

BEFORE THE STATE OF NEW HAMPSHIRE

PUBLIC UTILITIES COMMISSION

In the matter of: )  
Kearsarge, Wilton, Hollis, Merrimack ) DT 07-027  
Telephone Companies )  
Petition for Alternative Form of Regulation )  
Phase II )

Direct Prefiled Testimony

of

Stephen R. Eckberg  
Utility Analyst

*Dated: July 17, 2009*

1     **I.     INTRODUCTION**

2     **Q.     Please state your name and occupation.**

3     A.     My name is Stephen R. Eckberg. I am employed as a utility  
4           analyst with the Office of Consumer Advocate (OCA). My  
5           qualifications are included as Attachment 1 to this  
6           testimony.

7  
8     **Q.     Have you testified previously in this docket?**

9     A.     No. I participated in the first phase of this docket for  
10          the OCA but did not file testimony. The OCA filed  
11          testimony from Robert Loube Ph.D. during the first phase of  
12          this Docket.

13  
14    **Q.     Please summarize the purpose of your testimony.**

15    A.     The purpose of my testimony is to identify certain areas of  
16          concern that I have with the supplemental direct testimony  
17          of Michael C. Reed filed on January 29, 2009 in this docket  
18          on behalf of Kearsarge Telephone Company (KTC) and  
19          Merrimack County Telephone Company (MCT) ("Supplemental  
20          Filing").

21

22    **II.    HISTORY OF PROCEEDINGS**

23    **Q.     You referred above to the "first phase" of this docket,**  
24          **please briefly describe the procedural history of this**  
25          **case.**

1 A. On March 1, 2007, KTC, Wilton Telephone Company (WTC),  
2 Hollis Telephone Company (HTC) and MCT, (collectively, the  
3 "TDS Companies"), each a wholly-owned subsidiary of  
4 Telephone & Data Systems, Inc. (TDS), filed petitions with  
5 the Commission seeking approval of an alternate form of  
6 regulation pursuant to RSA 374:3-b. On December 3, 2007,  
7 the TDS Companies, segTEL, OCA and Staff filed a settlement  
8 agreement amending the four alternative regulation plans  
9 and recommending their approval ("Settlement Agreement").  
10 One party, MCT customer Daniel Bailey (represented by New  
11 Hampshire Legal Assistance) opposed the Settlement  
12 Agreement.

13  
14 **Q. What was the Commission's decision on the Settlement**  
15 **Agreement?**

16 A. On April 23, 2008, in Order 24,852 ("Final Order"), the  
17 Commission granted WTC and HTC an alternative form of  
18 regulation consistent with the Settlement Agreement.  
19 However, the Commission rejected the Settlement Agreement  
20 to the extent it provided for alternative regulation of KTC  
21 and MCT. See Final Order, at pp. 29-30. The Commission did  
22 not find that the record supported a requisite finding of  
23 available alternative services in each of the exchanges,  
24 based on one exchange in each of the two service  
25 territories: Salisbury in KTC and Sutton in MCT. See Id.  
26 See also RSA 374:3-b, 111(a) (requiring availability of

1 "[c]ompetitive wireline, wireless or broadband service. . .  
2 to a majority of the retail customers in each of the  
3 exchanges served"). The Commission also determined that it  
4 would keep the record open for one year to allow for the  
5 submission of further evidence concerning alternative  
6 service availability in the KTC and MCT exchanges. See  
7 Final Order, at p. 30.

8  
9 **Q. In ruling on the Settlement Agreement, as it applied to KTC**  
10 **and MCT, did the Commission consider whether competitive**  
11 **alternatives were available to a majority of the customers**  
12 **within all of the exchanges served by these two companies?**

13 A. No. The Commission only reached a determination on the  
14 issue of whether alternatives existed within the Sutton and  
15 Salisbury exchanges. See Final Order, at pp. 28-29. It  
16 did not reach a determination on the issue of  
17 competitiveness in these two exchanges. See Id. at p. 29.  
18 The Commission also did not consider the existence of  
19 alternatives in other exchanges served by KTC and MCT. Id.  
20 at pp. 28-30.

21  
22 **III. SUPPLEMENTAL FILING BY KTC AND MCT**

23 **Q. Why did Mr. Reed file the Supplemental Filing?**

24 A. As mentioned above, the Commission's Final Order permitted  
25 KTC and MCT to file further evidence concerning alternative  
26 service availability within their exchanges. See Final

1 Order, at p. 30. The Supplemental Filing responded to this  
2 provision of the Final Order. See Reed Supp. Direct at p.  
3 2, lines 11-15.  
4

5 **Q. Does the Supplemental Filing include any new data or**  
6 **information?**

7 A. Yes. KTC and MCT retained the services of a company called  
8 C Squared Systems, LLC ("C Squared") "to physically measure  
9 the strength of the wireless signal available throughout  
10 the Sutton and Salisbury exchanges." See Reed Supp. Direct  
11 at p. 3, line 23 through p. 4, line 2. The Supplemental  
12 Filing includes the results of C Squared's "benchmarking,"  
13 or signal-strength, analysis. Specifically, the  
14 Supplemental Filing includes C Squared's "Multi-Carrier  
15 Benchmarking Reports" and "related coverage maps." See  
16 Reed Supp. Direct at p. 4, line 20.  
17

18 **Q. How does Mr. Reed interpret the C Squared data?**

19 A. Mr. Reed contends that C Squared's benchmarking analysis  
20 shows that "wireless service is available to the majority  
21 of the retail customers in the Sutton and Salisbury  
22 exchanges." See Reed Supp. Direct at page 3, lines 4-6. He  
23 also points to the CoverageRight®<sup>2</sup> maps depicting New

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<sup>2</sup> In original Reed Direct Testimony filed March 1, 2007, at page 8, the name of the map database product was redacted. In Reed's Supplemental Direct Testimony filed January 29, 2009, on page 12, Mr. Reed states the product name without redaction. Therefore, I use the map database product name here without redaction.

1 Hampshire<sup>3</sup>, which were filed with the original petition, and  
2 states that these, "indicate[ ] that wireless  
3 telecommunications is offered to virtually 100% of the  
4 service areas within these two exchanges." Reed Supp.  
5 Direct, at p. 12, lines 13-16. He concludes, with regard  
6 to the Sutton and Salisbury exchanges, that "The wireless  
7 coverage shown on the CoverageRight® map ... is consistent  
8 with the actual measurements provided by C Squared." Reed  
9 Supp. Direct, at p. 12, line 23, through p. 13, line 2.

10

11 **Q. For the other exchanges served by MCT and KTC, what**  
12 **evidence does Mr. Reed rely upon to support the assertion**  
13 **that competitive alternatives are available to a majority**  
14 **of the customers within these exchanges?**

15 A. To prove that wireless service is available to the majority  
16 of customers in the MCT exchanges of Bradford and Warner,  
17 and the KTC exchange of Andover, Mr. Reed relies upon the  
18 CoverageRight® map, Exhibit G, again. See Reed Supp.  
19 Direct, at p. 17, lines 1-10. Specifically, Mr. Reed  
20 asserts that because the CoverageRight® map is "consistent"  
21 with the C Squared's benchmarking analysis of the Sutton  
22 and Salisbury exchanges, "it is reasonable for the  
23 Commission to rely upon the CoverageRight® maps for  
24 determining [whether the Bradford, Warner and Andover

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<sup>3</sup> See MCR – Exhibit G (Confidential). In a data request of Mr. Bailey, 1-29, the Companies produced enlarged sections of Exhibit G, corresponding to the Sutton (TDS CONF 0267) and Salisbury (TDS Conf 0268) exchanges. These are 24" X 36" maps and are not attached to my testimony.

1 exchanges] have wireless service available to the majority  
2 of their customers." See Reed Supp. Direct, at p. 12, line  
3 23, through p. 13, line 5. See also Id. at p. 17, lines 7-  
4 10.

5

6 **Q. With respect to the remaining exchanges served by KTC and**  
7 **MCT, upon what evidence does Mr. Reed base his conclusion**  
8 **that competitive alternatives are available to a majority**  
9 **of the customers?**

10 **A.** Mr. Reed relies on Exhibit E to his original (Phase 1)  
11 direct testimony, and states that it shows "the MCT  
12 exchanges of Antrim, Contoocook, Henniker, Hillsboro and  
13 Melvin Village, as well as the KTC exchanges of Boscawen,  
14 Chichester, Meriden and New London have an alternative  
15 service, cable broadband, which is available to a majority  
16 of the customers in each of those exchanges." Reed Supp.  
17 Direct, at p. 16, lines 17-21.

18

19 **Q. Did C Squared conduct a benchmarking analysis for any other**  
20 **exchanges served by KTC and MCT besides Salisbury and**  
21 **Sutton?**

22 **A.** No.

23

24

25

26

1    **IV.    OCA'S POSITION**

2    **Q.    Before turning to the Supplemental Filing, what is the**  
3       **OCA's position on the standard that the Commission should**  
4       **apply in reviewing this information and KTC and MCT's**  
5       **renewed request for approval of the Settlement Agreement.**

6    A.   On advice of counsel, it is my understanding that in ruling  
7       on the Supplemental Filing and the renewed request for  
8       approval of the Settlement Agreement, as it pertains to KTC  
9       and MCT, the Commission must determine that competitive  
10      alternatives exist for a majority of the customers in each  
11      exchange served by MCT and KTC.  See Final Order, at pp.  
12      28, *citing* RSA 374:3-b, III(a).

13

14   **Q.    If the OCA was a signatory to the Settlement Agreement, why**  
15       **is it participating in the discussion of whether or not**  
16       **competitive alternatives exist in the exchanges served by**  
17       **MCT and KTC?**

18   A.   One might think that because the OCA agreed in the  
19       Settlement Agreement to plans for alternative regulation  
20       for KTC and MCT that it would not now dispute the  
21       Commission's approval of those plans based upon the  
22       Companies' Supplemental Filing.  However, the OCA's  
23       understanding of the Commission's Final Order is that it  
24       effectively modified the terms of the Settlement Agreement  
25       and the proposed plans for KTC and MCT.  Because of this  
26       modification by the Commission, the OCA is participating in



1 the present discussion of whether or not competitive  
2 alternatives exist for a majority of customers within the  
3 exchanges served by MCT and KTC.  
4

5 **Q. Please explain further how the OCA believes that the**  
6 **Commission's Final Order modified the Settlement Agreement,**  
7 **as it pertains to KTC and MCT.**

8 A. The Settlement Agreement, as it pertained to KTC and MCT,  
9 did not permit an immediate transition to alternative  
10 regulation. See Settlement Agreement, p. 4, section 6.1.  
11 Instead, the Settlement Agreement required KTC and MCT to  
12 maintain their basic service rates in all of its exchanges  
13 for a period of two years. Id. The two year period begins  
14 upon Commission approval of the plans. After the two year  
15 period, the Settlement Agreement allowed the Companies to  
16 transition to alternative regulation "when the Petitioners  
17 ... show that at least one of the tests set forth in Section  
18 6.2 shall have been met for that exchange." Id. The last  
19 test in Section 6.2, subsection v., is "the affected  
20 Petitioner demonstrates to the Commission that wireless or  
21 nonaffiliated broadband service is available to a majority  
22 of retail customers in the affected exchanges and that such  
23 service is 'competitive' within the meaning of RSA 374:3-  
24 b." Settlement Agreement, p. 5, section 6.2 (v).  
25

1 The reasoning underlying these provisions, at least from  
2 the perspective of the OCA, was that the two-year phase-in  
3 period would enable the development of competitive  
4 alternatives in the KTC and MCT exchanges before KTC's and  
5 MCT's prices were deregulated. The "tests" in section 6.2  
6 provided an additional level of protection to consumers in  
7 that KTC and MCT had to make an affirmative showing that  
8 such competition existed after two years and before its  
9 prices were deregulated.

10  
11 Had the Commission approved these terms as proposed, at the  
12 end of the two year period, the OCA would have likely  
13 participated in the Commission's review of whether KTC and  
14 MCT satisfied the Section 6.2 (v) test. When the  
15 Commission ruled on the Settlement Agreement and permitted  
16 the Company to demonstrate that competitive alternatives  
17 exist presently within the exchanges served by KTC and MCT,  
18 it effectively moved up the timing of the Section 6.2 (v)  
19 test.

20  
21 Based on advice of counsel, I believe that if the  
22 Commission determines now that competitive alternatives are  
23 available to a majority of the customers in each exchange  
24 served by KTC and MCT, it will not review this issue again,  
25 as provided by Section 6.2 of the Settlement Agreement,  
26 after the two-year rate freeze expires. Consequently, if

1 the OCA does not participate now in the Commission's review  
2 of the supplemental filing, and the associated discussion  
3 about whether or not KTC and MCT have satisfied the burden  
4 of RSA 374:3-b, in effect the test in Section 6.2 (v) of  
5 the Settlement Agreement, the OCA would forego the  
6 opportunity provided by Section 6.2 to protect residential  
7 ratepayers.

8

9 **Q. So, to be clear, is it the OCA's position that KTC and MCT**  
10 **are still required to maintain existing basic rates for two**  
11 **years, as required by Section 6.1 of the Settlement**  
12 **Agreement, if the Commission approves the Settlement**  
13 **Agreement as it relates to KTC and MCT?**

14 **A.** Yes. The OCA negotiated and expects a two-year rate freeze  
15 in the KTC and MCT exchanges after a Commission Order  
16 approving the proposed alternative regulation for KTC and  
17 MCT.

18

19 **Q. Turning to the Supplemental Filing itself, do you have any**  
20 **concerns with the supplemental information or the arguments**  
21 **that are presented in Mr. Reed's testimony?**

22 **A.** Yes, I do. The areas of concern I have with Mr. Reed's  
23 supplemental testimony relate to:  
24 1) Mr. Reed's assertion that the results of the signal  
25 strength analysis by C Squared for Sutton and Salisbury are  
26 consistent with the CoverageRight® map depicting these

exchanges (see Reed Supp. Direct, at p. 12, line 23,  
through p. 13, line 2);

2) Mr. Reed's assertion that this "consistency" proves  
that the CoverageRight® map is an accurate depiction of the  
extent of competitive alternatives available to customers  
in all New Hampshire exchanges, including the MCT exchanges  
of Bradford and Warner, and the KTC exchange of Andover  
(see Reed Supp. Direct, at p. 17, lines 1-10); and

3) Mr. Reed's assertion that the CoverageRight® map shows  
that wireless telecommunications is available to virtually  
100% of the service area within these three exchanges."

See Reed Supp. Direct at p. 17, lines 6-10.

**Q. Please address your first concern regarding the signal-  
strength data.**

A. My first concern is related to certain areas in the Sutton  
and Salisbury exchanges. To see these physical locations  
consult Confidential Attachments 2 and 3 to my testimony.  
These are smaller versions (8.5" by 11") of confidential  
maps originally provided by the Company in response to data  
request Staff 2-5 and Staff 2-6 regarding Salisbury and  
Sutton, respectively. The original versions provided by  
the Company were 24" by 36" and are labeled TDS-CONF 0269

1 (Confidential) and TDS CONF 0270 (Confidential),  
2 respectively.<sup>4</sup>

3  
4 Both of my Confidential Attachments, 2 and 3, show the C  
5 Squared signal-strength data, TDS customer location  
6 information, and the CoverageRight® map data all overlaid  
7 onto a single map. On my Confidential Attachment 2 for the  
8 Salisbury exchange in KTC and on my Confidential Attachment  
9 3 for the Sutton exchange in MCT, I have identified certain  
10 areas, marked with polygons, which <<<Begin Confidential>>>

11  
12 <<<End Confidential>>>.

13  
14 This <<<Begin Confidential>>>

15 <<<End Confidential>>> data is explained by Mr.  
16 Reed in this way: "...while keeping in mind that wireless  
17 signal strength works its way down a negative list of  
18 numbers from strong to weak, we determined that a wireless  
19 signal of -90dBm or stronger is a conservative benchmark  
20 level for determining whether or not an area is being  
21 served by a wireless signal. As a result, any wireless  
22 signal that was not at least as strong as -90dBm was  
23 excluded." See Reed Supp. Direct, at p. 8, lines 7-12.

24  

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<sup>4</sup> These larger maps are not included with my testimony.

1 Q. How did you identify the roads that were driven by C  
2 Squared?

3 A. The Supplemental Filing included <<<BEGIN CONFIDENTIAL>>>

4

5

6

7

8

9

<<<END CONFIDENTIAL>>>.

10 In response to a data request propounded by the OCA, the  
11 Company confirmed that <<<BEGIN CONFIDENTIAL>>>

12

13

14

15

16 <<<END CONFIDENTIAL>>> See KTC and MCT response to OCA 2-13  
17 (Confidential)(emphasis added)(Attachment 4).

18

19 For the Salisbury exchange, the Supplemental Filing also  
20 included <<<BEGIN CONFIDENTIAL>>>

21

22

23

24

25

26 <<<END CONFIDENTIAL>>>. Based upon KTC and MCT's

1 response to OCA 2-13 (Confidential), I presume that

2 <<<BEGIN CONFIDENTIAL>>>

3

4 <<<END

5 CONFIDENTIAL>>>.

6

7 The roads <<<BEGIN CONFIDENTIAL>>>

8 <<<END CONFIDENTIAL>>> that I identify on my

9 Confidential Attachments 2 and 3 for Salisbury and Sutton,

10 respectively, correspond to the <<<BEGIN CONFIDENTIAL>>>

11

12 <<<END

13 CONFIDENTIAL>>>.

14

15 Q. Is it problematic that <<<BEGIN CONFIDENTIAL>>>

16

17

18 <<<END CONFIDENTIAL>>>?

19 A. Not in and of itself. While it is not surprising that

20 <<<BEGIN CONFIDENTIAL>>>

21

22

23

24 <<<END CONFIDENTIAL>>>, it is problematic that <<<BEGIN

25 CONFIDENTIAL>>>

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<<<END CONFIDENTIAL>>>.

**Q. Please explain this problem.**

A. The CoverageRight® data depicts the number of wireless service providers within the geographic area, using various shades of green. Looking at Confidential Attachments 2 and 3 to my testimony, it is easy to see that <<<BEGIN CONFIDENTIAL>>>

<<<END CONFIDENTIAL>>>. This indicates to me that it is difficult, if not impossible, to establish any meaningful relationship between the number of service providers (*i.e.*, the shade of green) at a specific geographic spot and what the signal strength might be at that spot.

**Q. Please explain why it is important to understand the relationship between the signal strength data and the number of wireless carriers providing coverage at a specific geographic spot.**

A. This connects to my second area of concern that I identified above. While the Company has provided this



1 extensive additional signal strength data for the Sutton  
2 and Salisbury exchanges, they have not done so for several  
3 other exchange areas with similar rural characteristics.  
4 For three other rural exchanges, the MCT exchanges of  
5 Bradford and Warner, and the KTC exchange of Andover, the  
6 Company, instead, relies on what it perceives as a  
7 "consistent" relationship between C Squared signal-strength  
8 data and the CoverageRight® data indicating the number of  
9 wireless carriers marketing service in the Sutton and  
10 Salisbury exchange territories to support its conclusion  
11 that "...wireless service is available to the majority of  
12 customers" within the Bradford, Warner and Andover  
13 exchanges. See Reed Supp. Direct, p. 12, line 23, through  
14 p. 13, line 5; and p. 17, lines 1-10. In other words, KTC  
15 and MCT assert that, because the C Squared data for Sutton  
16 and Salisbury is "consistent" with the CoverageRight® data  
17 for these exchanges, the CoverageRight® data is sufficient  
18 proof that competitive alternatives exist for a majority of  
19 the customers in the Bradford, Warner and Andover  
20 exchanges.

21  
22 **Q. Do you agree that the information provided by the Company**  
23 **for the Sutton and Salisbury exchange territories supports**  
24 **the claim that wireless service is available to a majority**  
25 **of customers in the other exchange territories you just**  
26 **mentioned?**

1 A. No, I do not. The Company is relying on the CoverageRight®  
2 map data alone to demonstrate that simply because one or  
3 more wireless carriers claim to be providing service at a  
4 particular location, there *must be* adequate signal strength  
5 at that location to support a wireless call.

6  
7 The data provided by the Company does not demonstrate a  
8 relationship or correlation between the C Squared signal  
9 strength data and the CoverageRight® data that is  
10 sufficiently strong such that the CoverageRight® data alone  
11 can be used in another exchange territory to make an  
12 inference about the signal strength at any geographic  
13 location within that other exchange territory.

14  
15 The CoverageRight® data does show the "most current  
16 marketed footprints" provided by wireless carriers  
17 themselves about their service areas. *See, e.g.,* KTC and  
18 MCT response to Bailey Phase II, 2-5 (c) (Attachment 5)  
19 ("Each carrier sets its own policies on how they want to  
20 represent their coverage. All coverage patterns are  
21 estimates. They represent a probability of being able to  
22 place or receive a call. Each carrier can set the cut-off  
23 point at which they no longer feel comfortable marketing  
24 their service"). The CoverageRight® data, however, *does*  
25 *not* provide any information about signal strength, and the  
26 Company has not provided evidence that one could use to

1 guess, estimate, or otherwise impute any definitive  
2 information about the actual wireless signal strength by  
3 looking solely at the information on the CoverageRight®  
4 maps - which is what the Company suggests the Commission do  
5 in the exchanges of Bradford, Warner, and Andover.

6

7 **Q. In the first phase of this proceeding, in ruling on the**  
8 **settlement agreement, as it applied to KTC and MCT, did the**  
9 **Commission reach any conclusions on the original evidence**  
10 **provided by the TDS Companies, including the CoverageRight®**  
11 **data?**

12 **A.** Yes, the Commission determined in its Final Order, that  
13 "The TDS Companies' reliance on wireless coverage estimates  
14 by wireless providers [, the CoverageRight® data,] [was]  
15 not sufficient to demonstrate availability of third party  
16 offerings." See Reed Supp. Direct at p. 11, lines 15-17,  
17 *citing* Final Order, at p. 29.

18

19 **Q. Do you agree with this conclusion of the Commission about**  
20 **the CoverageRight® data?**

21 **A.** Yes.

22

23 **Q. What is your opinion of the value of the supplemental**  
24 **signal strength data provided by the Company in the Sutton**  
25 **and Salisbury exchange territories?**

1 A. I believe this data does indeed provide significant  
2 additional evidence about the availability of wireless  
3 service on the roadways in the Sutton and Salisbury  
4 exchanges where the testing was conducted and the data  
5 gathered. However, I do not feel comfortable stating  
6 whether or not this data conclusively demonstrates that  
7 wireless service is available to a majority of customers  
8 within these exchanges. At the very least, in order for  
9 wireless service to be considered a "competitive  
10 alternative" to landline telephone service, it seems that  
11 the wireless service should be available and function where  
12 the customer uses her/his landline service - within the  
13 home.<sup>5</sup>

14  
15 **Q. Does the supplemental signal strength data inform you on**  
16 **this point?**

17 A. No. In fact, just the opposite is true. In response to  
18 discovery, the Company stated:

19 There are differences between signal strengths within  
20 people's homes and signal strengths outside on the  
21 roads ... It is important to note that while there may  
22 be areas outside on the roads where the signal  
23 strength is stronger than in the home, there may be  
24 conversely areas in the home where signal strength is  
25 stronger than outside on the road, *i.e.*, the second  
26 floor bedroom, 15 feet above the ground. That is, the  
27 answer is dependent upon many factors: the location of  
28 the home relative to the serving signal, ground  
29 elevation of the home, foliage density around the  
30 residence, building material, etc. In a vehicle on the

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<sup>5</sup> It is important to note here, that Dr. Loube, on behalf of the OCA in the first phase of this proceeding, discussed other ways that wireless service may not be a competitive alternative to TDS's landline service. For more information about this issue, please see Loube Direct Testimony, October 12, 2007, pp. 12-14.

1 road, the factors affecting the signal strength may be  
2 the shadowing effect of the trees or the landscape,  
3 the density of the foliage relative to the road, the  
4 speed of the vehicle, the location of the handset  
5 within the vehicle, etc.  
6

7 See response to OCA 2-4 (Attachment 6). This response  
8 leaves me with unanswered questions about whether the  
9 wireless service that is available outside of customers'  
10 homes, on the roadways, is also available and functional  
11 within the customers' home.  
12

13 **Q. What are the OCA's recommendations for the Commission?**

14 A. In light of the problems I have identified with the

15 <<<BEGIN CONFIDENTIAL>>>

16 <<<END CONFIDENTIAL>>> and the number of  
17 providers of wireless service, the latter of which the  
18 Company asserts should be relied on in certain other  
19 exchange territories as evidence of wireless availability,  
20 as well as the uncertainty that remains as to whether and  
21 how signal strength in the home relates to signal strength  
22 on the road, I recommend that the Commission find that  
23 wireless service is not "available" for the purposes of  
24 establishing the presence of competitive alternatives in  
25 the Sutton exchange of MCT and the Salisbury exchange of  
26 KTC. Further, it is the OCA's position that the evidence  
27 provided also does not support the Company's claims  
28 regarding availability of competitive alternatives to a

1 majority of customers in the MCT exchanges of Bradford and  
2 Warner, and the KTC exchange of Andover.

3

4 Q. Does this conclude your testimony?

5 A. Yes.

6

Qualifications of Stephen R. Eckberg

My name is Stephen R. Eckberg. I am employed as a Utility Analyst with the Office of Consumer Advocate (OCA), where I have worked since 2007. My business address is 21 S. Fruit Street, Suite 18, Concord, New Hampshire 03301.

I earned a B.S. in Meteorology from the State University of New York at Oswego in 1978, and an M.S. in Statistics from the University of Southern Maine in 1994.

After receiving my M.S., I was employed as an analyst in the Boston office of Hagler Bailly, Inc, a consulting firm working with regulated utilities to perform evaluations of energy efficiency and demand-side management programs.

From 2000 through 2003, I was employed at the NH Governor's Office of Energy and Community Services (now the Office of Energy and Planning) as the Director of the Weatherization Assistance Program. Most recently, I was employed at Belknap-Merrimack Community Action Agency as the Statewide Program Administrator of the NH Electric Assistance Program (EAP). In that capacity, I presented testimony before this Commission in dockets related to the design, implementation and management of the EAP. I have also testified before Committees of the New Hampshire Legislature on issues related to energy efficiency and low income electric assistance.

In my position with the OCA, I have testified jointly with Kenneth E. Traum, Assistant Consumer Advocate, in DG 08-048, Unitil Corporation and Northern Utilities, Inc. Joint Petition for Approval

of Stock Acquisition, in DW 08-070, Lakes Region Water Company  
Petition for Financing and Step Increases and in DW 08-098 Aquarion  
Water Company of New Hampshire. I have also entered testimony in DW  
08-073, Pennichuck Water Works, Inc. Petition for Rate Increase and in  
DW 08-065, Hampstead Area Water Company, Petition for Rate Increase.

I am a member of the American Statistical Association. I have  
attended regulatory training at New Mexico State University's Center  
for Public Utilities, and I participate in committees of the National  
Association of State Consumer Advocates (NASUCA) on behalf of the OCA.



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## CONFIDENTIAL

**OCA 2.13:** Please explain why the <<<BEGIN CONFIDENTIAL>>>  
<<<END CONFIDENTIAL>>> as shown on MCR Exhibit C  
(page MCR 0020) does not agree with the <<<BEGIN CONFIDENTIAL>>>  
<<<END CONFIDENTIAL>>> shown in MCR Exhibit E on  
page MCR 0033. Specifically, <<<BEGIN CONFIDENTIAL>>>  
<<<END CONFIDENTIAL>>> shown on page MCR 0033 than on page  
MCR 0020.

**RESPONSE:** Exhibit E was the planned drive route. The actual drive route altered slightly based on access to certain roads. Exhibit C was modified to show the actual drive route. We did not go back to alter Exhibit E following the drive test.

Mike Reed is responsible for this response.

## CONFIDENTIAL

**BAILEY 2.5:** Please refer to TDS response to Bailey 1.31, relating to Exhibit G, the "CoverageRight" map. TDS said: "The map was created using ESRI ArcGIS (ArcView with Spatial Analyst) software and CoverageRight database (2006) consisting of vector polygon cellular mapping layers." Please:

- a) Identify all readings, tests or other data which serve as the inputs in the CoverageRight database,
- b) Identify the source or sources of the inputs (e.g. cellular company provided marketing information, roaming agreements, independent tests of coverage, etc.),
- c) Identify the methodologies used to create the CoverageRight database,
- d) Please also reference *In the Matter of Examining a Framework For Regulatory Relief*, CASE 07-C-0349, 2008 N.Y. PUC LEXIS 88, 14-15 (2008); TDS 0199. This decision does not specifically indicate that the "CoverageRight" database from American Roamer, Inc. was used in the analysis. Please identify the various cellular coverage maps and coverage map databases that can be purchased or leased from American Roamer, Inc., and explain why TDS selected the CoverageRight database,
- e) Please also reference *In the Matter of Examining a Framework For Regulatory Relief*, CASE 07-C-0349, 2008 N.Y. PUC LEXIS 88, 14-15 (2008); TDS 0199. As referenced on this page, please identify what methodologies are used by American Roamer, Inc. maps, and specifically in the CoverageRight database, to identify coverage "holes" in service,
- f) Did TDS purchase or lease the CoverageRight database (2006)? If so, from whom? If the answer to this question is yes, please provide the database subject to an appropriate confidentiality agreement.

### RESPONSE:

- a) See response to (f) below.
- b) See response to OCA 2.9.
- c) See response to OCA 2.9. Each carrier sets its own policies on how they want to represent their coverage. All coverage patterns are estimates. They represent a probability of being able to place or receive a call. Each

carrier can set the cut-off point at which they no longer feel comfortable marketing their service. There are various software programs used to "predict" the signal strength and each one will show a slightly different result when being fed the same information. Some smaller carriers are too small to run these predictions in-house and will contract with an outside engineering firm to develop their RF propagation predictions. In the few instances where they do not receive patterns from the carriers, they collect the information in whatever manner they can (usually from their marketing materials), geo-register the images and convert the information into the same types of polygons that represent other carriers. The CoverageRight product wraps all the most current marketed footprints into a convenient package offering all the files in the same compatible format.

- d) CoverageRight Voice: Contains marketed coverage patterns for all carriers in the US, Canada and Mexico for all voice technology analog and digital.

CoverageRight Advanced Services: Contains marketed coverage patterns for all carriers in the US, Canada and Mexico for all data/broadband technologies (i.e. EVDO, Edge, Ixrtt, etc.)

MarketRight: Contains all license holding for all wireless carriers in the US. Supports PCS, CMA, AWS, 700MHZ, etc.

MarketRight PowerPack: An addition to MarketRight that includes more detailed information like the System Identifier(SID), Broadcast Identifier (BID), etc.

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CONFIDENTIAL>>>

- e) Any holes shown within the coverage patterns are those disclosed by the carriers themselves.
- f) The CoverageRight product is purchased on a subscription basis from Empower Geographics, a reseller of American Roamer products. U.S. Cellular holds an existing license. In the past, U.S. Cellular provided TDS Telecom with the entire database, but after re-negotiating the contract and T&Cs, U.S. Cellular can no longer provide the entire database outside of

the specific licenses they purchase. As such, TDS Telecom cannot provide the data base.

Michael C. Reed is responsible for this response.

**OCA 2.4:** Refer to OCA 1-6. Please provide a response by C Squared to this question, based upon its understanding of the industry.

**RESPONSE:** See Response to OCA 2.12. There are differences between signal strengths within people's homes and signal strengths outside on the roads. A complete response to this question would require hours of testimony and a multitude of supporting documentation and literature. It is important to note that while there may be areas outside on the roads where the signal strength is stronger than in the home, there may be conversely areas in the home where signal strength is stronger than outside on the road, i.e., the second floor bedroom, 15 feet above the ground. That is, the answer is dependent upon many factors: the location of the home relative to the serving signal, ground elevation of the home, foliage density around the residence, building material, etc. In a vehicle on the road, the factors affecting the signal strength may be the shadowing effect of the trees or the landscape, the density of the foliage relative to the road, the speed of the vehicle, the location of the handset within the vehicle, etc.

Dan Goulet is responsible for this response.