

**BEFORE THE  
STATE OF NEW HAMPSHIRE  
PUBLIC UTILITIES COMMISSION**

**Kearsarge Telephone Company, ) Case No. DT 07-027  
Wilton Telephone Company, )  
Hollis Telephone Company and )  
Merrimack County Telephone Company )  
Petition for an Alternate Form of Regulation )**

**REBUTTAL TESTIMONY**

**of  
Ben Johnson, Ph.D.**

**July 17, 2009**

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**Introduction**

**Q. Would you please state your name and address?  
A. Ben Johnson, 3854-2 Killearn Court, Tallahassee, Florida.**

1 **Q. What is your present occupation?**

2 A. I am a Consulting Economist and President of Ben Johnson Associates, Inc.®, a  
3 consulting firm specializing in public utility regulation.

4

5 **Q. Are you the same Ben Johnson that filed testimony in this proceeding on October 12,**  
6 **2007?**

7 A. Yes I am.

8

9 **Q. What is your purpose in making your appearance at this hearing?**

10 A. Our firm has been retained by New Hampshire Legal Assistance (NHLA) to evaluate the  
11 supplemental testimony and additional evidence submitted by TDS in this proceeding.

12 Following this introduction, my testimony has four major sections. In the first  
13 section, I briefly sketch the background of this proceeding. In the second section, I  
14 analyze the supplemental data provided by TDS. Among other things, I draw into  
15 question TDS' conclusion that the majority of customers in the Salisbury and Sutton  
16 exchanges can receive "good" or "very good" wireless signals. I explain my doubts  
17 concerning this evidence, as well as its relevance. In the third section, I discuss the  
18 competitive implications of TDS' supplemental evidence. I show that even if the signals  
19 are strong enough to satisfy some of the communication needs of a majority of the TDS'  
20 customers in these exchanges, that would not necessarily indicate that wireless service is  
21 a "competitive" alternative for land line service in this area, or that the statutory  
22 requirements for deregulation have been satisfied. Finally, in the fourth section, I

1 summarize my conclusions and recommendations for Commission action in this matter. I  
2 conclude that TDS has not presented any evidence that "additional competitors" have  
3 entered the Sutton or Salisbury exchanges, or that "existing competitors" have been  
4 gaining market share. TDS has also failed to show that wireless service standing alone is  
5 sufficient to constitute a "competitive" alternative in Sutton or Salisbury. Finally, TDS has  
6 not presented any evidence suggesting that competitive pressures are increasing in the  
7 Kearsarge and Merrimack exchanges. Accordingly, I recommend the Commission reject  
8 TDS' petitions for Kearsarge and Merrimack.

9  
10

11 **Background**

12

13 **Q. Let's turn to the first section of your testimony. Would you please briefly**  
14 **summarize the history of the instant docket?**

15 A. Yes. On March 1, 2007, MTC, KTC, WTC and HTC filed petitions with the Commission  
16 for an alternative form of regulation pursuant to RSA 374:3-b. The petitions and proposed  
17 price cap plans filed by each company are essentially identical. The proposals requested  
18 regulation of the TDS Companies' retail operations comparable to the regulation  
19 currently applied to competitive local exchange carriers (CLECs). The plans would set  
20 retail rates comparable to those of FairPoint Communications NNE, and would limit  
21 increases to no more than 10 percent per year for the four years following Commission  
22 approval.

1           On December 3, 2007, TDS, segTEL, OCA, and Staff filed a joint settlement  
2 agreement. A hearing on the petitions and settlement agreement was held on December 4  
3 and 5, 2007. On April 23, 2008, the Commission issued Order No. 24,852, in which it  
4 concluded that the plans submitted by TDS met the standard under RSA 374:3-b, III(a)  
5 for the Wilton and Hollis exchanges. [Order 24,852, p. 27]

6

7 **Q. Can you elaborate on the Commission's decision in Order No. 24,852?**

8 A. In Order No. 24,852, the Commission used a two step process to evaluate whether  
9 alternative regulation pursuant to RSA 374:3-b would be appropriate for the TDS  
10 companies. First, the Commission analyzed whether third-party wireline, wireless or  
11 broadband service is available to a majority of the customers in each exchange served by  
12 the TDS companies. Second, if such third-party services are available, the Commission  
13 analyzed whether the alternatives were "competitive" within the meaning of Subsection  
14 III(a). Under Subsection III(a), the Commission must determine whether or not each of  
15 the following conditions are met:

16

- 17 • Competitive wireline, wireless, or broadband service is available to a majority of the  
18 retail customers in each of the exchanges served by such small incumbent local  
19 exchange carrier
- 20 • The plan provides for maximum basic local service rates at levels that do not exceed  
21 the comparable rates as charged by the largest incumbent local exchange carrier  
22 operating in the state and that do not increase by more than 10 percent in each of the 4

1           years after a plan is approved with the exception that the plan may provide for  
2           additional rate adjustments, with public utilities commission review and approval, to  
3           reflect changes in federal, state, or local government taxes, mandates, rules,  
4           regulations, or statutes

- 5           • The plan promotes the offering of innovative telecommunications services in the state
- 6           • The plan meets intercarrier service obligations under other applicable laws
- 7           • The plan preserves universal access to affordable basic telephone service
- 8           • The plan provides that, if the small incumbent local exchange carrier operating under
- 9           the plan fails to meet any of the conditions set out in the section, the public utilities
- 10          commission may require the small incumbent local exchange carrier to propose
- 11          modifications to the alternative regulation plan or rate of return regulation. [RSA
- 12          374:3-b(III)]

13  
14       **Q. What did the Commission conclude?**  
15       A. The Commission concluded that third-party alternatives are available to the majority of  
16       the customers in the Wilton and Hollis exchanges. [Order, p. 27] The Commission also  
17       concluded that the alternatives were "competitive".

18                               The level of competition between those third party alternatives and  
19                               the local services provided by Wilton and Hollis, is sufficient to permit  
20                               regulation under the amended alternative regulation plans filed by  
21                               Wilton and Hollis". [Id., p. 27]

22  
23  
24       The Commission's conclusions were based in part upon the testimony of Staff witness  
25       Gage, who found that alternative third-party cable broadband and wireless services were

1 available to a majority of the customers in both the Wilton and Hollis exchanges. The  
2 Commission's conclusions were also based upon evidence regarding TDS' loss of lines,  
3 minutes of use and revenues in these exchanges.

4  
5 **Q. What did the Commission conclude with regard to the Kearsarge and Merrimack**  
6 **exchanges?**

7 A. The Commission performed a similar analysis for the Kearsarge and Merrimack  
8 exchanges, noting that each of these companies have multiple exchanges. [Id., p. 28] The  
9 Commission also noted that "if any exchange within either of those companies fails to  
10 meet the statutory test, the company may not receive approval for an alternative regulation  
11 plan". [Id., p.28]

12 The Commission started its analysis by examining Kearsarge's Salisbury exchange  
13 and Merrimack's Sutton exchange, since "they were the most rural exchanges in their  
14 respective company service territories". [Id., p. 29] The Commission concluded that the  
15 only alternative service available was wireless, but that it was not available to a majority  
16 of the customers in Sutton or Salisbury. "We need not reach an analysis of whether the  
17 alternatives are competitive in the Kearsarge and Merrimack service territories, because  
18 we do not find sufficient availability". [Id. p. 29]

19  
20 **Q. Did the Commission keep open the possibility of an alternative conclusion at some**  
21 **point in the future?**

22 A. Yes. The Commission decided to keep the Kearsarge and Merrimack petitions open for  
23 one year. TDS was allowed to update its testimony on the status of competition, "if, for



1 example, additional competitors enter those service territories, or if existing competitors  
2 increase their market presence". [Id., p. 30] The Commission also encouraged Kearsarge  
3 and Merrimack "to reduce market barriers by not opposing CLEC registrations, waiving  
4 the rural exemption and expediting interconnection negotiations, as proposed in the  
5 settlement". [Id.]

6  
7

8 **Analysis of Supplemental TDS Evidence**

9  
10

11 **Q. Did TDS take advantage of the opportunity to update its testimony?**

12 A. Yes. On January 29, 2009, TDS filed supplemental testimony which purports to show that  
13 wireless service is available to a majority of the customers in Sutton and Salisbury. The  
14 Company hired C Squared, an engineering firm, to measure wireless signal strength  
15 throughout these two exchanges. C squared drove "90% of all major commuter and  
16 secondary roads" measuring signal strength with carrier-specific handsets. [Reed  
17 Supplemental Testimony, p. 4] C Squared then developed coverage maps for Sutton and  
18 Salisbury. The maps are overlaid with customer locations, and purportedly depict where  
19 signal strength is "good" or "very good".

20 According to TDS, the test results developed by C Squared indicate "that the  
21 majority of the customers in the Sutton exchange and the majority of the customers in the  
22 Salisbury exchange have access to a good or a very good wireless signal..." [Id., p. 5] In  
23 addition to the supplemental evidence for Salisbury and Sutton, TDS relies on evidence

1 offered in its direct testimony regarding availability of competitive alternatives in other  
2 exchanges to conclude that all of the MCT and KTC exchanges have at least one  
3 alternative service available to a majority of the customers. [Id., p. 17]

4  
5 **Q. Do you agree that TDS' supplemental evidence proves that the majority of the**  
6 **customers in the Sutton exchange and the majority of the customers in the Salisbury**  
7 **exchange have access to a good or a very good wireless signal?**

8 A. I question this conclusion, as well as its relevance. First, it is not clear what portion of the  
9 roads within these exchanges were covered by C Squared's analysis. As I mentioned,  
10 TDS claims that C squared drove 90% of all major commuter and secondary roads. it is  
11 not clear how TDS calculated the 90% figure, what percentage of total roads were  
12 actually driven by C Squared, or what percentage of the homes are located along these  
13 major commuter and secondary roads. During the discovery process, TDS was asked for  
14 all calculations, work papers and other analyses used to derive the 90% figure. In  
15 response, TDS referenced Confidential Exhibits E and F, but did not provide the  
16 requested calculations and work papers. [See, Response to Bailey 1.3] Confidential  
17 Exhibits E and F both repeat the 90% figure, but neither document shows the derivation  
18 of this figure. During follow up discovery, TDS was asked to state whether any work  
19 papers or calculations exist to support the 90% figure, and to provide any that do exist.  
20 TDS did not answer the question, or provide any supporting calculations or work papers.  
21 TDS stated that certain maps were used to estimate the percentage, but that "actual miles  
22 driven were not tracked". [TDS response to Bailey FDR 1.1]

1           TDS was also asked what percentage of total roads (paved and unpaved) were  
2           driven by C Squared. In response, TDS did not provide the actual or estimated  
3           percentage of total roads driven. Instead, TDS stated that "C Squared drove approximately  
4           90% of the Class 1, 2 and 5 roads". [TDS reply to Baily 1.6 and 1.7]           Since a  
5           primary selling point for wireless service is the convenience it offers to consumers while  
6           they are on the go, wireless carriers focus on providing the strongest coverage along the  
7           roads where customers most frequently travel (e.g. routes used for daily commutes into  
8           town). The existence of strong signals along most of the route from someone's home to  
9           their place of employment doesn't necessarily indicate that they will receive a strong  
10          signal when they first turn out of their driveway to begin their commute. If there is  
11          adequate signal strength along large enough stretches of their commute, the customer may  
12          pay for wireless service, even if their mobile phone provides very poor service while they  
13          are at home. Therefore, it is significant that no evidence has been provided concerning  
14          how extensive the C Squared research was, relative to the total miles of roads located in  
15          these exchanges.

16                Second, C Squared's analysis was limited to signal strength along roads, rather  
17                than measuring signal strength away from the roads, where most homes are located  
18                within the Salisbury and Sutton exchanges. Stated another way, C Squared made no  
19                attempt to measure signal strength along driveways, or within the buildings where  
20                customers live. Signal strength as measured along the roads will not necessarily be the  
21                same as signal strength within actual customer locations. For one thing, cell towers and  
22                antennas tend to be positioned to provide the strongest possible signals along roads,

1 where people are driving and need mobile communications, rather than inside buildings,  
2 where most people continue to rely on wireline service. All other things being equal, one  
3 would expect the signal strength to be greater along roads than at the end of driveways, or  
4 inside buildings, away from the roads. Even if the distance from the cell tower to the  
5 buildings were the same as it is to the roads, there are several factors which suggest that  
6 the signal strength within the customer's home is likely to be weaker than outside, while  
7 driving along a road. Notably, there is no basis for assuming that the density of foliage  
8 (trees) would be the same when driving along a major road as when sitting at the bottom  
9 of a driveway far back from the road. As well, the roof and walls provide additional  
10 barriers which need to be penetrated by the wireless signal; hence if C-squared had  
11 instead measured signal strength within customer locations, their results might have been  
12 quite different than those being reported to the Commission.

13 Finally, the elevation of the user relative to the cell tower may also have an impact.  
14 If someone is located in a one story building, and there is undulating terrain between  
15 them and the nearest cell tower, the signal strength inside that building may be negligible,  
16 compared to the average strength measured along the major roads in that vicinity. In  
17 response to OCA 2.4 C Squared discusses such factors, and admits that there are  
18 differences between signal strength within customer locations and on the roads.

19

20 **Q. Would it be possible to evaluate signal strength in a manner which is more relevant**  
21 **to the issues in this case, thereby taking into consideration these factors?**

22 A. Yes. While I am not an engineer, it is my understanding that engineers use "propagation

1 models" during the planning process that is used to develop a wireless system. The issues  
2 that are dealt with by using these models was succinctly explained in an article on the  
3 topic:

4 Land-mobile communication is burdened with particular propagation  
5 complications compared to the channel characteristics in radio systems  
6 with fixed and carefully positioned antennas. The antenna height at a  
7 mobile terminal is usually very small, typically less than a few meters.  
8 Hence, the antenna is expected to have very little 'clearance', so obstacles  
9 and reflecting surfaces in the vicinity of the antenna have a substantial  
10 influence on the characteristics of the propagation path. Moreover, the  
11 propagation characteristics change from place to place and, if the mobile  
12 unit moves, from time to time. Thus, the transmission path between the  
13 transmitter and the receiver can vary from simple direct line of sight to one  
14 that is severely obstructed by buildings, foliage and the terrain. [See,  
15 [http://people.seas.harvard.edu/~jones/es151/prop\\_models/propagation.html](http://people.seas.harvard.edu/~jones/es151/prop_models/propagation.html)]  
16

17 Propagation models use various inputs to estimate the impact of different factors  
18 that can affect signal strength, including the amount and type of foliage, variations in  
19 elevation, building materials, and other environmental factors. In response to OCA 2.5, C  
20 Squared states: [T]here are fairly accurate propagation models that take into account  
21 topography, clutter and the factors noted above..." C Squared further explains that  
22 standard industry practice is to use both measured drive data and propagation models, and  
23 that drive data is typically used to validate the results of the models.

24 However, no evidence has been provided concerning the results of such  
25 propagation models. While it would not be practical to obtain signal strength  
26 measurements inside the homes of a majority of the customers in the TDS exchanges, it  
27 would have been feasible to use a propagation model to evaluate likely differences

1           between signal strength along prime commuter routes and major roads in comparison  
2           with smaller roads that are not the focus of the wireless network design, as well as  
3           differences in signal strength along these major roads and inside customer homes. As  
4           well, a propagation model could be used as a basis for identifying locations where  
5           wireless service is least likely to be an adequate substitute for wireline service – places  
6           where service inside homes is unlikely to be “good” or “very good.” This would have  
7           allowed the Commission to consider how many homes fall into this problem category,  
8           and what, if any, substitutes they would have available if TDS were given the freedom to  
9           increase rates as it has requested.

10  
11

12   **Competitive Analysis**

13

14   **Q.    Do you believe the supplemental evidence presented by TDS warrants a change in**  
15   **the Commission's conclusions concerning the requirements of RSA 374:3-b, III(a) as**  
16   **related to the Kearsarge and Merrimack exchanges?**

17   A.    No. None of the evidence offered describes a change in conditions since the Commission  
18           made its findings. In effect, TDS has taken “another bite of the apple” in an attempt to  
19           more persuasively describe the same factual situation that was presented in the earlier  
20           hearing, rather than submitting evidence of fundamental changes in the factual situation,  
21           due to rapid growth of new technologies, entry of new competitors into the market, or  
22           other significant changes of the market conditions described by TDS in its initial filing.

1           Even if the newly submitted evidence were now sufficient to persuade the  
2           Commission that adequate wireless signals are available to most parts of the Sutton and  
3           Salisbury exchanges, this does not change the opinions I offered in my direct testimony.  
4           First and foremost, as I explained in my direct testimony, even where wireless signals are  
5           strong enough to satisfy communication needs, that fact alone would not indicate that  
6           wireless service is a "competitive" alternative for land line service. There are functional  
7           and economic differences between wireless and wireline services which limit the  
8           effectiveness of wireless service as a competitive alternative to TDS' wireline service –  
9           particularly for those customers who do not already subscribe to a wireless offering to  
10          meet their mobile communication needs.

11          Second, the Commission has not concluded that the availability of wireless  
12          service alone can result in a finding of "competitive" alternatives. The Commission's  
13          conclusions in the earlier phase of this docket were predicated upon findings concerning  
14          the availability of both broadband and wireless alternatives (as well wireline  
15          competition). Third, TDS has not proved the availability of wireless substitutes for any of  
16          the other Kearsarge and Merrimack exchanges. Newly submitted evidence regarding the  
17          strength of wireless signals in the Sutton and Salisbury exchanges cannot be assumed to  
18          apply to the other exchanges, since each of the exchanges has its own unique terrain,  
19          foliage, road configuration, and other characteristics.

20  
21       **Q. Can you elaborate on your first point, regarding the extent to which wireless service**  
22       **is a competitive alternative for wireline service?**

1 A. RSA 374:3-b(I) requires the Commission to first make a factual finding that  
2 “[c]ompetitive wireline, wireless, or broadband service is available to a majority of the  
3 retail customers in each of the exchanges served by such small incumbent local exchange  
4 carrier”. [Emphasis added] The Commission concluded that the word “competitive” in  
5 subsection III (a) "means that mere availability of alternatives is not sufficient to approve  
6 a plan but that the inclusion, among other things, of price protections in subsection III(b)  
7 means that a fully functioning competitive market is not necessary in order to approve a  
8 plan". [Order, p. 26] As I explained more fully in my direct testimony, the statute does  
9 not hinge on a mere finding that wireless service exists. Rather, the service must also be  
10 “competitive” with TDS' wireline offerings. The use of this word in the statute suggests a  
11 more nuanced analysis, which requires careful consideration of the extent to which  
12 wireless and wireline services are close substitutes – as indicated by a very high degree of  
13 similarity in the underlying functions they perform (with respect to their intended use).

14 Just as postal service, overnight delivery services, and email service all serve as  
15 occasional alternatives to wireline phone service, a limited degree of substitution between  
16 wireless and wireline services have always occurred in practice, at least at the edges of  
17 the market (for certain customers and certain situations). But, wireless and wireline  
18 services have been, and continue to be, primarily complementary services, rather than  
19 close competitive alternatives. Some consumers may stop purchasing TDS' service when  
20 they obtain a mobile phone, but even these consumers don't necessarily consider these  
21 services to be "close substitutes" nor do they necessarily think they are functionally  
22 equivalent.



1           College students and others who “cut the cord” may want the functional  
2           advantages of a mobile telephone, yet they may not be able to afford (or don’t want to pay  
3           for) two telephones. Hence, they make a decision to live without the functional  
4           advantages of a wireline telephone, because they consider it more important to have the  
5           mobility benefits of a wireless phone, and they don’t see a need for two different phones.  
6           Because of functional differences, wireline and wireless services are often used for  
7           different purposes, and viewed as falling into distinctly different categories, rather than  
8           being viewed as direct competitive alternatives. As a result, most consumers have  
9           historically chosen to add wireless service to their monthly basket of goods and services,  
10          rather than dropping their wireline service, or switching back and forth between these two  
11          different technologies, depending on price swings, promotional offerings, or the like.  
12          Until market conditions change, and more customers routinely switch their allegiance  
13          back and forth between wireless and wireline providers, it would not be appropriate for  
14          the Commission to downplay or dismiss the statutory requirement that wireless service  
15          must be “competitive” as well as available.

16

17 **Q.    Would you please briefly elaborate on why it would be significant that relatively few**  
18 **customers switch back and forth between wireless and wireline services in response**  
19 **to product promotions, price changes, or other shifts in market conditions?**

20 **A.    Yes. One text defines substitutes as**

21

22           products that have a relation such that an increase in the price of  
23           one will increase the demand for the other or a decrease in the

1 price of one will decrease the demand for the other. [Economics,  
2 Robert B. Ekelund, Jr. and Robert D. Tollison, Little, Brown and  
3 Company, 1986, p. 74]  
4

5 A simple example of this concept would be apples and oranges. Many people like  
6 both of these fruits and they tend to purchase some of each. It is fair to primarily classify  
7 these fruits as substitutes because, when the price of apples goes up, consumers tend to  
8 decrease their consumption of apples and increase their consumption of oranges.

9 Although they are substitutes, apples and oranges are not close substitutes, as indicated by  
10 the fact that people tend to eat oranges (rather than apples) at breakfast, and they tend to  
11 use apples (rather than oranges) when baking a pie. Thus, it is unlikely that competition  
12 from apple growers alone would limit orange prices. Nor would we normally speak of  
13 orange growers competing with apple growers – these farmers are participating in  
14 different product markets, and apples are not competing with oranges any more than  
15 apples and oranges are competing with bread or detergent (except in the colloquial sense  
16 that all of these products are “competing” for a share of the household budget).

17 If a single firm were to purchase all of the world's commercial orange groves,  
18 thereby acquiring 100% share of the global orange market, competition would no longer  
19 be an effective regulator of the price of oranges – notwithstanding the existence of  
20 numerous independent apple growers, or the fact that some limited amount of substitution  
21 would take place as people reduce their consumption of oranges in response to higher  
22 prices, and increase their consumption of watermelon, strawberries, apples and various  
23 other products.

1           The opposite concept in economics is that of complements. In the same text,  
2           Ekelund and Tollison define this concept as

3  
4           products that have a relation such that an increase in the price of  
5           one will decrease the demand for the other or a decrease in the  
6           price of one will increase the demand for the other. [Id.]  
7

8           An example here would be peanut butter and jelly. Since many people like to  
9           consume these products together on sandwiches, if the price for one increases,  
10          consumption of both goods will typically decrease. If a poor peanut crop leads to more  
11          expensive peanut butter, for example, consumers will tend to buy less jelly. Another good  
12          example of complements are copier toner and paper.

13          In many cases, products have characteristics that allow them to be both substitutes  
14          and complements—it is simply a matter of degree. If goods and services are close  
15          complements, an increase in the price will typically lead to a decrease in the consumption  
16          of the other. However, some degree of substitution may also be possible. Similarly, goods  
17          may be fairly close substitutes, so that a decrease in the price of one product may lead  
18          most consumers to decrease their consumption of the other product. Yet, there may be  
19          limited exceptions under some circumstances, or for some consumers. Thus, it is more  
20          meaningful to think about these concepts as matters of degree. Accordingly, it is  
21          noteworthy that TDS hasn't submitted any new evidence concerning the extent to which  
22          customers in its exchanges are replacing their wireline service with a wireless offering, or  
23          vice versa.

24

1 **Q. In your direct testimony, you described in detail the various functional differences**  
2 **between wireless and wireline services which help explain why a finding that both**  
3 **services are available in the same area wouldn't necessarily mean that they are**  
4 **competitive with each other. Are there certain differences you would like to**  
5 **highlight here?**

6 A. Yes. One particularly important difference relates to pricing differences between wireless  
7 and wireline services, which can significantly influence consumer purchasing decisions.  
8 Wireline services are typically priced on a flat fee (unlimited local usage) basis. Wireless  
9 services, on the other hand, are typically priced on a monthly volume of calling basis.  
10 The more you expect to use the phone, the more you can expect to pay for wireless  
11 service – either because of per-minute charges or because of the need to purchase a  
12 pricing plan with a larger bundle of minutes.

13 This difference in pricing structure follows directly from differences in the  
14 underlying cost characteristics of the two technologies. Wireless costs are primarily a  
15 function of usage. A wireless carrier incurs little, if any, additional cost with the addition  
16 of more phone “lines” (actually, just additional phone numbers and entries in its data  
17 base). The reverse is true for wireline carriers, where costs are strongly influenced by the  
18 number of access lines on the network and the carrier incurs very little additional cost as  
19 more local phone calls are placed over its network.

20 Consistent with this underlying cost pattern, the pricing structure of wireline  
21 services typically allows users to pick up the phone as often as they want, and allows  
22 them to talk as much as they want, without having to be concerned they might receive a

1 large bill at the end of the month. In contrast, the wireless industry continues to price its  
2 services with respect to anticipated usage levels. Because of consumer preferences, there  
3 has been a strong trend away from pure per-minute pricing, toward “bundled” pricing, but  
4 even with the decline in per-minute costs with increased economies of scale and favorable  
5 trends in technology, the wireless industry continues to price most of its offerings on the  
6 basis of different levels of anticipated usage. This pricing approach discourages many  
7 customers from freely using their wireless phone, or it encourages them to sign up for a  
8 usage bundle that exceeds their normal requirements. This aspect of wireless service  
9 must be taken into account when comparing wireline and wireless services. Except for  
10 customers who make relatively few local calls, and those who greatly value the  
11 convenience of mobility, one cannot simply compare the price of the least costly wireless  
12 offering to a wireline service that offers unlimited calling. Rather, one needs to compare  
13 the price of the wireless offerings consumers actually purchase, including enough  
14 bundled minutes to serve their needs without undue fear of paying a penalty rate for  
15 excess minutes.

16  
17 **Q. Can you give some specific examples of pricing differences between wireline and**  
18 **wireless services?**

19 A. As I discussed in my direct testimony, TDS' residential local exchange rates range from a  
20 low of \$6.72 to a high of \$14.59. With applicable surcharges and taxes, residential  
21 customers in TDS' service territories can purchase basic local exchange service for less  
22 than \$15.00 to \$25.00 per month. During the earlier phase of this proceeding, in TDS

1 Attachment 0001, TDS provided rates for Verizon Wireless' "America's Choice Basic"  
2 calling plans. Depending upon the number of minutes included in the plan, at that time  
3 access charges range from \$39.99 to \$199.99 per month. The cost per minute for  
4 additional minutes ranged from \$0.20 to \$0.45, and customers run the risk of incurring  
5 substantially higher bills during any month in which their usage happens to exceed the  
6 amount included in their plan. As well, these prices did not include the taxes, surcharges  
7 and other fees that will be incurred by customers subscribing to these wireless plans.

8 While exact comparisons are difficult to make, because of the many differences  
9 between wireless and wireline services, it was (and is) obvious that wireless service does  
10 not offer a cost-effective competitive alternative to TDS' basic local exchange service. At  
11 the time of this writing, the verizonwireless.com website shows a Nationwide Basic plan  
12 featuring 450 minutes per month for \$39.99. This plan included "unlimited" Night and  
13 Weekend minutes and "unlimited" calling to other Verizon Wireless customers, and no  
14 distinction is drawn between local and long distance calls. However, calls that originate  
15 or terminate on other wireless networks or on wireline networks (including Verizon's own  
16 wireline network), can push a customer over 450 minutes in the month, in which case a  
17 penalty rate of \$.45 per minutes would apply. To avoid the risk of incurring this high per-  
18 minute rate, many customers will opt for a larger package, like the basic plan that  
19 includes 900 minutes for \$59.99 per month.

20 Furthermore, these advertised rates do not include taxes, surcharges and fees.  
21 These are disclosed in the "fine print" on the Verizon website after the user scrolls down  
22 a long list of disclosures::

1                   **Taxes, Surcharges and Fees**

- 2                   • Tolls, taxes, surcharges and other fees, such as E911 and gross receipt  
3                   charges, vary by market and as of April 1, 2009, add between 5% and 37%  
4                   to your monthly bill and are in addition to your monthly access fees and  
5                   airtime charges.  
6                   • Monthly Federal Universal Service Charge on interstate & international  
7                   telecom charges (varies quarterly based on FCC rate) is 12.9% per line.  
8                   • The Verizon Wireless monthly Regulatory Charge is 7¢ per line.  
9                   • Monthly Administrative Charge (subject to change) is 92¢ per line.

10

11                   At least for customers who don't need (or can't afford to pay for) the convenience  
12                   of a mobile phone, its hard to see how wireless service can be viewed as a competitive  
13                   alternative to TDS' wireline offerings, since it is so much more costly than the TDS  
14                   offerings. The TDS basic local exchange rates could be increased by 50%, 75% or more  
15                   before reaching the vicinity of most wireless plans. While there has been a downward  
16                   trend in wireless pricing, there is no evidence to suggest that wireless and TDS wireline  
17                   services are currently competing in the same market, or that wireless services provide a  
18                   cost-effective substitute for wireline basic local service for most TDS customers. To the  
19                   contrary, most wireless service continues to be priced at levels substantially higher than  
20                   the price of TDS' wireline local service.

21

22   **Q.    In your opinion, are wireless and wireline services close enough substitutes to reach**  
23   **a conclusion that wireless offerings are currently “competitive” with the wireline**  
24   **offerings of TDS?**

25   **A.    No. For most customers, these services are not close substitutes, and the wireless**

1 offerings are priced too far above the TDS prices to provide a viable competitive  
2 alternative. This conclusion is confirmed by the fact that so many wireless customers  
3 continue to pay for both services, rather than choosing one over the other. It is also  
4 significant that TDS has not offered any new evidence concerning the extent to which  
5 customers switch back and forth between wireless and wireline services in reaction to  
6 special promotions or price changes. Yet, this sort of switching back and forth between  
7 alternatives is a key characteristic of most competitive markets, helping to identify which  
8 products are competing with which other products, and helping to define the extent of the  
9 market (in the sense that economists would not normally speak of motorcycles being sold  
10 in the same “market” as marble bathrooms, Monster trucks, and Maseratis – even though  
11 all of these alternatives may coexist, and some customers choose to spend a portion of  
12 their discretionary income on one alternative rather than the other).

13 Because they are not close competitive substitutes, and because of significant  
14 differences in the prevailing prices in these distinct markets, the cross-price elasticity of  
15 demand between Maseratis and motorcycles is likely to be low, despite the fact that both  
16 alternatives can serve the purpose of commuting to and from work. Even if the price of  
17 motorcycles were doubled, few people would switch to a Maserati. For similar reasons,  
18 even if TDS were to double the price of its basic local exchange service, I would not  
19 anticipate a large movement from wireline to wireless service. With a sufficiently  
20 extreme price increase by TDS, some amount of substitution probably would occur. But,  
21 the key point is whether the cross-price elasticity is high enough to view these services as  
22 being competitive with each other. (Are downward price pressures from wireless



1 offerings intense enough to substitute for regulation in controlling the price of wireline  
2 service). No such evidence has been offered, and there is every reason to anticipate that  
3 even amongst customers who already subscribe to a wireless service, an increase in TDS'  
4 wireline prices would more typically be met by grumbling and irritation than by a  
5 decision to rely entirely on their cell phone.

6 In this regard, it is important to note that TDS has not offered any new evidence  
7 concerning the number of customers who are treating wireless service as a competitive  
8 substitute for basic local exchange service. Under the current factual circumstances, I  
9 believe wireless services are not a true “competitive” alternative to the wireline services  
10 offered by TDS – any more than a motorcycle “competes” with a Maserati. Of course,  
11 circumstances may change over time, particularly if wireless prices were to continue to  
12 decline and the quality of wireless service were to improve. If customer attitudes and  
13 market conditions were to change over time, one might eventually see a large number of  
14 customers freely choosing to subscribe to one or the other service simply based on  
15 fluctuations in relative price differences; the cross price elasticity of demand would  
16 substantially increase, and a different conclusion might be reached pursuant to the statute.

17

18 **Q. Are there functional differences that are also important in analyzing whether**  
19 **wireless service is “competitive” with the wireline service offered by TDS?**

20 A. Yes. An important consideration when comparing wireless service to wireline service is  
21 the quality of the calls that can be placed on each. Wireline services typically provide  
22 higher quality, more reliable communication than wireless services. Calls placed over

1 land lines are typically dropped less often than calls placed over wireless facilities.  
2 Further, land line calls are less subject to weather interference; they are not subject to  
3 structural interference; they are less subject to congestion problems; they are less  
4 frequently subject to cross talk; and, they are less frequently subject to static, noise,  
5 fading, and other aspects of poor sound reproduction. Although wireless service offers  
6 the advantage of greater mobility, it does not serve as a close substitute for wireline  
7 consumers who care about having consistently accurate, noise-free sound reproduction.  
8 Given a choice between pulling a cell phone out of their pocket or walking across the  
9 room to use a conventional phone, consumers will often choose the latter option because  
10 of these differences in sound quality and reliability.

11 In this regard, it is important to note that the cutoff used by TDS to determine  
12 whether to characterize reception as "good" was a minimum signal strength of -90dBm.  
13 However, this signal strength results in calls that were described by Michael Reed (at page  
14 8, of supplemental testimony on lines 1-5) as being merely "decent", but "not necessarily  
15 clear". A wireless service that offers calls that are "not necessarily clear" does not  
16 represent close competitive substitute with the wireline offerings of TDS – particularly  
17 when the former service is priced higher than wireline service, rather than vice versa.

18 Merely applying the label "good" does not overcome the problem of poor sound  
19 quality, and since the disparity in prices goes in the wrong direction, there is no basis for  
20 interpreting wireless service as a lower quality lower priced alternative to wireline  
21 services. Applying a label of "good" to calls that aren't necessarily clear doesn't help  
22 TDS meet its statutory burden.

1

2 **Q. Does the data provided by C Squared relate to individual carriers, or multiple**  
3 **carriers?**

4 A. C Squared's survey readings are based on a compilation of data for multiple carriers, but  
5 the reported results do not provide any insights into variations in call quality from time to  
6 time, or place to place for a single carriers – nor do the reported results provide much  
7 information about differences in quality for different carriers in any given location. If the  
8 survey results state that a "good" signal was obtained in a given location, it simply  
9 indicates that a “good” signal was available at the moment when measurement took place  
10 from at least one of the wireless carriers being monitored while in that particular location.  
11 It does not mean that the average call quality of all carriers in that location was “good”  
12 nor does it indicate that an equally strong signal would necessarily have been obtained if  
13 the measurement had taken place at a different time (when atmospheric conditions might  
14 be different, or when system congestion might require calls to be handled by a different  
15 tower).

16 There is no basis for assuming that call quality will always be “good” for any  
17 particular carrier, nor is there any basis for assuming that equivalent quality will be  
18 available from a second wireless carrier in that location. In evaluating the extent to which  
19 competition in the wireless market may “spill over” and exert competitive pressure on the  
20 wireline offerings of TDS, it would be helpful to know how many wireless alternatives  
21 exist with “good” quality in any given location. However, this sort of detailed, carrier-  
22 specific and location-specific information was not included in the C-Squared report.

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**Q. Can you explain your second point, regarding the Commission's conclusions concerning whether or not wireless service alone is sufficient to justify a finding of "competitive" alternatives?**

A. The Commission concluded that the standard under RSA 374:3-b III(a) had been met for Wilton and Hollis. However, that conclusion was based upon Staff's analysis which showed that both wireless and broadband cable services were available to a majority of the customers in these exchanges. The Commission's order does not state how much weight was put on the availability of broadband cable service relative to wireless service, but from the perspective of economic theory it is clear that a combination of both broadband and wireless service has greater potential to exert competitive pressure than either of these services standing alone.

Because of the lack of broadband cable service in Sutton and Salisbury, customers in those areas have fewer alternatives than the customers in the Wilton and Hollis exchanges. Further, the Commission's references to CLEC registrations, possible waiver of the rural exemption and expedited interconnection negotiations all suggest the need for evidence that markets were becoming more competitive, rather than a need for more evidence about wireless call quality .

**Q. Can you now explain your third point, regarding the state of competition in the other Kearsarge and Merrimack exchanges?**

A. As explained by the Commission, all exchanges covered by each company must meet the

1 statutory test to qualify for alternative regulation. For the remainder of the Kearsarge  
2 and Merrimack exchanges, TDS continues to rely on the evidence presented in the earlier  
3 phase of this proceeding. That evidence purportedly shows that cable video service is  
4 available to a majority of the customers in the Merrimack exchanges of Antrim,  
5 Contoocook, Henniker, Hillsboro and Melvin Village, and the Kearsarge exchanges of  
6 Boscawen, Chichester, Meriden and New London. [See, Reed Supplemental Testimony, p.  
7 16] Regardless of how persuasive that evidence may or may not be, it is important to note  
8 that TDS did not submit any new evidence concerning wireless signal strength, entry by  
9 new carriers, loss of customers, or any other factual issues related to these exchanges.  
10 [See, TDS reply to Bailey 1.18]

11

12 **Q. What about the Merrimack exchanges of Bradford and Warner, and the Kearsarge**  
13 **exchange of Andover. Does TDS address those exchanges in its supplemental**  
14 **testimony?**

15 A. Yes. TDS states: "We would like to again confirm the availability of wireless service in  
16 the MCT exchanges of Bradford and Warner, and the Kearsarge exchange of Andover."  
17 Again, TDS did not undertake a signal strength analysis for these exchanges. Rather, it is  
18 still relying on the same "CoverageRight" map presented in the earlier phase of this  
19 proceeding. This map is shown on Exhibit G to Mr. Reed's Supplemental Testimony.  
20 Exhibit G is a map of the entire State of New Hampshire, which purports to show the  
21 service areas of the state's wireless providers overlaid on top of each other. The map does  
22 not indicate which coverage area belongs to which provider, and it does not provide any

1           indication of signal strength within these broad coverage areas. At best, this map shows  
2           that one or more wireless carriers is operating in these exchanges. It conveys limited  
3           information regarding the extent of wireless coverage, and absolutely no information  
4           regarding signal strength and call quality in any part of these areas. I would like to again  
5           reiterate that TDS must prove that statutory requirements have been meet in every  
6           exchange served by these companies, not just the Sutton and Salisbury exchanges.

7

8   **Q.   Despite the lack of detail provided in Exhibit G, can one draw any conclusions**  
9           **regarding wireless signal strength in the Bradford, Warner and Andover exchanges**  
10           **from the C Squared analysis?**

11   A.   No. Even if one concludes that the C Squared analysis demonstrates good or very good  
12           signal strength in Sutton and Salisbury, the data cannot simply be extrapolated to assume  
13           the same conclusion in these other exchanges. Admittedly, Sutton and Salisbury are two  
14           of the more rural TDS exchanges. On this basis, one might infer that wireless coverage  
15           will be stronger in other areas. However, any such inference would be inappropriate. As  
16           discussed above, a variety of operational and environmental factors affect signal strength,  
17           and these factors are not perfectly correlated with population density, nor is there any  
18           basis for assuming that the road configuration in these two exchanges is directly  
19           comparable to the road configuration in other TDS exchanges.

20

21

22

1 **Conclusions and Recommendations**

2

3 **Q. Let's turn to the final section of your testimony. Can you begin by summarizing your**  
4 **conclusions?**

5 A. RSA 374:3-b contemplates a fact finding process, in which the Commission must  
6 determine, among other things, whether competitive alternatives are available to a  
7 majority of the retail customers in each of the exchanges served by TDS. TDS has  
8 presented additional evidence concerning the availability and signal strength of wireless  
9 service in one Kearsarge exchange, and one Merrimack exchange. However, TDS has not  
10 presented any evidence that "additional competitors" have entered these exchanges, nor  
11 has it demonstrated that "existing competitors" have been gaining market share or  
12 increasing their activities in the market. TDS has also failed to show that wireless  
13 service standing alone is sufficient to constitute a "competitive" alternative in Sutton or  
14 Salisbury, as contemplated by the statute. Finally, TDS has not presented any evidence  
15 concerning increased competitive pressures or other changes to market conditions in the  
16 remaining Kearsarge and Merrimack exchanges.

17 It is not appropriate to simply assume that wireless service is competitive with the  
18 wireline services offered by TDS – particularly not with respect to its basic local  
19 exchange services. For most customers wireless service functions as a complement to  
20 wireline service, rather than a direct competitive alternative. I am not suggesting this  
21 service cannot evolve into a competitive substitute for wireline services. The potential for  
22 future convergence exists, but given the current factual situation, I do not believe wireless

1 services are appropriately treated as “competitive” with any TDS voice grade services –  
2 and particularly not its basic local exchange services. I would also note that wireless  
3 services (And VoiP services) typically are provided as a package offering which includes  
4 various enhanced services and long distance services. As a result, they are generally  
5 priced far higher than TDS' stand alone basic exchange service, and TDS has not offered  
6 any evidence concerning recent changes in wireless market conditions, the extent to  
7 which more customers are “cutting the cord” or the extent to which customers are  
8 switching back and forth between wireless and wireline service within its service  
9 territory. Thus, it has not offered evidence to justify a reversal of the Commission's  
10 conclusions concerning the extent to which these services are “competitive” with TDS'  
11 services.

12 When I filed my original testimony in this proceeding, the evidence showed that  
13 very few (or no) customers in the TDS exchanges were actively substituting wireless or  
14 VoIP services for TDS' basic local exchange services, or vice versa. For example, TDS'  
15 own records indicated that only a very small fraction of its local exchange customers had  
16 dropped their land line to rely entirely on their wireless service. Similarly, TDS admitted  
17 that the small number of lines that had been dropped in favor of DSL were secondary or  
18 additional lines. Finally, the record indicated that TDS had received no requests to port  
19 any numbers over to VoIP providers.

20 TDS was given this opportunity to submit a new filing, with the expectation that it  
21 would offer new evidence concerning changes in competitive conditions, increased  
22 competitive penetration into its markets, the arrival of new entrants, or other indications



1           that the factual circumstances in Kearsarge and Merrimack had changed enough to justify  
2           taking another look at the situation. Despite the clear intent of this invitation, TDS didn't  
3           choose to provide any new evidence concerning the extent to which customers are  
4           substituting wireless service for wireline service in these exchanges, nor did it provide  
5           evidence that new CLECs were entering its market. Instead, TDS focused entirely on the  
6           strength of wireless signals within two of these exchanges.

7

8   **Q.    What action do you recommend the Commission take at this time?**

9   A.    I recommend the Commission reiterate its previous decision to reject TDS' petitions for  
10       Kearsarge and Merrimack. TDS has not proven that competitive alternatives are available  
11       to a majority of the retail customers in these exchanges. This would not preclude TDS  
12       filing a new petition at some point in the future, if market conditions change enough to  
13       justify taking a fresh look at these issues.

14

15   **Q.    Does this conclude your testimony filed on July 17, 2009?**

16   A.    Yes, it does.