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July 30, 1998

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The Honorable William E. Kennard
Chairman
Federal Communications Commission
Room 814
1919 M Street, NW
Washington, DC 20554

CC Docket Nos. 98-11, 98-26, 98-32, and 98-91

Re: Section 706 of the Telecommunications Act of 1996

Dear Chairman Kennard:

During the next few days, the Commission will consider and initiate a proceeding in response to the requirements in section 706 of the Telecommunications Act of 1996. The Economic Strategy Institute (ESI) is writing to convey its strong sense that this proceeding will be one of the most important initiatives the Commission has undertaken in implementing the broad policy directions of the 1996 Act. The determinations made now, in launching the proceeding, will help define the general perspective and the specific issues to be addressed by this and future Commissions, as the policy community searches for ways to ensure that government policies and rules do not discourage investment and suppress innovation in this critical sector. ESI is optimistic that the Commission will find ways, growing out of the 706 proceeding, to encourage, foster and promote adoption of new technologies and provision of new services, by recognizing the central role of government regulation in shaping private sector risk-taking proclivities.

ESI is well aware of the specific, and often conflicting, advice and solicitations received by the Commission in the past few months. Our purpose is less to advocate a particular resolution of the specific contentions raised in previous submissions to the Commission but, rather, to call your attention to some of our general concerns and to suggest a broad framework to assist the Commission in defining and implementing over the long run a coherent and effective "infrastructure" policy that will encourage investment and innovation as envisioned in the Act.

It is critical, we think, for the Commission to take an expansive and informed view of both its influence over risk-taking in the telecommunications marketplace and its responsibility to take account of its leverage over private-sector investment and innovation decisions. The Commission can do both by appropriately tailoring the 706 proceeding to assure that it addresses the full breadth and importance of the role of infrastructure policy in shaping the public interest in telecommunications markets, as well as the economic welfare of the nation.

Below, we set forth the perspective of the Economic Strategy Institute on the importance of this proceeding to the economy at large, then move on to address six main issue areas:

- principles of infrastructure policy
  - focus on maximizing total investment
  - ensure nondiscrimination among technologies and firms
  - ensure continued liberalization of entry into incumbent markets
- measuring investment and innovation activity
- identifying regulatory linkages to investment and innovation
- reconciling competition policies and infrastructure policies
- reconciling universal service and infrastructure policies
- identifying and implementing potential regulatory innovations

Economic Strategy Institute Perspectives on Section 706

Founded in 1989, the Economic Strategy Institute (ESI) has been driven from the beginning by the fundamental conviction that microeconomic policies have important macroeconomic implications. Thus, over the past decade, ESI has addressed a variety of specific policy issues in high-technology industrial sectors that are demonstrably critical to achieving our longer-term, broader national economic goals – global technology leadership, international competitiveness, economic growth, productivity advances, price stability and jobs.

Along with the Commission and many others, ESI has identified the telecommunications sector as a source of substantial leverage in driving and enabling development in other parts of the economy – the information technology sectors – and in promoting the economic welfare of the country as a whole. More so than in any other sector, we believe, the growth and productivity of telecommunications and information technology systems, services and products will govern the growth, shape and composition of the domestic economy .

FCC rules, in general, and what the Commission does in the context of its 706 obligations, more particularly, will be powerful drivers of the level and composition of investment in the telecommunications sector. In turn, the dynamism of the telecommunications sector has been widely recognized as a dominant force propelling and shaping growth and diversification in closely related upstream and downstream industries. Firms that supply the telecommunications industry with switches, cables and related equipment find their demand derived from the demand for, and supply of, advanced telecommunications services. It is likewise with industries that make use of telecommunications links: computer hardware and software, information services, and a whole range of downstream applications in health, education, financial services and, indeed, in the entire domain of electronic commerce.

The Commission is well aware of the existence of these relationships between the telecommunications markets it regulates and the broader information technology sector. We call attention to these linkages to make a simple point that is less well recognized. Growth and development of the information technology sector and the larger economy are dependent on FCC rules just as certainly as the telecommunications firms and markets directly implicated. Thus, the issues raised in the context of section 706, and their resolution, go well beyond the admittedly important, but nevertheless narrow, sectoral and firm interests of the principal and familiar contenders in post-Telecommunications Act proceedings.

In this proceeding, the Commission will be making not just telecommunications policy, but also substantially influencing the attainment of key goals of broader macroeconomic policy: overall economic growth, employment, productivity, price stability and international competitiveness.

The following discussion of the six issue areas identified above is keyed to this larger objective. We begin by setting forth some overriding principles that should govern the Commission's efforts to devise a coherent and enduring infrastructure policy.

Issue 1. Principles of Infrastructure Policy

Given the sketchy information about the current level and composition of investment, and given the uncertainty of the impact of alternative policy paths on investment and innovation (pending analyses of the type described below), we are generally reluctant to urge any particular policy program or specific rule changes. The Commission has received a variety of representations from traditional carriers, entrants and other interested parties on specific issues dealing, for the most part, with issues now before the Commission in other proceedings. In contrast, we want to commend a set of guidelines that we think ought to govern and help define the Commission's search for, and prescription of, rules designed to advance the goals of 706, and generally to encourage innovation and investment in telecommunications markets.

Guideline One. Rules should focus on maximizing total investment. The essence of this direction is that the Commission should explicitly recognize that rules may encourage one class of carrier or firm to invest while discouraging other classes. We recognize that the economic stakes in these proceedings are very high and that any set of rules will have distributional effects across different classes of carrier. But, the Commission should avoid, so far as possible, picking winners and singling out losers. Rather, policies ought, as far as possible, to be carrier neutral and designed to embed in the rules a set of incentives that will maximize total investment without regard to the identity or status of the firms involved. The Commission's rules should define the framework for a positive-sum investment

game in the marketplace, wherein negative incentives for one class of firm are more than offset by positive ones for others. The public is generally indifferent to the identity of investors and innovators. They look to results in the marketplace.

Guideline Two. The rules should not discriminate against, nor favor, particular classes of technology. Technological neutrality is a difficult goal to achieve. Nevertheless, the Commission should at all times resist the call of special interests and the temptations borne of technological hype, and, instead, should pursue identification of a set of rules that will not bias the outcome of the race between wireless and wired systems, between terrestrial and satellite systems, between telephony-based and cable-based systems, and other technology races-to-market yet to develop. This implies that the 706 rules should address, and be applicable to, across the board, each of the traditional industry and market segments within the Commission's purview.

Guideline Three. The rules must not undermine continued pursuit of the goal of increasing competition. Notwithstanding the lack of congruence between competition policies and infrastructure policies, as discussed further below, it is clear that competition is ultimately a very effective stick for ensuring high levels of investment. While competition policy alone is not sufficient to do so, and while different forms of competition policy will have dissimilar impacts on the incentive and opportunities for different firms to invest, it is still true that competition is virtually a necessary condition for promoting and sustaining high rates of investment and innovation.

By heeding these simple guidelines, we think it is possible for the Commission to serve the broader requirements imposed on it by the fact that its actions in this proceeding ought to serve our broader macroeconomic objectives.

Issue 2. Measuring Investment and Innovation Activity

In the years of debate preceding passage of the Telecommunications Act of 1996 and, quite specifically, in the Act itself, Congress has expressed a clear preference for regulatory promotion of the rate of innovation and investment in new telecommunications technologies and systems. Section 706 gives unmistakable substance to this concern and charges the FCC with:

> "...encouraging the deployment on a reasonable and timely basis of advanced telecommunications capability to all Americans by utilizing, in a manner consistent with the public interest convenience and necessity, price cap regulation, regulatory forbearance, measures that promote competition in the local telecommunications market, or other regulating methods that remove barriers to infrastructure investment."

In view of the very substantial technological turbulence in the sector, and the daily flood of announcements of capital formation activities and plans, it might be reasonably surmised that there is, and will be, sufficient investment and innovation in the sector to satisfy reasonable requirements in the future. Just as reasonably, and more compelling in our view, there is basis for concern when managers from firms of all stripes, on both the supply side (incumbents and entrants, wireless and wireline providers, local and long-distance firms) and, more importantly, among network services users, that present bandwidth and planned bandwidth are insufficient, particularly in the local exchange, to accommodate foreseeable needs and opportunities for expanding broadband services to homes and businesses.

Whether or not one believes that there is, or will be, enough capacity, there is, as far as we can tell, no reliable way to test the proposition. In short, there is no reliable way to determine the adequacy of current investment and innovation programs and plans. That raises a two-part question: (a) How much investment and innovation is taking place? and (b) Is it adequate?

We think it is important for the Commission to address both of these questions, but it is critical for it to address the first. The Commission can readily determine the adequacy of regulatory programs for encouraging investment in "advanced telecommunications capability for all Americans" without first being able to determine the extent of recent, current and planned investment in advanced systems. Thus, the Commission ought to conduct a fundamental review and compile a current inventory of recent investment and innovation activity and undertake to determine ways of quantifying the extent, composition, trends and related dimensions of such activity. In particular, the Commission ought to inquire and solicit information on matters suggested by the following brief outline.

A. Has there been (is there being planned) sufficient broadband innovation and investment in broadband systems, facilities and services following the Act?
- overall level of investment and innovation
- composition in different technologies, functions, sectors, and market segments (particularly in poor and rural areas)

B. Is current demand being satisfied?
- by class of user
- by type of service
- by section of the country

C. How is the investment divided among incumbents and new entrants?

D. What significant "innovations" have been made or are planned? What ones are "stalled," for whatever reason? What plans do non-LEC carriers have to invest and innovate in broadband facilities? Will these be sufficient, absent substantial commitment from the ILECs?

The focus of these questions is to assess what is happening in the marketplace, rather than why. But the answers will be instrumental in addressing subsequent questions relating to causes and, more particularly, what the Commission should or should not do to fulfill its 706 obligations.

There may be resistance to answering these types of questions. Some will raise concerns about divulging proprietary information, about the burden of government information requirements and, indeed, the fundamental appropriateness of soliciting detailed information about private investment. While respecting these concerns, ESI believes the Commission can safely move forward to solicit, at a minimum, the kinds of information companies have already made public. Details of how to balance these concerns with the need for quality information about the level and composition of, and trends in, infrastructure development can and should be addressed in the 706 proceeding.

Issue 3. Linkages between Regulation and Investment and Innovation

Keys to the success of a 706 proceeding reside in Commission determinations of the relationships – the numerous, complex, and frequently hidden relationships – between its policies and rules, on the one hand, and private sector incentives to invest and innovate, on the other.

Regulations may cause or deter investment and innovation, they may twist the composition and content of investment and innovation, and/or they may alter their distribution over time. The Commission's rules and processes exert great leverage in shaping these dimensions of investment and innovation. The rules may provide carrots, or sticks, or be uncertain. In any event, they are critical to private-sector risks and rewards, and they shape the outcomes of investment planning and execution. That much is certain. What is less certain is how, and to what extent, various Commission rules influence private-sector risk-taking and capital formation.

The Commission must develop a full understanding of the bridges between its rules and private-sector incentives. Standard models of firm investment and market behavior suggest that firms invest to create value for shareowners, and that such value is contingent on expected earnings or cash flow, risk and expected growth. It is not a difficult task to link, in principle, a variety of Commission rules and processes systematically to expected risk, return and growth. But, as simple and clear as discounted cash flow and related models are, they are not infallible or even reliable predictors in many circumstances. While such models can indicate the general direction of the effects of various rules, they cannot predict either the likelihood or magnitude of changed behavior.

There are numerous other models, theories and explanations of investment behavior, and ESI is not recommending a particular one. But, we do think it is critical for the Commission to explore all of them for insights into the impact of its rules, and then to spell out, and subsequently use, a specific

conceptual framework or economic model of the linkages between: (a) the proposed rules, (b) the anticipated private-sector response and behavior and, finally, (c) the combined effect on standard measures of economic welfare and the public interest – static efficiency, dynamic efficiency, productivity, diversity and quality of services, and so forth.

While much remains to be explored about the bridges between government rules and private-sector incentives to invest, some things are clear and beyond dispute. First, we call attention to regulatory delay and uncertainty, both of which stay the pace of technological development and increase the costs to consumers, the ultimate bearer of all regulatory burdens. In that regard, ESI applauds your efforts to expedite hearings and proceedings on 706 and other matters that directly influence investment and innovation in markets under the influence of FCC regulation. We also recognize that much of the cause of regulatory delay and uncertainty is "exogenous" and outside the ability of the Commission to remedy it. The right of due process gives rise to procedural delays. Of course, delay and confusion is not without benefit to some.

Nevertheless, we think the Commission has a role to play in reducing these sources of increased cost and would probably do so if their magnitude were more fully appreciated. In the current environment, delay in implementation may be the death of innovation.

To be more specific, we hope that the 706 proceeding will solicit answers to the following, and related types of, questions:

A. What are the determinants of investment and innovation in broadband telecommunications plant, equipment, networks and systems? What factors of a technological, economic or political nature create barriers or incentives to innovate and/or invest in these facilities?
B. In what ways do specific regulatory tools – e.g., those influencing market structure, market conduct and corporate organization of regulated firms – influence investment and innovation in the sector?
C. Are there specific and quantifiable linkages between regulation and investment?
   - What general classes of regulatory change might be expected to change the level and composition of investment? Why?
   - More specifically, and for example, what effects do each of the following have:
     - Regulation of depreciation accounting?
     - Rate regulation, including both rate structures and rate levels, as well as both the form and content of such regulations?
     - Interconnection rules? On balance, do they accelerate the pace of investment and capital formation? How? Through what mechanisms?
     - Cost allocation requirements?

- Separate subsidiary requirements?
- Pricing structures and "hidden" universal service subsidies?

These are not exhaustive, but are intended to represent the kind of linkages that ought to be explored and, indeed, must be explored, if the Commission is to develop a comprehensive and coherent set of rules and regulations to encourage investment and innovation.

ESI realizes that many of the rules we identify for review were adopted for good reasons and have been in place for considerable periods of time. However, we also believe that, for the most part, they were not considered in the context of their impact on investment and innovation in the sector. Many were adopted at times, and in contexts, where investment and innovation were simply taken for granted. While orders implementing various regulations reflect, from time to time, reference to their effects on investment and innovation, there is little indication of the extent or kind of analysis or the record used to support various contentions about their linkage to private-sector investment and innovation incentives. While there will remain numerous unanswered questions about these links, we believe the Commission can and should do more to identify them.

It may be argued that these kinds of questions are too broad, or too narrow or to vague. However, ESI is convinced that filling the void in our knowledge of bridges between regulation and investment and innovation will be no more vexing than was the acquisition of our current understanding of other regulatory impacts in other domains – competition policy, universal service policies, cost accounting policies, ratemaking principles and others.

Issue 4. Relation between the Competition Policies and Infrastructure Policies

The Act clearly directs the Commission to increase competition and to encourage investment and innovation in the sector. It is fair to say that the lion's share of regulatory activity since the passage of the 1996 Act has focused on matters involving the opening up of competition and ensuring fair interconnection and access, by entrants, to incumbent facilities, and to the very difficult task of "getting prices right," in order to ensure static resource allocation efficiencies. ESI has supported these efforts to make the market more competitive and to enlarge consumers' choice of options in the marketplace. We continue to do so.

However, in addition to encouraging the Commission to pursue policies designed to ensure "static" efficiencies, we want to contrast and emphasize the importance of putting in place, as well, rules to ensure "dynamic" efficiencies, the efficacy with which resources are allocated over time. The long-run performance of the telecommunications sector, and those dependent on it, is very closely related to the rate of investment and innovation in it. Thus, we want to emphasize that policies

encouraging "dynamic" efficiencies are just as important as those encouraging "static" efficiency, and that well designed competition policies, which ensure the optimal use of resources at a given time, must be complemented by consideration of rules designed specifically to stimulate investment and innovation.

The focus on competition and static efficiency is proper, but it should not be permitted to conceal longer-term concerns and opportunities. ESI agrees with the Commission that the development of a competitive, multiple-platform market for broadband services is essential for encouraging investment and innovation. Market annals are replete with examples of competition spurring market, technological, and service innovations. Investments are commonly made in response to competitive threats by efficient new competitors. Monopoly power is an enduring fact in important submarkets. Hence, competition policies will continue to be important to the Commission's efforts to ensure an environment conducive to high rates of investment and innovation.

However, there is ample evidence that competition policies and innovation/investment policies are not always congruent. While there are large areas of overlap between policies that induce investment and innovation, there are also some areas in which particular competition policies may discourage investment by some firms. The economics literature on the relation between investment and innovation, on the one hand, and market structure and market dynamics, on the other, is not at all definitive. Indeed, there are very strong counterindications favoring different market structures as the means for impelling investment and innovation in new and risky technologies.

ESI believes that competition policy is necessary, but not sufficient, to ensure the optimal flow of investment and innovation. It also appears that Congress agreed with that assessment, inasmuch as statutory language in section 706 refers to measures that promote competition, but also to "price cap regulation," to "regulatory forbearance," and to "other regulating methods that remove barriers to infrastructure investment," as possible policy mechanisms. We encourage the Commission to look outside, as well as inside, the four corners of its competition policies for the means to "encourage the deployment...of advanced telecommunications capability to all Americans."

To elevate its concern and activity in fostering investment and innovation, the Commission need not and, in our view, should not, undermine its competitive policies; but it would certainly be helpful to go back and review those procompetitive rules, as suggested above in a broader context, for their impact on investment and innovation, and to search for modifications that would improve the outlook for achieving greater dynamic efficiencies with minimal erosion of the pursuit of competitive goals. Some balancing may be required at the margin, especially in cases where substantial gains in dynamic efficiency incentives may be available with no real sacrifice in terms of the intensity and efficiency of market rivalry.

In this context, we encourage the Commission:

A. to explore the relationships between rules put in place to encourage competition and their impact on innovation and investment, as well as the extent to which rules furthering competition policies should be intensified, sharpened, broadened or otherwise brought to bear more intensely, as a means of fostering an environment congenial to investment and innovation. In particular, the Commission should pay special attention to the investment implications, for incumbents and entrants, of:
    1. alternative provisions for collocation,
    2. improved loop management techniques, and
    3. loop conditioning for advanced services;
B. to evaluate the extent to which competition policies are now effective in fostering total investment in the sector and, more specifically, to evaluate and make a finding on:
    1. claims by incumbents that post-1996 Act rules actually deter investment, and
    2. claims by entrants, potential competitors, users and others that the rules do not adequately encourage and otherwise create an environment congenial to investment by newcomers; and
C. to consider the implications of differing regulatory treatments of cable television and telephone system local plant. In particular, the Commission should address suggestions that differential treatment will unduly skew the composition of innovation and investment in new technology in local networks and the services they support.

ESI is aware that network enhancements now being, and soon to be, brought to the marketplace will be fungible and fully capable of providing both advanced and traditional (basic) services. The goal is to handle all the needs of users over a single line. While that promises great advantage in the long run to users, it also complicates the design of regulatory programs targeted to promote both competition and the sum of incumbent and newcomer investment.

Because full-purpose networks of the future will be largely indivisible in either technical, economic or regulatory dimensions, ESI agrees that the Commission should look for regulatory solutions that balance infrastructure concerns and competition incentives by permitting different kinds of services to be rendered by incumbent network service providers under different regulatory schemes. Given our conviction that it is impossible, either conceptually or practically, to separate common network costs and to assign them to different services, without enormous ambiguity and indefensible subjectivity, we urge the Commission to explore the potential for designing a separate subsidiary mechanism. Such corporate structural requirements have been successful previously in fostering competition, and in preventing discrimination and creating incentives for new technology adoption and service provision by incumbents and entrants alike.

Issue 5. Relationship between Universal Service and Infrastructure Policies

Universal service has been the driving force behind telecommunications policies and rules for the past several decades. There is no quarreling with the goal of universal service, and we do not want to do so here. However, ESI is concerned that there are fundamental conflicts between rules and regulations implementing the universal service mandate and the requirements of both static and dynamic efficiency. Specifically, we believe that the current universal service programs effectively discourage investment and innovation by both incumbents and entrants alike. Requiring services to be provided at less than cost is a sure barrier to new entry, and, the greater the spread between costs and rates, the higher the barrier to entry.

We emphasize that we take no issue with the goal of universal service, but only the means chosen for carrying it out. We believe that the Commission has not systematically examined either the impact of its universal service initiatives on the level and composition of investment, and the pace and content of innovation in the sector, nor has it examined alternative universal service programs and mechanisms that might have less debilitating effects on incentives and opportunities to invest and innovate.

Accordingly, we believe the Commission should, as a part of the 706 inquiry, seek answers to the following questions:

A. How has uncertainty over school and library policies impacted investment?
B. How has the hidden subsidy for Internet access, via the ISP exemption, affected consumer demand for advanced broadband applications, and how can the Commission continue its policy of encouraging Internet access and growth without distorting investment and innovation in this sector?
C. How does the mechanism for funding various pools, the Universal Service Fund and others, impact investment and innovation? How would investment and innovation be impacted if it came from an excise tax or was otherwise financed?

We are not recommending that the Commission should revise its broad universal service policies in response to the need for encouraging investment and innovation. But, we are convinced that universal service policies, and the specific regulatory practices they have engendered, have a significant and sometimes negative impact on the level, trend and composition of investment. The Commission can usefully inquire about these relations and begin to collect information and analysis relevant for future consideration in the specific context of universal service policies. Let us be clear that we take no issue with the goal of universal service. We do know, however, that some regulatory programs for pursuing it will yield faster rates of capital formation and more innovation than will others. ESI believes the Commission should solicit data and analyses on the differences.

Issue 6. Potential Regulatory Innovations

An important axiom in the policy sciences holds that there must be as many policy instruments as policy variables. Otherwise, an insufficient number of policy tools will simply lead to trading off pursuit of one goal for accomplishment of another. To the extent that infrastructure (investment and innovation) policy is in conflict with pursuit of other Commission policies, it may be worthwhile to search for and explore entirely new policy instruments – tax policy, direct investment policies, technology policies, or others – that may have fewer negative spillovers. The Commission might well determine to undertake various regulatory or deregulatory experiments, well defined, and with sunset provisions, as a means of accumulating information about the effects of various combinations of regulatory and market constraint. We think the public would be served well, and at low cost, by Commission exploration of some of these alternatives.

Related to this search for new instruments is a need to screen – for investment disincentives and barriers to innovation – rules, regulations and processes imposed at an earlier time. This exercise could inform a systematic "dethicketing" of the rules and stripping them of barriers to investment and innovation. An open invitation by the Commission for practitioners to identify such rules would very likely yield a rich harvest. A careful review and screening would guide subsequent Commission efforts to tailor the rules in conformance with the broad mandate and direction in section 706 to remove regulatory barriers to investment and innovation.

In this context, the Commission could usefully attempt to identify rules and established processes that lead to unnecessary delay or uncertainty. While ESI has its own list of possible offenders, the Commission should cast a broad net and solicit FCC practitioners generally to offer suggested candidates.

Conclusion

The Commission is about to strike a course that will dramatically affect the welfare of all Americans. Telecommunications networks, and the services they support, will come to dominate the U.S. economy in the twenty-first century. That much is certain. How quickly and efficaciously the underlying telecommunications networks will grow and diversify in their services offerings, to put it simply, will be determined in very substantial measure by the outcomes of the processes about to be launched under the terms of section 706.

We urge you to be expansive in your view of the pivotal role of the Commission's determinations in shaping, or distorting, the incentive structure that will guide private-sector decisions to

invest and to innovate in new technologies and systems. The comments above are designed to assist in the development of such a broad view. More importantly, ESI urges you to be bold in exploring the full range of policy alternatives for assuring, and nowhere suppressing, high rates of risk taking, capital formation and technology diffusion in this unarguably critical sector of the national and world economy.

Sincerely,

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cc: Commissioner Harold Furchgott-Roth
Commissioner Susan Ness
Commissioner Michael Powell
Commissioner Gloria Tristani
Kathryn C. Brown, Chief, Common Carrier Bureau