to make the investment. As the model will show, capping the length of the lease at 15 years will reduce significantly the value of the spectrum to the company. At a minimum, this means the company would not be willing to pay as much (per year) for lease of the spectrum, which will be detrimental to an EBS licensee that wishes to lease the spectrum for longer than 15 years. More important, there are likely to be a wide range of conditions under which the company would not be willing to invest in a wireless system even at a zero lease price, and incur the risk of stranded investment after fifteen years.

11. The approach to modeling this investment problem is to estimate cash flows for a hypothetical firm operating in the 2.5 GHz bands. The model analyzes the case of a firm operating solely on leased spectrum. The model results are stated entirely on a per-POP basis, which can be interpreted in two ways. The simplest way is to see this as a test of whether firm operating entirely on leased spectrum will be profitable if the lease is limited in length to 15 years. Alternatively, for a firm that operates using a combination of leased and licensed spectrum, the firm's profitability will depend on the percentage of capacity that is leased. How this will affect the firm's investment decision will depend on many factors, including whether the firm can enter selectively in the geographic markets where capacity is licensed, rather than leased.

12. As just stated, the model is scaled on a per-POP basis. This means that investment is scaled to the number of POPs. (This is a simplifying assumption, since it ignores issues relating to the specific design of a system in a particular geographic market.) In addition to up-front investment in the network, I assume that the additional investments will be needed over time to increase capacity and update technology. I assume that this ongoing investment is not needed during the first four years of the project.

13. All other inputs to the model, including the carrier's recurring revenues and costs, are a function of the number of subscribers. Finally, the number of subscribers at any point in time is expressed on the basis of the penetration rate in the market, which I assume grows over time. I assume that penetration follows an "S-curve," which is a traditional mathematical form used in the economics and marketing

literature. This means that penetration starts out slowly, accelerates rapidly for a few years, and then begins to level off. The exact specification of the S-curve depends on two parameters, which I vary as part of testing the sensitivity of the model.

14. Some inputs to the model are fixed at a particular level. For other inputs, I have used a range of possible values, in order to test the sensitivity of the model to various conditions. The inputs values or ranges are:

Initial investment per POP:	$25
Assumed final penetration rate:	20%
Revenue per customer (monthly):	$21 to $33
Operating expenses:	50% to 75% of revenues
Corporate tax rate:	40%
Recurring Investment:	$4 per POP, beginning year 5
Discount rate:	16%

15. The model generates a cash flow statement for the firm. The outlays of the firm are the investments, expenses, and corporate taxes. Revenues are the only source of cash flowing into the firm. Cash flow will be negative in the first several years of the project and eventually turn positive as subscription grows and investment cost levels off. The yearly cash flow of the firm is then discounted to the present using the range of discount rates shown above, which are chosen to reflect the cost of capital used by firms for this type of investment. This yields the net present value ("NPV") of the project. Since the model is scaled on a per-POP basis, the NPV's will also be expressed on a per-POP basis. The traditional interpretation of this type of model is that the project is worth undertaking if the NPV is positive and not worth undertaking if the NPV is negative. However, if

there is a wide range of potential outcomes, with a substantial possibility that the NPV will be negative, the firm will require a significantly higher return on investment.[8]

16. The model provides two different NPV results, depending on what is assumed about the length of the spectrum lease. In Case #1 the lease terminates at the end of 15 years. In Case #2 the lease terminates at the end of 35 years. I have chosen the 35 year term because a lease must remain in effect long enough to allow the customer base to grow and to generate sufficient cash flow to offset initial losses. Any lease period shorter than 35 years will expose the investor to a substantial possibility of earning inadequate returns on investment.[9]

17. The model reasonably assumes that equipment and infrastructure developed and deployed in the specific 2.5 GHz channels available for lease is not capable of cost-effective redeployment. The highly limited utility of repurposing previously deployed equipment upon expiration of an EBS lease will arise from any number of factors, including but not limited to the availability of alternative spectrum, the need for specific frequency separations to achieve a specific FDD deployment scenario, differences in geographic service areas among different EBS licensees, and the human and capital cost of deconstruction, relocation, or reconfiguration

[8] The model could be adjusted for the higher risk of a project by using a higher discount rate. This would lead to a commensurate reduction in the NPV's calculated by the model.
[9] As shown below, there is a one-third probability that the investor will earn a return below 16%, even with a 35 year lease. For any lease length shorter than 35 years, the probability of an inadequate return will be even higher, which likely would make the investment unattractive to most investors.

Therefore, the assignment of a zero terminal value to the project at the end of the leasing periods should not be far off the mark for business planning purposes.

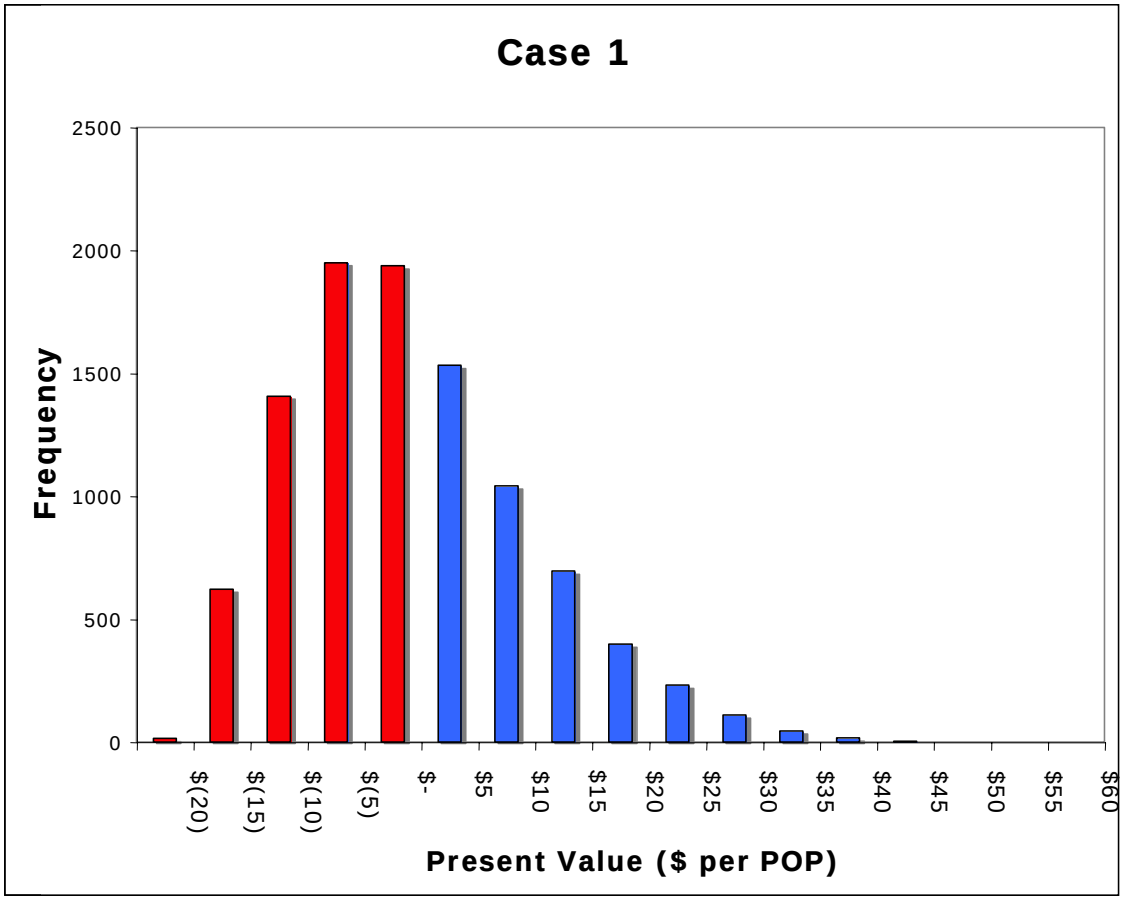
18. The cost of leasing the spectrum is not included as an expense in the model. The reason for this is that the price tag for the lease will depend on the profitability of the project. If the project were projected to be barely profitable (exclusive of the cost of the lease), then the spectrum will not command a very high leasing fee. If, on the other hand, the project were projected to be more profitable (exclusive of the cost of the lease), then more will be paid to the licensee. In any event, unless the net present value is positive, it will not be in either the carrier's or the licensee's interest to pursue a spectrum lease and build out a commercial system.[10]

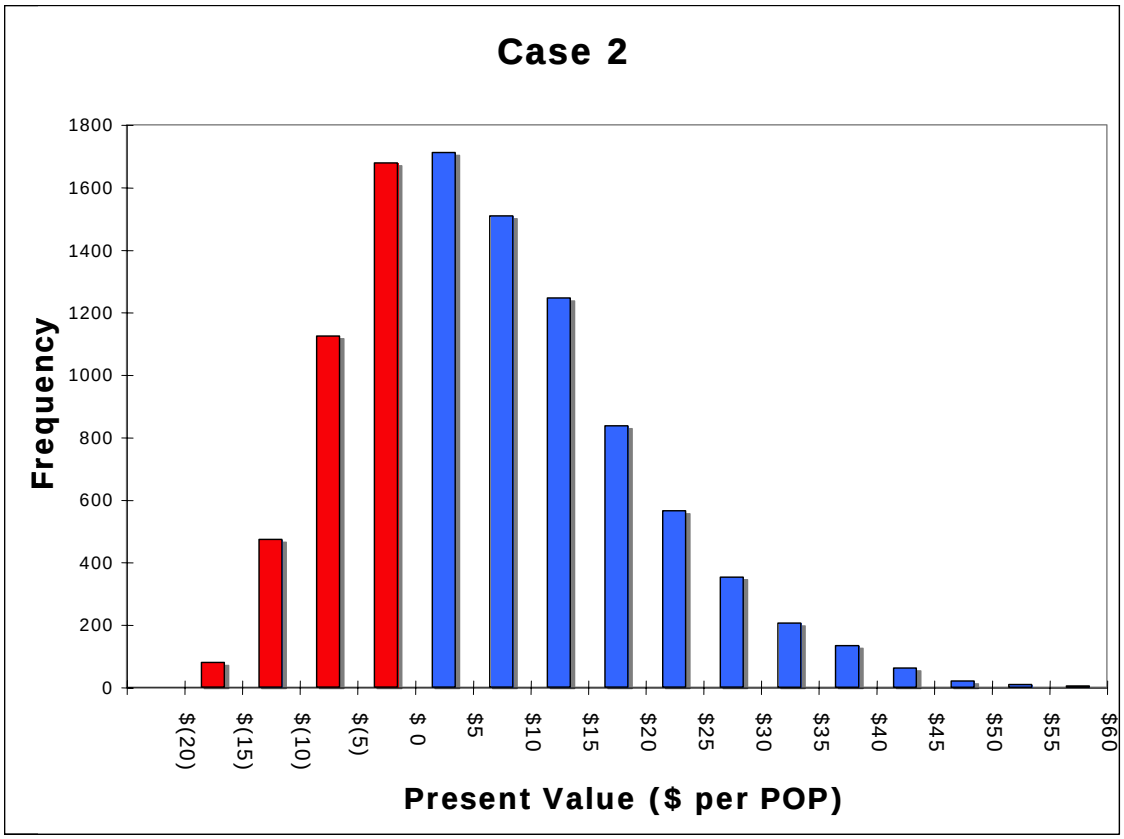
19. As mentioned above, I specified a range of values for several of the model's inputs in order to test the sensitivity of the results to the inputs. This is important because the goal of the model is to understand the effect of lease term limits under a wide range of circumstances. This will help capture the conditions faced in different geographic markets and by different carriers with a variety of business models.

20. I ran the model 10,000 times for each of the two cases using a Monte Carlo technique, which randomly selects values for each of the inputs within the

[10] In economic terms, the net present value of the cash flow should be interpreted as the combined capitalized value of the spectrum plus the value of the project to the carrier in excess of the cost of capital. I do not attempt to separate the two components of NPV, but it must be sufficient to compensate for the opportunity cost of the spectrum and the opportunity cost of the carrier's resources that are not captured directly in the cash flows.

specified ranges. Each individual run of the model yields a value for the NPV of the investment on a per-POP basis. The distribution of the model runs for the two cases are shown in the two graphs below. The horizontal axis measures NPV per-POP, with negative outcomes shown in red. The vertical axis measures the frequency of model results at different ranges of NPV's.





21. The way to interpret the graph is to look at the proportion of total runs with outcomes in a particular range. For example, in Case 1, approximately 2000 of the 10,000 runs yield an NPV between $0 and negative $5. This implies there is a 20% probability (2000 ÷ 10000) that the investment will yield an NPV between $0 and negative $5.

22. It is also possible to compute the probability that the NPV will fall within a broader range (encompassing more than one bar on the graph). For example, the probability of a negative NPV is equal to the sum of frequencies for all bars in ranges below zero, divided by 10000. For Case 1, this probability is the sum of the five red bars divided by 10000, which is approximately 59%. By comparison,

in Case 2, the majority of the area is above a zero NPV. However, there is a substantial probability (approximately 34%) that the value of NPV will be below zero. The investor in this project, therefore, would require a significant expected return on investment, to compensate for the risk of a bad outcome.

23. The table below shows summary statistics for the NPV's in the two cases. The mean value of NPV is negative $1 per POP for Case #1 and positive $6 per POP for Case #2. The range of NPV's is quite large as shown by the graphs and as indicated by the standard deviation of $10 for Case #1 and $12 for Case #2.

	Case #1	*Case #2*
Mean Value	- $1	$6
Standard Deviation	$10	$12

24. The model demonstrates that the length of the lease has a very powerful effect on the profitability of an investment in the 2.5 GHz band. The difference between the NPV's of Case #1 and Case #2, which averages $7 per-POP, is large enough to turn a potentially profitable investment into an unprofitable one. And given the inherent risk of these investments, it is reasonable to expect the carriers to be reluctant to make an investment when there is a substantial probability that the NPV will fall below zero.

25. There are three main reasons explaining these results. First, investment in relationship-specific capital is large relative to total costs. Much of the cost of building and operating a broadband network in the 2.5GHz spectrum will be

sunk-cost investments, which require a payoff over much longer than 15 years to be profitable. Second, there are large up-front costs of providing coverage to a large footprint, and the economies of scale with respect to these costs are significant -- meaning that the costs on a per-customer basis will be much lower, the larger the number of customers served by the network. These costs cannot be recovered unless the network is utilized by a substantial number of customers in the coverage area. Third, because it takes time for a new broadband network to attract a large base of customers, the network will not be used efficiently at first. The network will not reach a breakeven point until customer penetration is large enough to take advantage of the economies of scale in the network. And when that point is reached, it will take even longer to offset losses incurred during the project's initial years.

B. Public Interest Benefits

26. Removing obstacles to investment will yield many benefits to the public and serve the Commission's dual objectives of "moving spectrum to its highest-valued use" as well as promoting education.[11] Investment in broadband infrastructure over the 2.5 GHz spectrum would enable customers to access a wide range of broadband services over an advanced wireless network, and benefit the general public and the educational community. The educational community will benefit from the lease payments and the possibility of sharing network infrastructure with commercial customers. The general public will gain from several categories of new and added services made possible by new investment. First, it would give

[11] Report and Order and Further Notice of Proposed Rulemaking, WT Docket No. 03-66, July 29, 2004, ¶160.

customers the added flexibility of wireless access to the services they now receive over DSL or cable modems. Second, it would enable new services, such as interactive multimedia services, to be provided efficiently. Third, it would bring an additional competitor into broadband markets, which are now served by, at most, two underlying facilities-based providers.

27. Customers attach great value to the flexibility of mobile wireless communications compared to the traditional fixed wireline services. This is evident from the dramatic increase in wireless voice traffic and the higher prices customers are willing to pay for the mobile broadband services now offered in the marketplace. Construction of new 2.5 GHz wireless networks would provide great value to consumers who seek mobile access to a wide range of Internet-based services, such as email, file-sharing, and remote database access. The large amount of spectrum potentially available in the 2.5 GHz bands would increase the total capacity of broadband wireless networks well beyond the bandwidth now available on the traditional cellular and PCS bands.

28. The second benefit of increased availability of long term leases for 2.5GHz spectrum would be to encourage new and innovative services, e.g., data-centric services contemplated by Sprint/Nextel that would focus on stationary and portable consumer electronic and computing-oriented devices and hardware.[12] These wireless interactive multimedia services would enable consumers and business to interact with high bandwidth applications through visual-centric services, such as video-on-demand, online gaming, document collaboration, and

[12] Sprint/Nextel, Application for Transfer of Control.

video conferencing. As with any new business venture, there are many risks involved in moving from the drawing board to the market. Risk has a substantial effect on the likelihood that a particular investment will be made. It is a fundamental principal of the finance literature that "other things being equal, risky projects are less desirable than safe ones."[13] Therefore, financial managers will thus demand "a higher rate of return from risky projects."[14] There are several ways to adjust a capital budgeting analysis to account for added risk,[15] but they all yield the same result: a risky project will not be undertaken unless expected revenues and profits are sufficient to offset the additional risk. The additional risk that leased spectrum will not be available to meet the long-term needs of the business plan can undermine the viability of the business strategy and deny consumers the benefits of these new services.

29. The third benefit of increased availability of long term leases on this spectrum is that it would bring an additional competitor to markets now served primarily by DSL and cable broadband providers. Bringing either a second or third facilities-based provider into the market will increase price competition and benefit all users.

30. As the FCC has previously noted, cable companies do not typically serve the enterprise business market, concentrating instead on residential areas and small

[13] Richard A. Brealey and Stewart C. Myers, *Principles of Corporate Finance, 7th Edition*, McGraw-Hill, 2003, at 221.
[14] Id.
[15] Id., at 239. E.F. Fama "Risk-Adjusted Discounts Rates and Capital Budgeting under Uncertainty," *Journal of Financial Economics* 5, August 1977.

businesses located near their residential networks.[16] The cable companies have placed cables that pass 108.2 million, or 98.7 percent, of the 109.6 million homes with televisions nationwide, as of the middle of 2005.[17] Of these, 103.3 million (94.3 percent of homes with television) of these homes are equipped to receive cable broadband service.[18]

31. The incumbent local exchange companies (ILECs) have plant in place to serve very nearly all homes within their service territories, but not all of this plant is capable of providing DSL service. Generally, the ILECs state that customers must be within 18,000 feet of a central office before they can receive DSL service. For this reason, DSL is available to only about 80 percent of residential customer locations. Expanded investment in broadband plant in the 2.5 GHz range could therefore provide service in areas that either DSL or cable modems currently do not serve.

32. Even in areas where both cable modems and DSL currently provide broadband service, the presence of another facilities-based provider would result in further market discipline on prices and service levels. Two firms in a market, i.e. a duopoly, are generally insufficient to bring about a competitive outcome. Evidence of the value of adding additional providers to a duopoly can be found in

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[16] See *Unbundled Access to Network Elements; Review of the Section 251 Unbundling Obligations of Incumbent Local Exchange Carriers*, WC Docket No. 04-313, CC Docket No. 01-338, Order on Remand, 20 FCC Rcd 2533 at ¶193 (Triennial Review Remand Order). Available online at http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-04-290A1.doc.

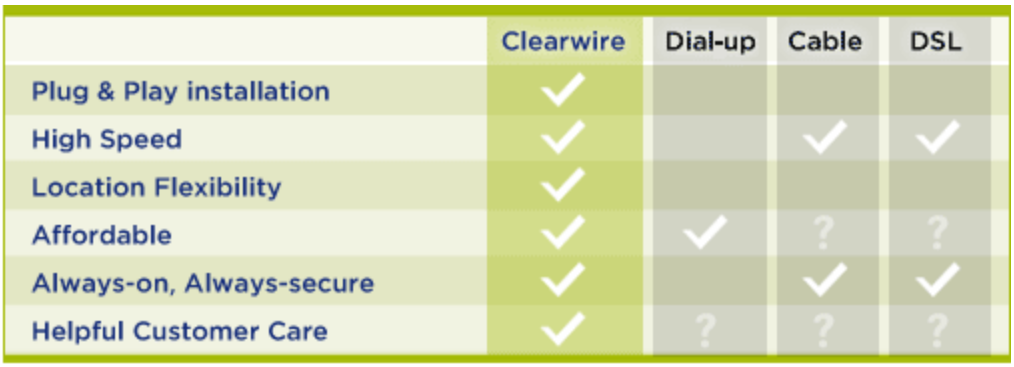
[17] See *2005 Mid-Year Industry Overview*, National Cable and Telecommunications Association, Chart 13, page 23. Viewed September 27, 2005 at http://www.ncta.com/industry_overview/CableMid-YearOverview05FINAL.pdf.

[18] Id. at page 9, Chart 5.

the wireless telephone market. Initially, the Commission provided two cellular telephone licenses, one to the incumbent local exchange carrier and one to another carrier. Later on, the Commission licensed spectrum for Personal Communications Service (PCS). There is abundant evidence that the licensing of additional wireless providers led to lower pricing in the market, which benefited customers of all carriers, not just the customers of the new entrants.[19] Between 1995, when PCS spectrum was first auctioned and 1998, when PCS spectrum was mostly built out, wireless prices declined by 32 per cent.

33. A similar boost in consumer benefits can be expected from the increased availability of broadband services using the 2.5GHz spectrum. Increased availability of long term leases would allow more companies to enter the market and compete head-to-head with the ILECs and cable companies, as Clearwire, for instance, is already doing in a several markets. Clearwire initiated service in 2004 and is now serving 26 markets in Alaska, California, Florida, Hawaii, Idaho, Minnesota, North Carolina, Oregon, Texas, Washington and Wisconsin. Clearwire uses non-line-of-site wireless technology in the 2.5 band, and provides broadband service positioned to compete directly with cable broadband and DSL, as shown in the attached table found on the Clearwire website.[20]

[19] See, FCC Trends in Telephone Service, April 2005, www.fcc.gov/Bureaus/Common_Carrier/Reports/FCC-State_Link/IAD/trend605.pdf)
[20] http://www.clearwire.com/store/why_compare.htm



34. The importance of adding a third firm (or more) to a market presently controlled by only two firms is explored and modeled in the economic literature. According to the most widely-used economic model of oligopolies, the addition of a third firm can be expected to increase total output in the market by approximately 13 per cent.[21] Prices will correspondingly fall a similar or even larger percentage (depending on demand elasticity). For example, if the elasticity of demand for broadband service is 1.5, prices could be expected to fall by about 20% in response to the entry of a third facilities-based competitor in a market.[22]

35. The Commission declined to require either cable companies or the ILECs to make their broadband services available on a wholesale basis precisely in order to encourage additional facilities-based providers of those services. Clarifying the availability of long leases in the EBS bands would encourage additional facilities-based competitors to enter the market for broadband services. This entry would provide additional market discipline for existing services, and would enable the

[21] Stephen Martin, *Advanced Industrial Economics*, Blackwell Publishers, 1993, at 32.
[22] Demand elasticity of 1.5 is on the low end of the range estimated by Goolsbee. See, Austan Goolsbee, "Subsidies, the Value of Broadband, and the Importance of Fixed Cost," in *Broadband: Should We Regulate High-Speed Internet Access?* Ed. Crandall and Alleman, Brookings Institution, 2002.

provision of new and innovative services that are not being provided by the market today.

III. LIMITS ON LEASE TERMS DO NOT SERVE EDUCATIONAL PURPOSES

36. The presumption of economic analysis is that imposing constraints will reduce economic efficiency. The constraint should only be imposed if it is necessary to achieve a particular policy goal, and even then the constraint should be selected as carefully as possible to minimize economic distortions. In the case of the EBS, the Commission already forbids the sale of the spectrum license to a commercial entity, requires every educational licensee that leases capacity to reserve a portion of the spectrum for its own educational uses, and affords licensees the flexibility to negotiate a variety of provision that will accommodate anticipated changes in their educational needs over the term of the lease. The additional constraint on lease terms is unnecessary and possibly counterproductive, as I explain below.

A. Goals of the Commission

37. In its recent Order dealing with the 2.5 GHz spectrum, the Commission reiterated its longstanding commitment to using the EBS spectrum to further the educational objectives that led to the establishment of ITFS.[23] The Commission held "that the EBS service provides critical educational services such as web-based and streaming video for instruction in adult literacy and basic skills, emergency and

[23] Order, ¶152.

medical and fire services, law enforcement, and corrections, "[24] and therefore the eligibility requirements for this spectrum should be retained.

38. At the same time, the Commission also rejected the "view that the Commission's public interest goal of moving spectrum to its highest-valued use conflicts with the goal of promoting education."[25] This is a very cogent statement of the underlying economic forces that affect this market. Retention or reinstatement of restrictions on term leases will undoubtedly prevent the highest-valued use of the EBS spectrum, while at the same time doing absolutely nothing to advance educational goals, or possibly working in conflict with these educational goals.

B. Benefits to educational institutions from obtaining greater value for leased spectrum

39. The most obvious educational benefit from eliminating constraints on lease terms is that it will increase the financial support available to educational. Spectrum subject to an arbitrary term limit will be worth less to potential lessees and command a lower lease price, or not be leased at all. Arbitrary term limits have the potential to deny some educational institutions any revenue from spectrum leases, if they create too much risk for potential lessees. At best, the term limits will only reduce lease payments, but by a substantial amount.

40. Educational institutions have leased spectrum in the past and used the funds to construct stations and develop educational programming.[26] Increased funding

[24] Id. ¶152
[25] Id. ¶160.
[26] NPRM, ¶113.

from more attractive leases could certainly be used to fund additional educational programs and capabilities. These funds could be used to increase programming on EBS stations, or to support educational uses relying on other transmission media. For example, the Indiana Higher Education Telecommunications System (IHETS) began service using 13 IFTS transmitting stations and leased microwave circuits. Over time, IHETS migrated its video network to fiber optic circuits, satellite delivery, and most recently to web-based conferencing.[27] An educational institution's ability to adapt to new technology is critical to expanding the reach and capability of its programming. It also requires a long-term financial commitment on the part of the educational institution, which can be offset by revenue from long-term leases on EBS spectrum licensed to the institution.

41. The Commission will still be able to monitor whether the EBS spectrum is serving the goals it has established for this spectrum. Licenses must be renewed every ten years, and the failure of the licensee (or the lessee) to comply with the terms of the license would be grounds for non-renewal. Since the lease term is in all events dependent upon license renewal, the licensee and the lessee would both have a powerful incentive to comply with the Commission's requirements.

C. Benefits from sharing infrastructure built by commercial carrier

42. An additional benefit from increased investments in the 2.5 GHz band is that educational institutions could piggy-back their transmissions on the commercially-developed systems. The Catholic Television Network and the National ITFS Association made this point previously in this Docket:

[27] http://www.ihets.org/progserv/video/

> In a broadband or mobile environment, an ITFS licensee may wish to lease a significant portion of its spectrum to a commercial operator, and piggy-back its educational use on that system, rather than attempting to operate a stand-alone system…Thus, leasing the maximum amount of channel capacity permitted by the Commission's rules may result in that spectrum being put to its highest and best use through the creation of shared networks.[28]

These comments capture the powerful economic concept of economies of scale. Namely, putting this valuable spectrum to its highest and best use may require commercial investment in systems that have substantial capacity, which can then be used at low marginal cost by educational institutions. What CTN and NITFSA fail to acknowledge, however, is that the commercial investment in these networks, which can serve commercial and educational uses, is itself dependent on giving the investor the opportunity to obtain a return on investment over a long period of time. Absent this opportunity, the commercial hand that feeds the educational services may be withdrawn.

IV. ARGUMENTS IN FAVOR OF LIMITS DO NOT REFLECT PUBLIC INTEREST CONSIDERATIONS

43. The licensees in the EBS band are experienced at making decisions with significant financial and operational consequences. This includes decisions where long-term valuation of property or other assets are a key consideration. There is no reason to presume that they do not have the experience or capability to make similar decisions with respect to the leasing of their EBS spectrum licenses.

[28] Joint Comments of the Catholic Television Network and the National ITFS Association, WT Docket No. 03-66, September 8, 2003, at 11-12.

44. The holders of these licenses range from large universities, including Harvard and the University of Southern California, to smaller community colleges, to Catholic dioceses, to individual school districts. Each of these types of institutions makes business decisions every day, regarding endowment funds, budgets, land use, and building plans. These parties are all large enough to enable them to make these business decisions for themselves, and are capable of deciding whether to engage in a long term lease of EBS spectrum and, if they do, how to best meet anticipated changes in their educational needs over the term of the agreement.

45. The large universities that hold these licenses clearly are well capable of making such business decisions. For example, universities generally have substantial endowments that they manage. The table below shows the size of the endowments of a sample of universities that hold EBS licenses.[29]

	2004 Endowment ($ Millions)
Harvard University	22,144
University of Southern California	2,400
University of Colorado	500
University of Arizona	348
Arizona State University	248

46. Even the smaller universities face multi-million dollar decisions regarding the allocation of their endowment funds. Furthermore, virtually all educational or

[29] Data are taken from a list compiled by the National Association of College and University Business Officers. See http://www.nacubo.org/documents/research/FY04NESInstitutionsbyTotalAssetsforPress.pdf.

other non-profit institutions employ financial and business administrators, which are trained and experienced in making these types of decisions. For example, a recent job announcement for the chief financial officer's position at a mid-sized university listed among the qualifications:

> The position also requires extensive knowledge and experience of accounting, budgeting, business operations, investments, capital projects, financial planning and reporting…"[30]

These are precisely the qualifications needed to make decisions on lease terms for spectrum licenses held by an educational institution.

47. The community colleges that hold EBS spectrum licenses, while smaller than these large universities, are also capable of making their own business decisions. For example, Oakton Community College in Chicago (licensee of station WHR498) has an annual budget of about $66 million, and $61 million of capital assets (such as land and buildings), net of depreciation, and another $76 million of other financial assets.[31] The college also completed construction of a $14.9 million addition to its Art, Science, and Technology Pavilion in fall of 2005. Community colleges such as this one are sizable business concerns, with substantial experience in managing and using assets. They will be able to negotiate and monitor contracts for leasing this spectrum and comply with the goals and requirements of the Commission to use the funding for educational programming or other allowable purposes.

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[30] Position Description, Vice Chancellor for Finance & Administration, Winston-Salem State University, *The Chronicle of Higher Education,* http://chronicle.com/jobs/id.php?id=0000444106-01

[31] See Oakton's Comprehensive Annual 2005 Financial Report, available online at http://www.oakton.edu/resource/fin/2005CAFRcomplete.pdf.

48. The Catholic dioceses that hold these spectrum licenses are also entities with large annual budgets and asset holdings, well capable of handling such business transactions as negotiating long term leases. For example, the Chicago archdiocese (licensee of stations WAC262 and WAH800) has an annual budget of $621 million dollars, and holds land worth $155 million and buildings worth $1.4 billion.[32] Its financial statement also notes that it has contractual commitments on construction and pending sales of approximately $51 million, and has contracts for all its natural gas and electricity needs through March 2007 and December 2006, respectively. Clearly, entities such as this are also able to handle the commercial negotiations that will be needed for setting long-term leases for this spectrum.

49. Finally, even the individual schools that hold these spectrum licenses have substantial business experience. For example, the Niles Community Schools in Benton Harbor, Michigan (licensee of station WND428) recently concluded a review of its facility needs, and determined to propose a $108 million project to build a new high school, close four older facilities, renovate four other existing schools, and build an addition and make other improvements to two other schools. To reach this conclusion, the school district consulted with a financial advisor to

[32] See the archdiocese's Combined Financial Statements as of and for the Year ended June 30, 2005 available online at http://www.archdiocese-chgo.org/pdf/annual_report/parishes_05.pdf.

assess funding sources. The bonds necessary to fund this project, which will have a term of over 30 years, are to go before the voters in February of 2006.[33]

50. Another holder of spectrum licenses is Twin Falls School District in Idaho (licensee of station WNC801). This district recently decided to propose a $49.7 million project to build a new high school, renovate the existing high school, and make other improvements to the junior high schools and several of its elementary schools. The bonds necessary to fund this project are scheduled to go before the voters in March of 2006.[34]

51. As these two examples indicate, even smaller school districts are no strangers to long term, multimillion dollar projects. Leaving even these entities free to negotiate long term leases for use of their 2.5 GHz spectrum would not be overly burdensome, nor would it be beyond their abilities and experience in other commercial transactions. The Commission need not fear that the current spectrum holders would not be on an equal footing with commercial entities in the negotiation of long term leases.

V. CONCLUSION

52. Limits on the length of leases in the EBS bands add a large element of risk to the already significant business risks faced by the commercial carriers contemplating large investments in wireless infrastructure. The Commission should act promptly to clarify its rules in this matter and allow the negotiations between the

[33] See http://www.nilesschools.org/bondproposal/niles/PDF/Report%20and%20Recommendations.pdf.
[34] See http://www.tfsd.k12.id.us/tfsd/board.htm.

license holders and the potential lessees to move ahead without an artificial constraint on the terms of a lease. This will allow leasing arrangements that put the spectrum to its highest and best use and redound to the benefit all parties, i.e. the public, educational institutions, and commercial carriers.

53. Lease term limits are unnecessary to preserve the educational characteristics of the EBS bands. Educational institutions will continue as license holders and have the flexibility to use the spectrum themselves or lease the spectrum to commercial carriers and use the proceeds to fund educational programming. Each institution is in the best position to determine what is in its own best interests and the interests of its own constituency. These institutions are capable and experienced at making financial and operational decisions that affect the allocation of substantial resources. There is no reason to believe that there is a collective interest that should supersede or substitute for the good judgment of the license holders and the efficient workings of the marketplace.

/s/ Michael Pelcovits
Michael Pelcovits