

**Before the  
FEDERAL COMMUNICATIONS COMMISSION  
Washington, DC**

**In the Matter of** )  
 )  
**Inquiry Concerning the Deployment of Advanced** ) **GN Docket No. 10-159**  
**Telecommunications Capability to All Americans** )  
**in a Reasonable and Timely Fashion, and Possible** )  
**Steps to Accelerate Such Deployment Pursuant to** )  
**Section 706 of the Telecommunications Act of** )  
**1996, as Amended by the Broadband Data** )  
**Improvement Act** )

---

**COMMENTS OF THE FIBER-TO-THE-HOME COUNCIL  
SEVENTH BROADBAND DEPLOYMENT NOTICE OF INQUIRY**

---

The Fiber-to-the-Home Council (“FTTH Council”),<sup>1</sup> through its undersigned counsel, hereby respectfully submits its comments to the Federal Communications Commission (“Commission”) in response to the Seventh Broadband Deployment Notice of Inquiry (“Seventh Notice of Inquiry”).<sup>2</sup> In these comments, the FTTH Council responds to the Commission’s

---

<sup>1</sup> The FTTH Council is a non-profit organization established in 2001. Its mission is to educate the public and government officials about fiber-to-the-home (“FTTH”) and to promote and accelerate FTTH deployment and the resulting quality of life enhancements FTTH networks make possible. The FTTH Council’s members represent all areas of the broadband access industry, including telecommunications, computing, networking, system integration, engineering, and content-provider companies, as well as traditional service providers, utilities, and municipalities. As of today, the FTTH Council has more than 210 entities as members. A complete list of FTTH Council members can be found on the organization’s website: <http://www.ftthcouncil.org>.

<sup>2</sup> *In the Matter of Inquiry Concerning the Deployment of Advanced Telecommunications Capability to All Americans in a Reasonable and Timely Fashion, and Possible Steps to Accelerate Such Deployment Pursuant to Section 706 of the Telecommunications Act of*  
...Continued

inquiry: What is Advanced Telecommunications Capability?<sup>3</sup> The Council applauds the Commission for acting earlier this year in the Sixth Broadband Deployment Report<sup>4</sup> (“Sixth Report”) to recognize the reality, albeit far too belatedly, that consumers are using and demanding advanced telecommunications capabilities far in excess of the 200 kilobit per second level that the Commission set as a benchmark a decade ago. The new minimum performance capability for advanced communications service established in the Sixth Report – 4 megabits per second (“Mbps”) downstream and 1 Mbps upstream -- represents a good foundation upon which the Commission can build upon in the Seventh Notice of Inquiry and in issuing its report (“Seventh Report”). The Commission rightly recognizes that its new benchmark will only be relevant for a limited time. As noted in the Commission’s *Broadband Performance Technical Paper*, these advanced telecommunications capabilities (speeds) are expected to continue to increase significantly because of “the migration of consumers to faster technologies, the evolution in speeds of each technology and the investments of Internet service providers.”<sup>5</sup> In essence, we are in the midst of a rapidly-evolving virtuous cycle in the United States – where network operators are supplying and users and applications providers are demanding greater

---

*1996, as Amended by the Broadband Data Improvement Act*, Seventh Broadband Deployment Notice of Inquiry, GN Docket No. 10-159, rel. Aug. 6, 2010.

<sup>3</sup> The FTTH Council submits that the Commission should use a single definition for advanced telecommunications capabilities and broadband performance capabilities.

<sup>4</sup> *In the Matter of Inquiry Concerning the Deployment of Advanced Telecommunications Capability to All Americans in a Reasonable and Timely Fashion, and Possible Steps to Accelerate Such Deployment Pursuant to Section 706 of the Telecommunications Act of 1996, as Amended by the Broadband Data Improvement Act*, Report, GN Docket No. 09-137, rel. July 20, 2010.

<sup>5</sup> *Broadband Performance, Omnibus Broadband Initiative, Technical Paper No. 4*, Federal Communications Commission, Aug. 2010, available at: [http://download.broadband.gov/plan/fcc-omnibus-broadband-initiative-\(obi\)-technical-paper-broadband-performance.pdf](http://download.broadband.gov/plan/fcc-omnibus-broadband-initiative-(obi)-technical-paper-broadband-performance.pdf) (“*Broadband Performance Technical Paper*”).

performance capabilities – and the FCC should reflect this fact in defining advanced telecommunications capability. That means for any definition to be relevant to all participants in the advanced telecommunications market and faithful to the statute, it should be both up-to-date and forward-looking.

### **A Tiered and Evolving Definition of Advanced Telecommunications Capability Best Serves Policymakers and Users**

In its comments submitted one year ago in the *National Broadband Plan* and related broadband deployment proceedings, the FTTH Council proposed an evolving, multi-tier approach to define wireline broadband service.<sup>6</sup> By using such a definition – with current generation minimum, average, and maximum tiers and a future generation tier<sup>7</sup> -- the Council argued that the Commission could then adopt policies to simultaneously seek a number of objectives, including to bring first-time service to unserved areas, upgrade the quality of existing broadband service so that users could take advantage of important applications (*e.g.* telemedicine, distance learning, and telework), establish goals for future generation broadband service capable of supporting applications coming to market, and ensure international

---

<sup>6</sup> Comments of the Fiber-to-the-Home Council, *In the Matters of International Comparison and Survey Requirements in the Broadband Data Improvement Act*, GN Docket No. 09-47, Rel. Mar. 31, 2009, *A National Broadband Plan for Our Future*, GN Docket No. 09-51, Rel. Apr. 8, 2009, and *Inquiry Concerning the Deployment of Advanced Telecommunications Capability to All Americans in a Reasonable and Timely Fashion, and Possible Steps to Accelerate Such Deployment Pursuant to Section 706 of the Telecommunications Act of 1996, as Amended by the Broadband Data Improvement Act*, GN Docket No. 09-137, Aug. 31, 2009 (“FTTH NBP Comments”).

<sup>7</sup> The FTTH Council proposed that for each tier broadband performance be measured by throughput, and, where appropriate, other performance characteristics, such as latency and jitter, and by actual usage at peak periods. While the tiers proposed by the FTTH Council include a minimum, it does not support Commission policies that would support deployments at those “backward-looking” performance levels.

competitiveness. Moreover, its proposed “multi-tier” definition would enable consumers to easily benchmark their current service to that received by others today and in the future.

The FTTH Council then provided the Commission with recent broadband performance data to populate the tiers. It contracted with the consulting firm CSMG to sample existing market information about the advertised performance of wireline broadband offerings, and, based on that sample, CSMG produced the following chart of the current generation tiers:<sup>8</sup>

<b>CURRENT GENERATION BROADBAND TIER</b>	<b>UPLOAD SPEED<sup>9</sup></b>	<b>DOWNLOAD SPEED</b>
MINIMUM	384 Kbps <sup>10</sup>	768 Kbps <sup>11</sup>
AVERAGE	1.7 Mbps <sup>12</sup>	9.1 Mbps <sup>13</sup>
MAXIMUM	20 Mbps	101 Mbps

<sup>8</sup> FTTH NBP Comments, at 10.

<sup>9</sup> While the chart defines performance only in terms of throughput, the Council expects that future definitions would include other QoS metrics.

<sup>10</sup> Minimum and Maximum tier advertised upload speeds are from the lowest and highest offers available in 2009 in the top 10 U.S. cities (by population). The highest advertised Maximum tier upload speed (20 Mbps) was offered by Verizon FiOS in multiple U.S. markets. The lowest upload speed (384 Kbps) was offered by AT&T and Verizon in 9 of the top 10 U.S. markets.

<sup>11</sup> Minimum and Maximum tier advertised download speeds were from the lowest and highest offers currently available in the top 10 U.S. cities (by population). The highest advertised Maximum tier download speed (101 Mbps) was offered by Cablevision in New York City. It was estimated that other cable companies will match or exceed this offer in the near future. Verizon FiOS was expected to generally exceed highest cable speeds. The lowest download speed (768 Kbps) was offered by AT&T in 6 of the top 10 U.S. markets.

<sup>12</sup> Average tier upload speeds were estimated using the most prevalent upload speeds accompanying download speed offers of ~9 Mbps in currently marketed offers in the top 10 U.S. markets.

The FTTH Council added that (1) to reflect the dynamism of the market, it expects the Commission to update the definition annually, and (2) while the throughput data in the chart is based on advertised offerings, the data should evolve to actual performance to more accurately reflect network performance. The Council submits that the Commission should use the Seventh Notice of Inquiry as an opportunity to ensure the definition is up-to-date and to address the issue of “actual” performance.

Based on the recent market supply and demand data discussed below, the Commission’s definition of advanced telecommunications capability – as well as the Council’s own definition submitted just one year ago – does not adequately reflect current advanced telecommunications capabilities, and, accordingly, the Commission should revise it. The Council recognizes that the Commission wishes to have a “relatively static point at which to gauge the progress and growth in the advanced services market,”<sup>14</sup> and thus it does not want to constantly alter the definition of advanced services. However, the Commission can accomplish its aim of having a sufficiently useful benchmark by creating the expectation that the Commission’s definition will be more dynamic, reflecting current market data and trends. Moreover, the Council’s multi-tier approach should facilitate this objective since the maximum tier will be known, and there will be an expectation that it will evolve to become the average tier. Finally, the benchmark should evolve so that it syncs with – and encourages the achievement of -- the National Broadband Plan’s “100-Square” objective and the interim 2015 broadband performance goal of 50/20 Mbps.<sup>15</sup> Thus, the

---

<sup>13</sup> Average tier download speeds are calculated by taking a weighted average of the current (2009) distribution of U.S. broadband subscribers by speed tiers, as estimated in the SNL Kagan Report (*see*, SNL Kagan website, *Economics of the Internet Media 2009*).

<sup>14</sup> Sixth Report at ¶ 13.

<sup>15</sup> *Omnibus Broadband Initiative, FCC, Connecting America: The National Broadband Plan*, GN Docket No. 09-51, Mar. 2010, at 9 (“*National Broadband Plan*”).

Commission should not wait for four years to lapse before reviewing and resetting the benchmark as recommended in the *National Broadband Plan*.<sup>16</sup> In the end, the “Average” in the multiple tiers would serve as the benchmark on which the Commission should make its determination as to whether the standard in Section 706 is being achieved (and whether the goals of the *National Broadband Plan* are being met).

As noted above, the Council believes any definition of advanced telecommunications capabilities should be based on actual performance as opposed to advertised or “up to” capabilities – and as opposed to estimates of actual performance. The question is whether sufficient data exists now so that the Commission can make the transition to employing such data in the definition. For advanced telecommunications capabilities offered over FTTH plant, such data does exist, since actual and advertised speeds are virtually synonymous. However, that is not the case for advanced telecommunications services offered over cable or DSL plant where sharing or other physical limitations are greater. The Council recognizes that the Commission is acting to gather actual speed data. However, it is unlikely to complete its work before the Seventh Report will be issued. Thus, the Council reluctantly understands that the definition of advanced telecommunications capability will need to be based on advertised speeds (or the surrogate for actual speed of 50% of advertised speed) – hopefully for the last time.

To construct an updated multi-tier definition of advanced telecommunications capability, the Council gathered data on: (1) the capabilities of currently provided advanced telecommunications services (supply data); and (2) the performance requirements of current and near-term applications (demand data). It is important to note that there is a close relationship between increased supply of advanced telecommunications services and increased demand. As

---

<sup>16</sup> *National Broadband Plan*, at 135.

CSMG stated in a report filed in the Commission’s National Broadband Plan docket, “History has shown that innovative application development is preceded by increases in bandwidth.”<sup>17</sup> In other words, there are numerous applications either ready for market or on the drawing board – and pent-up demands from users -- waiting for providers to increase performance capabilities. Once performance is increased, these applications in turn “fill the pipes,” which once again drives providers to increase the capabilities of their services. Thus, any definition of advanced telecommunications capability should be forward-looking based on a realistic assessment of the performance demands of near-term applications.

For supply data, the Council relies on three sets of information. First, the Commission in the *Broadband Performance Technical Paper* states, based on historical patterns, that the annual growth rate in the speeds of broadband services is in the range of 20-25% annually.<sup>18</sup> Second, in the *CSMG National Broadband Evaluation Report*, CSMG charted historical and expected future median download throughput for broadband services and concluded that speeds are increasing substantially – with annual growth in the next several years in the range of 30-50%.<sup>19</sup> Third, the most recent report by RVA LLC<sup>20</sup>, a well-recognized survey firm, shows the results of tests of actual broadband performance over various networks. For download speeds, the report shows that performance capabilities for broadband over FTTH and cable plant increased by more than

---

<sup>17</sup> *Ex Parte* Presentation of the Fiber-to-the-Home Council, *National Broadband Plan Policy Evaluation Report*, prepared by CSMG, at 14, GN Docket No. 09-51, Nov. 2, 2009 (“*CSMG National Broadband Evaluation Report*”).

<sup>18</sup> *Broadband Performance Technical Paper*, n. 57.

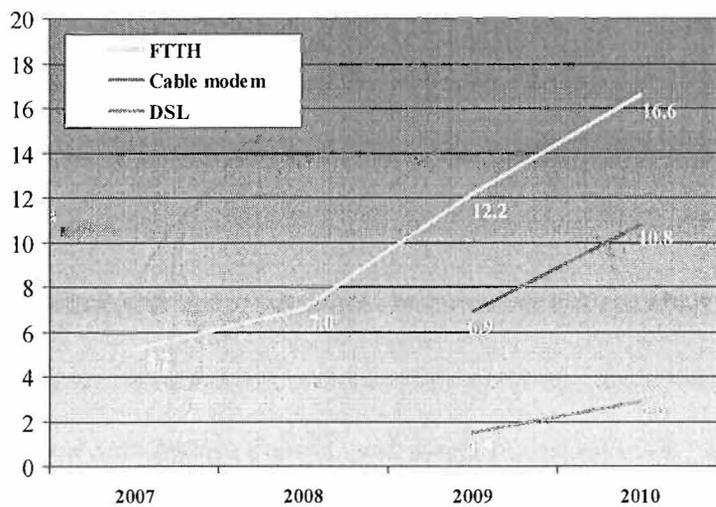
<sup>19</sup> *CSMG National Broadband Evaluation Report*, at 14.

<sup>20</sup> *Consumer Usage Patterns and Attitudes of U.S. FTTH and Broadband Consumers*, Prepared for the Fiber-to-the-Home Council North America, RVA LLC Market Research and Consulting, Aug. 2010, available at:

...Continued

33% in the past year.<sup>21</sup>

### Tested Download Performance Of Broadband Median Mbps By Year



RVA also tested upload performance,<sup>22</sup> and its report shows that the increase in performance for broadband over FTTH and cable plant is even greater.

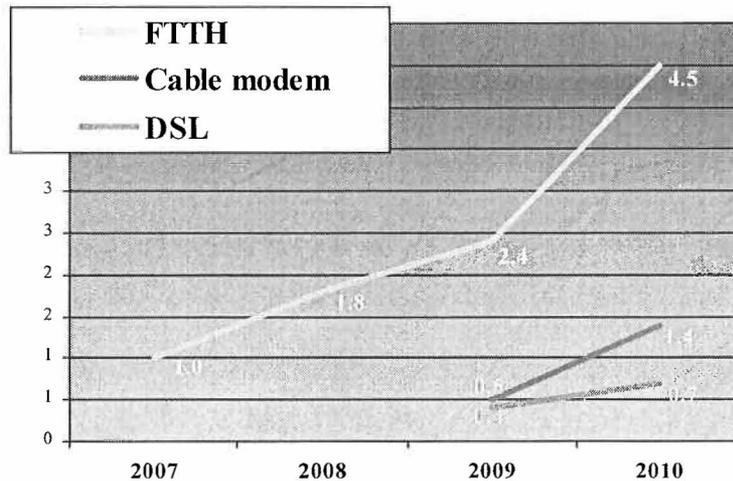
---

[http://www.ftthcouncil.org/sites/default/files/RVA%202010%20Consumer%20Study%20Report\\_0.pdf](http://www.ftthcouncil.org/sites/default/files/RVA%202010%20Consumer%20Study%20Report_0.pdf)

<sup>21</sup> *Id.*, at 10.

<sup>22</sup> *Id.*, at 11.

## Tested Upload Performance Of Broadband Median Mbps By Year



As for demand data, last year CSMG provided the Council with an analysis of broadband performance requirements for a variety of applications and the benefits users would derive from such applications. The Council then submitted these data to the Commission as part of the National Broadband Plan proceeding. The following summarizes CSMG’s assessment of a select group of beneficial applications that are currently being offered over lower speed broadband services but that can and will perform optimally over broadband services with capabilities of more than 25 Mbps of throughput or high Quality of Service (“QoS”):<sup>23</sup>

	Throughput Requirements		QoS
	Current (Minimal)	Near-Term (Optimal)	
<b><u>Downstream-Driven Services</u></b>			
Downloading Massive Images	10 Mbps	1000 Mbps	Low
3D/HD Video Conferencing / Telepresence	32 Mbps	256 Mbps	High
Streaming or VOD In 3D/HD Video	32 Mbps	256 Mbps	High
Consumer Cloud Computing / Thin Client	4 Mbps	10 Mbps	High
3D/HD Video Collaboration	32 Mbps	256 Mbps	High
Health Care Professional Teleconsultation	10 Mbps	256 Mbps	High
Software/Web-based Learning	1 Mbps	100 Mbps	Low

<sup>23</sup> CSMG National Broadband Evaluation Report, at 13.

Facilitation of Self-education	1 Mbps	100 Mbps	Low
Home Monitoring of Classrooms/Schools/Buses	.4 Mbps	32 Mbps	Med

**Upstream-Driven Services**

Uploading HD Video (UGC Sharing)	10 Mbps	1000 Mbps	Low
HD/Streaming Home Security	8 Mbps	50 Mbps	M/H

**Symmetrical Services**

Health Care Management	1 Mbps	1000 Mbps	Low
Distance Research	10 Mbps	100 Mbps	Low
Virtual/Remote Office	1 Mbps	100 Mbps	Low
Remote Back-Up	1 Mbps	100 Mbps	Low
HD/3D Teleconsultation	10 Mbps	32 Mbps	High
HD/3D Remote Patient Monitoring	10 Mbps	32 Mbps	High
Live Instruction (HD/3D)	10 Mbps	32 Mbps	High

Based on these supply and demand data, the Council proposes the Commission adopt in the Seventh Report the following definition of advanced telecommunications capability using advertised or “up to” speeds. For the “Average” tier, these speeds are approximately 33% greater than those proposed by the Council one year ago.

<b>ADVANCED TELECOMMUNICATIONS CAPABILITY TIER</b>	<b>UPLOAD SPEED</b>	<b>DOWNLOAD SPEED</b>
MINIMUM	384 Kbps	1.5 Mbps
AVERAGE	2.5 Mbps	12 Mbps
MAXIMUM	20 Mbps	101 Mbps

It also is important to note that use of the FTTH Council’s updated “Average” is consistent with the Commission’s aim to encourage and achieve its 2020 “100-Squared” goal.

In conclusion, the FTTH Council urges the Commission to adopt a definition of advanced telecommunications capability that reflects the current state of the market and that is forward-looking. The Council submits that its multi-tier definition proposed above meets those

objectives. It stands ready to assist the Commission as it evaluates the market for advanced telecommunications services and drafts the Seventh Report.

Respectfully submitted,



---

Thomas W. Cohen  
KELLEY DRYE & WARREN LLP  
3050 K Street NW, Suite 400  
Washington, D.C. 20007  
(202) 342-8518 (telephone)  
(202) 342-8451 (facsimile)  
[TCohen@kellydrye.com](mailto:TCohen@kellydrye.com)

*Counsel to the Fiber-to-the-Home Council*

September 7, 2010