

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554**

Received & Inspected

APR 19 2011

FCC Mail Room

In the Matter of)	
)	
Connect America Fund)	WC Docket No. 10-90
)	
A National Broadband Plan for Our Future)	GN Docket No. 09-51
)	
Establishing Just and Reasonable Rates for Local Exchange Carriers)	WC Docket No. 07-135
)	
High-Cost Universal Service Support)	WC Docket No. 05-337
)	
Developing an Unified Intercarrier Compensation Regime)	CC Docket No. 01-92
)	
Federal-State Joint Board on Universal Service)	CC Docket No. 96-45
)	
Lifeline and Link-Up)	WC Docket No. 03-109

To: The Commission

COMMENTS

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SUMMARY

1. The FCC has done an outstanding job to date with the “Broadband Plan” and the NPRM. Of course, with study and policy debates of this magnitude, this complex situation generates more questions than answers.
2. Bold leadership from the FCC is required now. I am not arguing for the status quo. Changes are needed and the circuit-switched network transforms into a multi-services packet-based delivery network. It’s just from a high-level of investments and guaranteed returns, nothing should change for the small independent telephone company.
3. The relationship between family owned small independent telephone companies serving rural areas and the RUS should be renewed and totally supported. Also immediate statements should be made by the FCC associated with continued overall guaranteed rate of return regulation for small family owned RUS borrower telephone companies (typically less than 10,000 access lines) that are currently investing in improved broadband infrastructure.
4. A renewed social compact between the FCC and small family owned RUS telephone borrower’s is needed for continuing investments. For example, I know of an approximately 5,000 access line family owned Telephone Company that has invested in excess of \$60,000,000 within their franchised service area over the years (It is a large rural area). All PSTN and broadband investments conform to strict RUS practices, rules and procedures. Additionally, the Company is audited yearly and the Company’s records are published and totally transparent to all.
5. These small rural RUS borrower telephone companies are Carriers of Last Resort

(COLR), and it is my belief that they desire to remain so as broadband is fully addressed and totally implemented. I have been told so by Owners of these Companies.

6. Rate of return regulation with combined federal, state and local oversight has served this country well and this situation must be supported and continue to do so, in these small COLR USF/ICC situations. Significant broadband capital investments (CAPEX) are needed for many years into the future. A Company that has invested \$60M is faced with investing an additional \$12M over the next 5-years to 10-years. Stability in this regard is seriously needed now or their communities will suffer delays in immediately needed infrastructure construction as a result of the uncertainties associated with the process of this FCC's NPRM and published "Broadband Plan". This is not the time for delay in sound broadband rural infrastructure construction from any angle, including job creation.
7. The small IOC provides regulators a company model that the regulators may easily analyze providing understandable data and insights that may be utilized in the analysis of large companies like AT&T, etc. – statistical orders of magnitude analysis, etc.
8. A new packet-based interconnection framework is needed for the future. The small COLR Company must not be put in a position to "go it alone". The "goes it alone" situation may result in significant litigation and delay in needed broadband infrastructure investments and associated services needed now.
9. The small telephone industry needs design guidelines, historically provided by the RUS, or over time, or the small Telco's will no longer be an industry and there may be "amount of subsidy" disagreements associated with COLR's utilizing different

- technical access and other investment philosophies. The evidence of this statement is the amount of less than tier-one equipment vendors (tier two, tier three-vendors, etc.), that during the last seven years are no longer in business.
10. The RUS must be rejuvenated, particularly the standards division. This function could theoretically be contracted out to the private sector to a company such as Telcordia or equivalent. Whatever, this need is fundamental.
 11. Companies should be required to have a Strategic Long Range Plan (SLRP) as a part of their overall planning. The SLRP should follow concepts contained in the book “The Art of Strategic Planning for Information Technology, Crafting Strategy” by Bernard H. Boar, American Telephone and Telegraph Company-ISBN 0-471-59918-2, or equivalent. New SLRP’s may include long range technology transition plans (including amended equipment depreciation schedules).
 12. Any new division of revenue models (if any), should initially be developed on reality (CAPEX, equipment categorization, time and motion studies and relative information flow usage data and statistics), and then political factors added to adjust the jurisdictional revenue requirements as required for compromise and system feasibility.
 13. It must be recognized by the FCC that “wireless cannot do it all”. Even the wireless standards bodies have addressed data offload technical architectures.
 14. So called “market driven technology neutral decisions” are only valid if based upon sound independent studies and results associated with numerous urban areas. No single rural area study is of any value. The technical “market driven” premise should be studied to see if this is a truly relevant way for future infrastructure

decisions to be made for access infrastructure within the USA-e.g., what will China do? The above statements truly apply solely to COLR USF/intercarrier compensation interconnection and particularly to COLR rural telephone carrier's serving areas. The urban areas have already demonstrated that this market driven methodology may a sound concept-the full result yet to be seen.

15. The FCC must insist and provide rules to mandate the sharing of digital entertainment digital video content from a major provider to a small family owned RUS Borrower Company on an individual case basis for provision of "urban area quality" IPTV/VoD ("a la carte"). This is in line with Metcalfe's Law that states the value of a switched digital communications system increases exponentially with the number of customers (channels) interconnected. This also relates in general to the value of a community. Without the FCC addressing this issue, there may be bills filed in Congress mandating open access to content soon, and this is not the preferred method to address this issue. The small IOC will pay for digital content, protect the content (via DRM per contract) and share targeted advertising revenues over time. The FCC must facilitate these negotiations.
16. As soon as possible, the FCC should issue a statement that will provide reasonable certainty to small family owned independent RUS borrower rural telephone companies (and potentially others), enabling significant planned immediate broadband investments to continue so that these rural areas will not fall behind from an infrastructure perspective. This could be as simple as a statement that broadband investments constructed I accordance with a LRSP prepared by a qualified PE will qualify for guaranteed ROR. These are the communities that most need the continuing improving broadband communications infrastructure

investments, for numerous reasons.

GENERAL DISCUSSION POINTS

1. The FCC has done a fine job in the NPRM I call "FCC 11-13" including the recent "Broadband Plan". The problems and complex issues are certainly thoroughly addressed. There remain serious questions. Direction and leadership by the FCC is seriously needed now, maybe more than ever during my lifetime.

2. I have been designing communications systems, end-to-end of all sorts, for over 40 years. The new technologies have positioned communications infrastructure to serve needs, in my opinion, for a very long time period providing customer services only limited by one's imagination. Things of this sort have never lined up so well and the time is now. I must disclose to date I am not a proponent of passive Fiber To The Home (FTTH) as an "end-game" access infrastructure. I strongly believe in the AT&T technical model which is active Fiber To The Node (FTTN). This belief will bias all of my statements and professional opinions herein. In any event, I need to make it clear that companies that have embraced FTTH ("early-adopters") should not be penalized in any way. Decisions in good faith were made during a time of serious technical turmoil and debate including Verizon selected the FTTH ("FIOS") technical architecture to date in their access network. AT&T selected FTTN. End-to-end fiber in between all cities (provided in geographical duplicity) is a necessity over time in my

opinion.

3. It is my opinion that “wireless” cannot do it all. The technical books I read demonstrate that a network utilizing a waveguide has a 10 to 1 advantage in speed and quality as compared to an over-the-air wireless network; this is a direct result of Shannon’s Law, utilizing typical bandwidths and typical signal to noise ratios. Of course waveguide based networks (wireline, CATV and hybrid fiber) have serious costs and take serious times to implement. The wireless standards bodies acknowledge the needs at some point for future data offload, and with LTE, all media is “carried” by IP. Therefore the IP Multimedia Subsystem (IMS) and Voice Call Continuity (VCC), MultiMedia Session Continuity (MMSC) and most important Service Admission Control (SAC) technical architectures have been developed and standardized by the wireless bodies. The addition of TISPAN standards brings all of these technology architectures into the realm of wireline carriers (use of spectrum provided by DSL).

4. An extremely important point to be addressed soon must be security and quality of services based upon customer demand for quality (quality discussion herein is primarily focused on packet contention/loss and unanticipated data overload conditions and solution mechanisms). The customer should always have the choice of Internet best-efforts (absolutely conforming to net-neutrality-excluding designs to keep the overall system stable during all sorts of conditions-fault, overload, etc.), and better than best-efforts (e.g., IP QoS – provided via differentiated services and/or integrated services techniques). The customer (or provider) must choose (or design) best-efforts,

relative IP QoS and guaranteed IP QoS, depending on the customer's desire associated directly with customer's desired application(s). In my opinion, this will require new COLR interconnection contracts based upon interconnected packet-based networks with varying bearer speeds and QoS capabilities. The new thing here is the addition of advertising revenues into the mix and a various mix of deterministic qualities of service per "customer requested service event".

5. IP QoS involves complicated issues such as Hierarchical QoS (H-QoS), MPLS forwarding equivalency classes, engineering less congested VPLS instances - when congestion occurs (buffer memory overflow-collisions), and traffic must be "tunneled" to an engineered "better-more robust capacity" VPLS instance and hybrid centralized control utilized to monitor collisions in the TCP/IP domain to orchestrate appropriate packet flow-TCP/IP being a connection oriented protocol. MPLS EXP bits may be utilized in this regard as may SS7. The access network will probably remain non-oversubscribed VLANs/service. New packet based interconnect(s) agreements (potentially based upon QoS types, speeds, throughputs over time, etc.) and advertising revenues are new to traditional COLR interconnection agreements. All of the statements above also apply to media/RTP/TCP/IP/PHY or media/RTP/UDP/IP/PHY (all with RTCP quality feedback and PHY=Ethernet).

6. The RUS program and independent telephone companies (as carriers of last resort) have historically performed a wonderful job for the USA. I sincerely hope this concept from a high-level will continue to be supported as serious high-speed broadband becomes the national goal potentially associated with future revenue requirements (a necessity including total geographical area coverage as was telephone

and electricity). **The services offered in a rural area must equal or exceed the services offered in the neighboring urban areas.** Yes we need a new social contract. The guaranteed rate of return model for small carriers of last resort (the “five per-centers [5%’s]”) must be continued for the USA to compete globally and win.

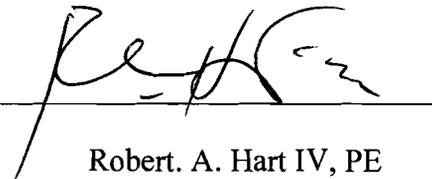
7. Urban equivalent broadband connectivity must be provided to every geographical area in the USA. The FCC has been very successful over the years in this regard by providing a framework with incentives (and wireless infrastructure is very suitable good for this immediate need). It’s time for the FCC to be bold and move quickly in this regard (auctions, whatever, etc.).

CONCLUSION

1. Please consider these comments as new division of revenue methods, changes to USF/ICC, packet based interconnection and national infrastructure goals are formulated associated with broadband communications. Bold study and immediate leadership is definitely needed by the FCC.

Respectfully submitted,
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CERTIFICATE OF SERVICE

I, Robert Hart, certify that sufficient copies of the forgoing documents were mailed via FEDEX 4-18-2011 to:

Federal Communications Commission
ATTN: NPRM WC Docket No. 10-90, etc.

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I will try later today to use the electronic filing system. Thank you.