BEFORE THE WASHINGTON STATE

UTILITIES AND TRANSPORTATION COMMISSION

In the Matter of the Review of Unbundled Loop and Switching Rates; the Deaveraged Zone Rate Structure; and Unbundled Network Elements, Transport, and Termination (Recurring Costs)	))))))	DOCKET NO. UT-023003 Volume XVI Pages 1467 to 1677

A hearing in the above matter was held on June 4, 2004, from 9:40 a.m to 5:30 p.m., at 1300 South Evergreen Park Drive Southwest, Room 206, Olympia, Washington, before Administrative Law Judge THEODORA MACE and Chairwoman MARILYN SHOWALTER and Commissioner RICHARD HEMSTAD and Commissioner PATRICK J. OSHIE.

The parties were present as follows:

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P R O C E E D I N G S

JUDGE MACE: Let's be on the record in Docket Number UT-023003. This is the Commission's Review of Unbundled Loop and Switching Rates, Deaveraged Zone Rate Structure, and Unbundled Network Elements Transport and Termination. This is June 4th, 2004, and we are convened in the offices of the Commission of the Washington Utilities and Transportation Commission, and this is a day that we have scheduled for continuation of evidentiary hearing.

The witnesses we will be hearing from today are AT&T witnesses Mercer and Fassett, and I understand that there are a few preliminary items that, Mr. Kopta, that you need to address. And in particular I wish that you could more clearly identify the errata sheets that you passed out for Dr. Mercer.

MR. KOPTA: I will be happy to do that, Your Honor. The first page that we circulated has an 8 at the bottom. This is page 8 from Dr. Mercer's supplemental direct testimony which has been marked for identification as Exhibit 851T.

The second page has attachment RAM-2 at the top, and that has been marked for identification as Exhibit 853.

The third, actually it's a set of four

exhibits that start with cost of network elements in the upper left-hand corner, and the second one is attachment RAM-8b at the top. The third has RAM-8c.

JUDGE MACE: Is this the packet that you gave me --

MR. KOPTA: Yes.

JUDGE MACE: -- that's the substitute for Exhibit 859?

MR. KOPTA: That is correct, all four of those documents that were stapled together comprise Exhibit 859, so they should replace what you have currently as Exhibit 859.

JUDGE MACE: Why don't you go through and identify the separate segments.

MR. KOPTA: RAM-8a is not labeled as such, but it is a chart that has cost of network elements in the upper left-hand corner as you rotate the page around where the three-hole punch is.

The second document is attachment RAM-8b, and it is identified as such at the top of the chart, although there is a punch hole through it.

The third document is attachment RAM-8c, also is marked as such.

And the fourth document is attachment RAM-8d and is also marked as such.

And the other errata that we have distributed is a replacement for Mr. Fassett's direct testimony which is marked for identification as 951T, and the errata that we have prepared replaces in its entirety what was formerly included in Exhibit 951T, and it includes errata that Mr. Fassett made to what was originally Mr. Donovan's direct testimony.

JUDGE MACE: And then you also provided a substitute Exhibit 283C; is that correct?

MR. KOPTA: That is correct. It was missing some of the referenced attachments, and so in the interest of completeness --

JUDGE MACE: That's not going to be something we need to worry about today though; is that correct?

MR. KOPTA: Not so far as I know.

JUDGE MACE: Very well.

Are you ready to begin? I will swear the witnesses in if you are.

MR. HUTHER: I'm sorry, I may have missed it is there was a discussion about a document that's been marked attachment 4, was this part of what you were --

MR. KOPTA: That is something that was discussed yesterday morning, and you may not have been in the hearing room, but it is a redline of a portion of AT&T's response to Bench Request Number 3.

And I understand that you're going to probably deal with that later today.

JUDGE MACE: Right as long as its part of the response to the Bench Request, then you have provided it, and I note that on the record at this point.

MR. KOPTA: Okay, that would be fine.

(Witnesses Robert Mercer and Dean Fassett were sworn in.)

JUDGE MACE: All right, Mr. Kopta.

MR. KOPTA: Thank you, Your Honor. There are two other exhibit matters that I wanted to clear up before proceeding. The first is what has been marked for identification as Exhibit 860. For some reason that was included as an exhibit although it's a duplicate of Exhibit 856.

JUDGE MACE: So you're not going to offer that exhibit?

MR. KOPTA: So we will not offer Exhibit 860.

The second issue is with respect to what has been marked as Exhibit 955, which is an excerpt from Telecordia notes on the network. That exhibit duplicates one of Mr. Turner's exhibits that has already been admitted, specifically Exhibit 757.

JUDGE MACE: So you will not offer that exhibit?

MR. KOPTA: So we will not offer that exhibit.

JUDGE MACE: Actually, as you are referring to this and I am looking at my exhibit list, it appears that there is an error in the exhibit list in that Mr. Fassett's JCD-4 and JCD-5 are both marked Exhibit 954.

MR. KOPTA: Well, perhaps we --

JUDGE MACE: For purposes -- go ahead.

MR. KOPTA: Perhaps what we can do is since we're taking away Exhibit 955, we can just refer to that as JCD-5. That wouldn't cause any more confusion.

JUDGE MACE: Either that or we can leave it, both of that as Exhibit 954, and just retain your internal marking as a way to make a distinction.

CHAIRWOMAN SHOWALTER: Make one 955, I thought that's what you were saying.

JUDGE MACE: Right, either/or.

CHAIRWOMAN SHOWALTER: Otherwise it's difficult.

JUDGE MACE: Let me indicate for the record that we'll make JCD-5 Exhibit 955.

Whereupon,

ROBERT MERCER AND DEAN FASSETT,

having been first duly sworn, were called as witnesses herein and were examined and testified as follows:

D I R E C T E X A M I N A T I O N

BY MR. KOPTA:

Q. All right, then with that, Dr. Mercer, would you state your name and business address for the record, please.

A. (Dr. Mercer) My name is Robert Mercer. My address is Broadview Telecommunications, 5201 Holmes as in Sherlock Place, Boulder, Colorado 80303.

Q. Dr. Mercer, do you have before you what has been marked for identification as Exhibit 851T, which is the supplemental direct testimony of Dr. Robert A. Mercer, and attachments 1 through 8, which have been marked for identification as Exhibits 852 through 859, and what has been marked for identification as Exhibit 861T, which is your reply testimony?

A. (Dr. Mercer) Yes, I do.

Q. Were those exhibits prepared by you or under your direction and control?

A. (Dr. Mercer) Yes, they were.

Q. Do you have any corrections to make to any of

those exhibits?

A. (Dr. Mercer) Yes, there is a correction to the model. The correction itself is small, but the effect ripples through a number of the attachments, and so I will go through the road map, if you will, of the attachments that have been changed.

The gist of the change, and then I will explain it in enough detail to understand it, is that there is a quantity in the model called the strand distance that is being or was being applied incorrectly in a way that underestimates the amount of cable required to connect the customers to each other. This caused the model to calculate too few distribution route miles and therefore underestimated all loop related investments that had to do with distance. The bottom line effect of correcting the problem is that it increases the loop cost from $7.64 to $8.50, a change of 84 cents. But as I mentioned, the effect ripples through several of the exhibits.

The strand distance is a measure of the amount of cable required to connect the actual customer locations to each other and to the serving area interface, what I will subsequently call the SAI. It's related to a minimum spanning tree of graph theory that I have heard mentioned several times in one way or

another during these hearings, except that it conservatively estimates, conservatively high estimates the amount of cable required by assuming that customer locations are connected to each other by right angle routing instead of by air line distance routing. This quantity is calculated and provided by TNS in the cluster database that it provides with the model, so there is a measure of strand distance with each of the clusters.

This quantity is used in the following way. After the model initially calculates the amount of distribution cable, it normalizes that, the amount of cable, to the results of the strand distance. And what I mean by normalization is that if the model originally produced 1,600 feet of distribution cable and some small cost there, but the strand distance was 2,000 feet, the model would calculate the ratio of 2,000 to 1,600, which is 1.33 endlessly, and then it would apply that correction factor to each piece of the cable that it calculated.

The error came about because in the past TNS when it has a geocoded customer location it has set that location back 50 feet from the road creating what I often describe as a zipper out of a road with kind of points 50 feet on each side. And when you then

calculate the strand distance, the strand distance in a sense has to sew its way back and forth from one side of the street to the other, or it has to go down one side of the street and come back on the other side depending on which way turns out to be the minimal connectivity. And recognizing that the model has or the model developer said in doing that jumping back and forth effectively the drop, the cable drop, to each house was part of the connecting distance, and it would subtract the amount of drop distance number of loops times the geocoded percentage from the strand distance that TNS had provided.

TNS no longer sets back customer locations by 50 feet from the road. They are located on the roads that they're on, and it is therefore inappropriate to subtract the drop distance. Inadvertently we, in Washington in the model submitted up until the results this morning, inadvertently we were still subtracting a drop distance, causing the effective strand distance to be lower, causing the normalization to normalize to too small a number, and so on. As we have made that correction, I have already mentioned the effect of doing that.

We have prepared a new version of the model that corrects the error that was in the model. It

amounts to, interestingly enough given the effect it has, it amounts to changing a table, nine entries in a table for Washington. And then once that's done and the model is run, there are many different results that ensue. So we have new copies of the model to distribute this morning. If anybody has a copy running on their computer and prefers to have me explain how to do it to their model, I would be glad to do that, but we did bring new models to install.

The effect, as I mentioned, on the loop result is 84 cents. As far as my testimony, that affects three different things. It affects table 1 of my declaration, which is page 8, which was the first handout I heard Mr. Kopta refer to, because that table is a summary of the UNE rate proposals for AT&T. It affects all of the entries or at least all of the loop related entries in attachment RAM-2 to my supplementary direct testimony, and it affects all loop related numbers appearing in attachment RAM-8 of my supplementary direct testimony. So those are the exhibits we have now prepared with the corrected results.

It also has a secondary effect you should be aware of, and that is that the wire zone, sorry, the wire center zones that AT&T proposes are based on an

optimization routine which minimizes the difference in cost of the loop from one wire center to another. So when you change the loop cost in ways that aren't going to be the same necessarily from one wire center to another, it can affect those zone assignments. So we now have a revised zone proposal which you will see as attachments RAM, sorry, RAM-8c. Its purpose was originally and still is to show that zone assignments that AT&T is proposing, and there will be some difference in those assignments because the minimization of variations within a zone now change those assignments somewhat because the loop cost is changed in each wire center.

And that's the summary of what went wrong and how we have corrected it.

JUDGE MACE: And we have copies of all of those changes that Dr. Mercer alluded to; is that correct, Mr. Kopta?

MR. KOPTA: Everything except for the model run. And as I look at the exhibit list, for some reason the electronic executeable copy of the model is not listed among the exhibits. So perhaps again because we have vacated Exhibit 860 we could now identify that as HM 5.3, the model itself in an executeable form on CD.

JUDGE MACE: Anybody have a problem with

that, any objection?

All right, that's what we'll do then, it will become the executeable version of the model.

MR. KOPTA: And I apologize, one other exhibit issue.

CHAIRWOMAN SHOWALTER: I'm sorry, can we, before you go there, what are we calling the new version, does it have like a 5.3a kind of a name?

MR. KOPTA: No, it's actually because it was just a basically turning off something in the model, it's the same model, it's just an adjustment to how the model is run, so it would still be version HM 5.3. It's just one aspect of the model that was -- there are different options in the model you can turn on, turn off, this is one of the options that you can turn on or turn off, and therefore we turned it off now essentially. I may be over simplifying, Dr. Mercer, but --

CHAIRWOMAN SHOWALTER: Okay, so does that mean it's just a different run of the same model?

MR. KOPTA: Perhaps Dr. Mercer could answer that a little bit better.

DR. MERCER: It is a change in that table that's within the distribution module of the model. We have normally only changed designations like 5.3a or 5.4

when we have done a major release of the model. And subject to hearing this question, which is a great one, I had not thought it was necessary to do that since it's still HM 5.3 submitted in Washington, but -- so we have not relabeled it. It certainly could be if you felt that was --

CHAIRWOMAN SHOWALTER: My guess is just for -- that we'll develop some kind of convention over the course of the day as to what we'll call it, but we probably need some way to refer to the, you know, I don't know if it's the revised run or what the right way to think of it is. But you could think about that in the course of your questions.

DR. MERCER: What we have in the past in at least one proceeding where we had a situation like this occur, we just called it HM 5.3 REV for revised. We could try to refer to things that way.

CHAIRWOMAN SHOWALTER: All right.

JUDGE MACE: Well, it's Exhibit 860, and that would be HM 5.3 Revised.

MR. KOPTA: The one other evidentiary issue is with respect to Exhibit 858, which is the deaveraging optimizer program description. That is now Exhibit 702 to Mr. Denney's testimony and has already been admitted, so again we would not offer 858.

JUDGE MACE: And I guess you have offered these exhibits which are 851T, 852 through 857, 859 and 860, 861T, is there any objection to the admission of those exhibits?

MR. HUTHER: I would only object to the admission of Exhibit 860 if we were not allowed to provide rebuttal testimony and cross-examination if necessary as we discussed yesterday.

JUDGE MACE: And we will set up a schedule to allow you time to review and then tell us what you think you need to do so that we can then decide what further process is required.

MR. HUTHER: Thank you, Your Honor.

MR. KOPTA: So those are admitted I understand?

JUDGE MACE: Yes, they are.

BY MR. KOPTA:

Q. Mr. Fassett, would you state your name and business address for the record, please.

A. (Mr. Fassett) My name is Dean Robert Fassett, my business address is 141 Juniper Drive, Ballston Spa, New York 12020.

Q. And do you have before you what has been marked for identification as Exhibit 951T, which is the direct testimony of Dean R. Fassett, Exhibits 852

through, I mean excuse me, 952 through 955, which are the exhibits to that testimony, and Exhibits 956TC which is the confidential reply testimony of Dean R. Fassett, and 957 and 958, which are attachments to that testimony?

A. (Mr. Fassett) Yes, I do.

Q. Are those exhibits, were those exhibits prepared by you or under your direction and control?

A. (Mr. Fassett) Yes, the 951T was the John Donovan testimony that I adopted, and yes, I have reviewed it and et cetera.

Q. And have you made corrections to that Exhibit 951T?

A. (Mr. Fassett) Yes, not to the T version, no. I made -- the reason we changed it from 951 to 951T was my adoption of that.

Q. And there are some redlined indications on that exhibit that are reflective of your changes to what was originally Mr. Donovan's testimony when you adopted it?

A. (Mr. Fassett) That's correct.

Q. And with those corrections, are these exhibits true and correct to the best of your knowledge?

A. (Mr. Fassett) Yes, they are.

Q. And if I asked you those questions today,

would your answers be the same?

A. (Mr. Fassett) Yes, they would.

MR. KOPTA: Your Honor, I move admission of Exhibits 951T through 958.

JUDGE MACE: Is there any objection to the admission of those exhibits?

MR. HUTHER: No objection.

JUDGE MACE: We'll admit them.

BY MR. KOPTA:

Q. Dr. Mercer, have you prepared a summary of your testimony and some brief oral rebuttal to a portion of Dr. Tardiff's rebuttal testimony as authorized by the Commission?

A. (Dr. Mercer) Yes, I have.

Q. Would you present those now, please.

JUDGE MACE: I'm going to time your summary, so I will give you a 30 second warning.

A. (Dr. Mercer) My supplemental direct testimony presents HM 5.3 as the only TELRIC compliant model in this proceeding that appropriately calculates Verizon UNE rates in Washington. HM 5.3 is the most up to date version of the HAI model currently available. AT&T has submitted the latest there is, particularly in light of the change that we submitted this morning.

The HAI model has existed for a decade at

this point. It has been used in numerous rate case, universal service fund USF proceedings, and UNE cost proceedings during that time. The model has been a major force in the industry throughout its existence. It has been adopted by many state commissions including Minnesota for both USF and UNE purposes, Arizona, and Utah. It was used to set the loop rates in Colorado. Significant portions of the model were adopted by the FCC and incorporated into the FCC Synthesis model for calculating USF cost. And even when it has not been adopted, I believe it's fair to say it has typically had a major impact on the proceedings where it has been submitted.

Throughout its history, the HAI model has been subject to intense scrutiny by regulatory commissions, their staffs, incumbent local exchange carriers, and others. At times frankly it has been subject to entirely biased and unfair empty criticisms in the sense that the criticisms are accompanied neither by proposed solutions nor by a measure of the impact that the supposed error has. At times among the chaff of such criticisms there have been some kernels of truth, and when that has happened, HAI developers have identified those kernels of truth and revised the model accordingly in an appropriate fashion. The net effect

of this process is what I described as the model having been subjected to the refiners' fire. It is better as a result of that.

The other model in this proceeding is new and has not been subject to the same kind of intense scrutiny. You heard from Mr. Turner and Mr. Turner's testimony submitted in this proceeding that even with the relatively short time we have had, a lot has been discovered that needs to be corrected. You heard many criticisms of the model yesterday, they do not reflect valid criticisms. In balance HM 5.3 produces more route distance, a longer average loop length, and larger cable sizes than VzCost, and I would welcome the opportunity to revisit these criticisms today at your discretion.

One final point if I have ten seconds, I will stop, please differentiate between model inputs and model platform. The model is designed to have input changes.

That's the end of my summary.

JUDGE MACE: And now you have some very brief I understood approximately five minutes of direct testimony with regard to Dr. Tardiff's testimony that we talked about earlier.

A. (Dr. Mercer) Yes. In Dr. Tardiff's rebuttal there were several things he said about the HAI model,

and I want to address four areas. The first is the language or application used in the program. HAI uses Excel as the dominant way of doing calculations. That's not a graceful way to do calculations, it was done historically because the FCC required or provided heartfelt guidelines that the model's calculations must be understandable, reviewable, changeable, and Excel was the best vehicle for doing that.

There are some minor uses of other languages, but they are minor. The model uses Visual Basic for Applications, VBA, to move data from one module to another. It uses structured query language in one place in the model to role up density zone and wire center results to produce the expense module outputs. Going back to VBA for a second, we finally gave up on writing the interoffice ring code in Excel, and that is also written in VBA. So languagewise we believe we're using an understandable language as a guideline we received from the FCC.

As far as accessibility, while people may tout the use of a web based application, we believe that a significant part of the model is that it -- a significant aspect of the model is that it's loaded and run on one zone PC, it can be examined, modified, and does not require coordination with any programmers or

administrators of the web site.

Dr. Tardiff mentioned -- said some things about preprocessing. I'm sure we'll get into preprocessing today, we heard a lot yesterday. The difference between HAI and the Verizon model in our view is that the preprocessing in HAI deals with customer locations and the grouping of those customers, not network equipments and routes. It also uses, and I think this is a very important distinction, the preprocessing we're talking about is being done by a third party database provider who is a recognized entity in the business of providing such databases. It is not an internal Verizon or in this case AT&T process, and we think that's significant.

As an analogy we and I believe the Verizon model use data that appears in the so called ARMIS, A-R-M-I-S, reports to the FCC and information appearing in the Local Exchange Routing Guide. Neither of those are scrutinized, they're accepted as valid representations of data. And I believe the analogous situation was we could spend a lot of time pouring over how the company has reported ARMIS and how it's reported entries into the LERG, but those are independent databases not developed for the purpose of the model, and we believe that there is not that need to

scrutinize.

There are statements made that TNS sets the cable lengths. That's not actually the case, TNS does not set the cable lengths. There are many ways the model could proceed to calculate cable lengths based on the database provided by TNS.

And the final point about the analysis complexity, because we're using Excel, you can use the Excel audit functions that in, as Excel uses the term, means you can trace the source of the terms in an equation, and you can trace what happens to the results of that equation, how the downstream processing then uses the results in a given equation. You can examine the values of any given variable in an equation. And as I say, of course, the programming language or the application language itself is simple enough to allow for people to readily understand what the model does.

In summary, I believe there is an underlying issue of all of this, and that's the length of time that HAI has been in the public domain and has been examined by Dr. Tardiff, by Mr. Dippon, by Mr. Murphy, and by people like that in other proceedings. And while there are complaints made about the complexity of the analysis or the complexity of understanding the model, over the years those witnesses and others have often been able to

do manipulation of the model and its database, suggested changes, which as I said at times have had kernels of truth that we have incorporated and times have not, but it just doesn't stand scrutiny to say it's so complicated you can't do anything with it because those witnesses and others have done things with it. That's the extent of my rebuttal.

Q. Thank you, Dr. Mercer.

Mr. Fassett, have you prepared a summary of your testimony?

A. (Mr. Fassett) Yes, I have.

Q. Would you provide that now, please.

A. (Mr. Fassett) Yes. Good morning. The outside plant engineering assumptions and input values in the HAI model are the appropriate -- reflect the appropriate application of sound engineering practices and guidelines and real world practices that are being currently done out in the industry today. Verizon's own engineering guidelines and other proprietary documents that they have produced in this proceeding support my statement of the -- and the input values and engineering assumptions within the model.

A forward looking network would be designed differently than Verizon witnesses have tried to state. It would not mirror the existing network that's out in

the network today. The sizes and numbers of SAI's, DLC's, and other network components would be different, the locations of those network components would be different, and the sizes and configurations of clusters for distribution areas would be substantially different than exists in today's network, because that network has been developed over a period of years and there has been numerous changes to that -- to the customer base within that.

It would capitalize on the structure sharing opportunities that exist that I have discussed in my testimony. This would include aerial, buried, underground, the sharing opportunities between feeder distribution and interoffice cable facilities. The competitive bid process would be utilized to procure materials, engineering services, placement of facilities, and the installation for those facilities including splicing, et cetera.

Throughout my reply testimony I have addressed the criticisms of Verizon witnesses. These criticisms that I have addressed include the cluster and distribution area sizing, structure mix, structure sharing, and the validation of the assumptions and input values that are within the Hatfield model. And as Dr. Mercer said, the Hatfield model has been scrutinized

over a long period of years, and we have incorporated justifiable changes and modified input values to reflect those that were proper.

In addition, I have also in my testimony discussed the appropriate method to efficiently unbundle digital loop carrier. It currently is being done in Alaska by two small companies, an ILEC and a CLEC. And certainly if those two small companies are able to accomplish that, large ILEC's can also accomplish that.

And that concludes my summary, thank you.

MR. KOPTA: The witnesses are available for cross-examination.

JUDGE MACE: Mr. Huther.

MR. HUTHER: Thank you.

C R O S S - E X A M I N A T I O N

BY MR. HUTHER:

Q. Dr. Mercer, Mr. Fassett, good morning.

A. (Mr. Fassett) Good morning.

A. (Dr. Mercer) Good morning.

Q. Let's start with you, Dr. Mercer. You just described either in your summary or perhaps in your response to Dr. Tardiff's rebuttal testimony the various programming languages utilized by HM 5.3, correct?

A. (Dr. Mercer) Yes.

Q. What software is the preprocessing performed by TNS, which software is used by TNS to perform the preprocessing?

A. (Dr. Mercer) I would -- could only ask you to refer to Mr. Dippon's response to that. I have not examined that program, those programming languages myself.

Q. Have you reviewed any aspect of the preprocessing performed by TNS that yields the customer location database that is an input to HM 5.3?

A. (Dr. Mercer) I'm sorry, would you ask that again.

Q. Yes.

CHAIRWOMAN SHOWALTER: Would you move the microphone just a little bit closer to you.

MR. HUTHER: Yes, I'm sorry.

BY MR. HUTHER:

Q. Have you reviewed any aspect of the preprocessing performed by TNS that is used to produce the cluster input database as an input to 5.3?

A. (Dr. Mercer) If by review you mean have I reviewed the programming languages, the answer would be no. If review means have I talked to TNS and understood the process and helped provide guidance to TNS, the answer is yes.

Q. Have you been able to confirm that TNS has appropriately performed the clustering exercise?

A. (Dr. Mercer) I have looked at a number of sequences of pictures such as those that were presented to Mr. Dippon yesterday. I don't have the exhibit numbers right in hand. Have looked at where the customer locations are, have looked at how they have been organized into clusters, have seen the clusters themselves, and have seen the rectangles that represent those clusters. So in the sense of reviewing a number of those kinds of sequence of pictures, yes, I have.

Q. In other words, you have reviewed the output of the clustering process, but you have not analyzed each step of the process; is that a fair characterization of your testimony?

A. (Dr. Mercer) Again, I have examined the output of each step, but I have not examined the software itself.

Q. Mr. Fassett, are you familiar with the preprocessing performed by TNS?

A. (Mr. Fassett) No, I am not. I am aware of what it does basically, but I have never done any analysis or anything. That's not part of my testimony.

Q. Have you ever been provided access to all aspects of the TNS preprocessing?

A. (Mr. Fassett) No, but I have never asked to, because it's not what my expertise is in.

Q. Understood.

Dr. Mercer, are you aware of anyone other than Mr. Dippon who has been provided access to the TNS clustering algorithm?

A. (Dr. Mercer) No, not specifically.

Q. And you're aware that Mr. Dippon was provided access to that clustering algorithm in the Verizon California proceeding?

A. (Dr. Mercer) That's my understanding, yes.

Q. Dr. Mercer, can we go to your rebuttal testimony at page 43. That testimony I believe has been marked as 851T.

CHAIRWOMAN SHOWALTER: You haven't been here, but when you refer to an exhibit, can you give us the exhibit number first, and then see that we're all there on the exhibit number, then give us the page. Because generally speaking by the time we find the exhibit we have forgotten the page.

MR. HUTHER: Understood, I will do that going forward. It's Exhibit 851T.

COMMISSIONER HEMSTAD: That's the supplemental direct testimony.

MR. HUTHER: That is, and I'm sorry, that is

not the exhibit I was referring to. I was referring to his reply testimony, which is 861T.

JUDGE MACE: And what page?

MR. HUTHER: Page 43.

JUDGE MACE: Go ahead.

BY MR. HUTHER:

Q. Do you have that in front of you, Dr. Mercer?

A. (Dr. Mercer) Yes, I do.

Q. I would like to direct your attention to the second sentence beginning on line 1, begins with the words, customers remain.

A. (Dr. Mercer) I see that.

Q. Do you see that?

A. (Dr. Mercer) Mm-hm.

Q. It says:

Customers remain within the confines of the small clusters to which they were originally assigned after being geocoded.

Did I read that correctly?

A. (Dr. Mercer) Yes.

Q. How far, have you quantified how far clusters are removed from the original customer location?

A. (Dr. Mercer) As a result of where the centroid, C-E-N-T-R-O-I-D, are located, the rectangles

that represent the customers can move. However, let me point out that if I have a piece of paper with a number of spots representing customer locations on it and I take that piece of paper and I slide it over, or for that matter if I were to rotate it, that makes absolutely no difference in the amount of cable required to connect those points to each other. So while you may draw a picture that says it looks odd to have centered that cluster on its centroid, the impact on the distribution calculations is irrelevant. So my comment here about staying in the cluster, they have stayed within the cluster, they have not been moved out of the cluster. The cluster may look odd when plotted, but the odd plotting has nothing to do with the calculation of distribution distance in that cluster.

Q. Dr. Mercer, my question was, have you quantified the distance by which they have moved?

A. (Dr. Mercer) In the sense of numerical answers, no. But what I am saying is that the clusters will move to the centroid. If the centroid is on the edge of a cluster, they may move as far as from the what would have been centered in the more or less the middle of that cluster out to its edge. That can be, I suppose, can be as much as 15,000 feet the way they're drawn. It would be no more than the maximum distance

you get from the middle of a cluster out to one edge. But I have not, you know, beyond that statement of generically what happens, I have no plots of that or any count of the distances.

Q. Staying in the same Exhibit 861T, could you please turn to page 6.

A. (Dr. Mercer) I'm there.

Q. And specifically lines 16 through 22.

A. (Dr. Mercer) Yes.

Q. You seem to be criticizing Dr. Tardiff's comparisons to ARMIS on the grounds that these data include costs that are excluded from UNE rates; is that accurate?

A. (Dr. Mercer) Yes, it is.

Q. Do you have Dr. Tardiff's testimony in front of you?

A. (Dr. Mercer) I don't believe so, no.

Q. All right, let me -- I believe that's been marked as Exhibit 501T.

MR. HUTHER: May I approach?

JUDGE MACE: Yes.

DR. MERCER: Thank you.

MR. HUTHER: Sure.

BY MR. HUTHER:

Q. If you could turn to Footnote 60 of that

testimony, which is found on page 38.

A. (Dr. Mercer) Yes.

Q. Fairly lengthy footnote, you're welcome to read it in its entirety, I would like to focus on the last sentence.

A. (Dr. Mercer) Okay.

Q. And that last sentence reads:

I have also reduced the general support investments and expenses in the ARMIS and current investment columns to match the proportions assigned to the UNEs modeled by HM 5.3 in this proceeding.

Do you see that?

A. (Dr. Mercer) Yes, I do.

Q. And did I read that accurately?

A. (Dr. Mercer) Yes.

Q. Doesn't this adjustment performed by Dr. Tardiff remove the investments and expenses from ARMIS data in order to make the comparison to 5.3 an apples to apples one?

A. (Dr. Mercer) Not necessarily, no, because, for instance, there has been a considerable argument about, let's pick one category, product management expenses, and whether they're appropriately included in UNE's. I have no way of reading this sentence and

knowing whether Dr. Tardiff and I would agree on the exclusion of those expenses or not. So reading a sentence like this is not of any significant help and would not change and did not change my statement in the declaration.

Q. Did you review Dr. Tardiff's workpapers produced along with his testimony to determine which costs from ARMIS were actually included in this comparison?

A. (Dr. Mercer) Yes, to some extent.

Q. But not fully?

A. (Dr. Mercer) The -- I -- my review was limited to the understanding what happened to general support since that's specifically what mentioned here -- is what's mentioned here. There are other categories of expenses such as overhead and the like, I did not see those or review those thoroughly. I did not see in the general support any indication that it was done in necessarily the same fashion that we would have done it in HAI.

Q. Okay. Could you please turn to page 16, Footnote 3 of your rebuttal testimony, the same one we have been working on, 861T?

JUDGE MACE: What was the page again?

MR. HUTHER: The page was page 16, Footnote

3.

And I don't believe I will be using that document any longer, so I'm happy to pick it up.

DR. MERCER: That's good, it might be somewhat wrinkled by the end of the day.

MR. HUTHER: I think they all are by the end of the day.

A. (Dr. Mercer) I'm at Footnote 3.

BY MR. HUTHER:

Q. And there you state that Dr. Tardiff talks several times about clusters sized for 200 to 600 lines; is that correct?

A. (Dr. Mercer) Yes.

Q. And he attributes that size to an earlier statement by AT&T witness John Donovan, and he also admits the average cluster size of VzLoop is considerably larger than 600 lines; is that right?

A. (Dr. Mercer) That's what I say there, yes.

Q. Do you recall responding to a data request in which you stated that Dr. Tardiff's explanation that VzLoop produces 3,300 SAI's averaging 1,400 lines; do you recall that?

A. (Dr. Mercer) I believe that was in the responses to data set 12.

Q. Yes.

A. (Dr. Mercer) Yes.
Q. It's specifically 12-21, I'm happy to provide you with a copy of it, but --
A. (Dr. Mercer) I remember roughly. I also would point out there that I acknowledge that it was not Dr. Murphy, that it may -- I'm sorry, I'm making the same mistake I made originally. I acknowledged it was not Dr. Tardiff who had made the statement about 200 to 600 lines, it was Mr. Murphy.
Q. Okay, you're better at the math than I am, but entertain me for a moment, isn't it the case that there are about one million lines in Verizon Northwest Washington serving area?
A. (Dr. Mercer) One million, yeah, narrow band, plain old telephone service, and related lines, that's about the right figure.
Q. And you're aware that the average number of lines per SAI in Verizon's -- in VzLoop is about 300?
A. (Dr. Mercer) I will take that representation from Mr. Murphy's testimony. I did not actually do that calculation, but I will accept that.
Q. Well, the calculation would be a million lines or roughly thereabouts divided by the 33,300 SAI's, correct, actually the reverse of that, 3,300 divided by a million?

A. (Dr. Mercer) That's correct.
Q. Okay.
JUDGE MACE: Could you repeat the --
MR. HUTHER: Oh, do I need to do that again?
CHAIRWOMAN SHOWALTER: I think you meant 3,300 --
MR. HUTHER: 3,300 and 1 million, the number of lines in Verizon's serving area, gets you to the 300 lines.
CHAIRWOMAN SHOWALTER: Per?
MR. HUTHER: Oh, per SAI.
BY MR. HUTHER:
Q. I'm having the same trouble with the calculation as you were with Dr. Tardiff and Mr. Murphy, so let's try this again, Dr. Mercer, I warned you at the beginning I wasn't good at the math, so.
A. (Dr. Mercer) If I'm not mistaken yesterday at one point I was sitting in the back of the room and referred to as Mr. Murphy. Mr. Tucek couldn't decide who was more insulted, me or Mr. Murphy.
Q. Well, there's a good explanation at the end of the afternoon, but I'm not sure why I can't get it straight this morning.
Okay, let's try this again. The calculation that yields the 300 lines per SAI is 1 million divided

by 3,300.

A. (Dr. Mercer) I agree with that, yeah. Somehow I had translated before even when you said it backwards, but yeah, I agree with that calculation.

Q. Actually, I think I got it right the first time.

A. (Dr. Mercer) You may have.

Q. All right, let's get out of the math. Page 56 of Exhibit 861T, your reply testimony, if you will turn there.

CHAIRWOMAN SHOWALTER: This is my problem, I hear the first number and I'm thinking about it, so I didn't hear the exhibit number first.

MR. HUTHER: 861T, the rebuttal reply testimony.

CHAIRWOMAN SHOWALTER: Page?

MR. HUTHER: 56.

CHAIRWOMAN SHOWALTER: Thank you.

BY MR. HUTHER:

Q. Line 14.

A. (Dr. Mercer) Okay.

Q. Do you see there, Dr. Mercer, you contend that:

Mr. Murphy may hold that all cable and structure costs should be assigned only

to UNE's at issue in this proceeding.

A. (Dr. Mercer) I see that, yes.

Q. Could you point to me where in Mr. Murphy's testimony he makes that claim?

A. (Dr. Mercer) I don't have his testimony here, but I can tell you, well, I think we're answering a question here that describes the area where we are, and it's around page -- I heard so many times to speak into the microphone that now I'm overhyper about it. I'm referring to the discussion around page 14 where Mr. Murphy talks about how the HAI model has discarded the vast majority of the costs attributed to the all fiber network, and that's a particularly unfortunate and misleading characterization, and that's what I'm talking about there. I'm not sure it's exactly page 14, but it's close by. That's the part we're talking about here.

Q. Let me give you a copy of Mr. Murphy's testimony so you have that handy.

CHAIRWOMAN SHOWALTER: Which is exhibit what?

JUDGE MACE: 551TC.

BY MR. HUTHER:

Q. And if I could ask you to turn to page 92 of that exhibit.

JUDGE MACE: Of 551?

MR. HUTHER: Yes.

A. (Dr. Mercer) Okay.

BY MR. HUTHER:

Q. In there Mr. Murphy contends that had HM 5.3 correctly identified the 182 units of OCn demand --

JUDGE MACE: I'm sorry, where are you, counsel?

MR. HUTHER: Oh, 4.

BY MR. HUTHER:

Q. (Reading)

Had HM 5.3 correctly identified the 182 units of OCn demand --

JUDGE MACE: And OCn is capital O, capital C, usually small n for the reporter.

Go ahead.

Q. (Reading.)

Of the total 2,869 units of high cap demand modeled by HM 5.3, only 6% of the high cap services and their associated costs would be appropriately categorized as not at issue in this proceeding, not the ridiculous 77% that HM 5.3 uses to justify eliminating the $21,430,000 in outside plant or OSP structure investment that HM 5.3 discards.

Do you see that there?

A. (Dr. Mercer) Yes, I do.

Q. And did I read that correctly?

A. (Dr. Mercer) I believe so, yes.

Q. Isn't that Mr. Murphy's claim?

A. (Dr. Mercer) This is not the only place, for instance, where I'm talking about a quote that talks about discarding the vast majority of the cost attributed to the network, so you're reading a somewhat different quote. It appears to me that at fast glance that page 14 may not be the right place, but my citation there was to language that I believe was in his testimony. So there's more than just this place that they're talking about.

Q. Well, isn't it true that the point that Mr. Murphy was making and to which you are responding or attempting to respond is that -- regards the assignment of cable and structure costs? It's not that they should be assigned only to UNE's at issue in this proceeding as you have argued, but rather that only those costs associated with OCn services should be excluded because he believes that's what the 21st Supplemental Order directed the parties to do?

JUDGE MACE: Which 21st Supplemental Order are you talking about?

MR. HUTHER: In this proceeding.

JUDGE MACE: Thank you.

A. (Dr. Mercer) This particular place talks about -- appears to talk about the OCn's, I see that. Again, the gist of this comment though I believe is entirely erroneous, and let me explain that because I think it's enlightening. What Mr. Murphy is complaining about here is that we had certain services that Verizon identified as being for instance DS1 services on optical fiber or DS0 services on optical fiber. We said those services are fundamentally different than DS1 services offered over copper or DS0 offered over copper. It's a different serving arrangement and quite different costs. We excluded those services because we said it does not make sense to take a DS1 cost that is for a particular service offering of Verizon. It's not just that the services may happen to be on fiber. In the HAI model, services like a DS0 will sometimes be on copper and sometimes be on fiber depending on the most efficient arrangement. The issue here is if service is offered specifically as being over fiber for the reasons of quality and cost and convenience of arrangement. That to me and to us as we made the decision about the model is a fundamentally different service than what I think of as a DS1 service which is normally provided over

copper, so we did characterize those as optical fiber services and did not include them. They certainly can be included, but they're not that way now because I think it's a fundamentally different service.

E X A M I N A T I O N

BY CHAIRWOMAN SHOWALTER:

Q. Just a quick follow up. When you say you did not include them, does that mean that's not included anywhere in your calculations or only in this portion you're talking about and they're picked up somewhere else?

A. (Dr. Mercer) It means that the demand is reflected in the model. That is we have provided the fiber capacity for those services, but we have not priced -- we have not developed a UNE price for a DS0 over fiber or for a DS1 over fiber. In this sense Mr. Murphy is correct that investments have been associated. If you remember the FCC guidelines early in the UNE process was that the network should be sized to reflect all the demand. The demand for such services is present, and we are reflecting the capacity needed to serve that demand, but we are not developing UNE costs for these rather unique and specialized services of DS0 and DS1 on fiber.

C R O S S - E X A M I N A T I O N

BY MR. HUTHER:

Q. You don't deny, Dr. Mercer, that HM 5.3 high cap optical category of services includes OCn, DS3's, and DS1's, correct?

A. (Dr. Mercer) And possibly some DS0's that are offered on fiber, although they're small numbers of each of these.

Q. And you would agree that HM 5.3 removes all cable and structure costs that are modeled for the high cap category except those associated with DS3?

A. (Dr. Mercer) I don't agree, and that was the gist of my comment, I don't agree that you have removed the investment, you have assigned investment to appropriate services. The fact that in this proceeding we are not recommending and neither is Verizon recommending rates for, for instance the OCn services does not mean you have removed the investment. The investment is there, and it's been assigned. The cables are bigger for instance as a result of having a DS1 on optical fiber. We have put more fiber into the network. Have we removed that investment? No, we have assigned it. If we were calculating the cost of a DS1 on fiber service, that's where that investment would be assigned.

We believe that that's the appropriate treatment of those services. You reflect all the demand, you develop UNE costs for those things you're developing UNE costs for. That's what in my mind the FCC meant when it said reflect all the demand.

MR. HUTHER: I think I'm ready to turn to Mr. Fassett. Shall I keep going, or would you prefer to take a break?

CHAIRWOMAN SHOWALTER: Maybe we should take a break, this seems like a good time.

JUDGE MACE: 15 minutes.

(Recess taken.)

JUDGE MACE: I wanted to let you know that Dr. Gabel has a follow-up question for Dr. Mercer before you turn to Mr. Fassett, but I understand you also had one additional question for Dr. Mercer; is that right?

MR. HUTHER: I did.

JUDGE MACE: Go ahead.

BY MR. HUTHER:

Q. Dr. Mercer, setting aside for the moment the disagreement you have with Mr. Murphy over whether those DS1's that have been included in the high cap category should be reclassified into the DS1 non-switched category, if I wanted to move them or the Commission wanted to move them into the non-switched category, how

can that be accomplished in the model?

A. (Dr. Mercer) You would just need to take those investments that right now are being assigned to DS1 and add them into the DS1. You would also need a version of the terminal equipment that converts the fiber optic DS1 signal into a DS1 the customer sees. I mean right now for the DS3 service we say there's a substantial amount of investment in the customer premises equipment that takes basically light in and puts the DS3 electrical signal out. You would need that equipment for DS1 as well. We have done that. I mean we have looked at that before, we could do that.

Q. And do I understand correctly that that's sort of a worksheet calculation that you're proposing as opposed to an input, a user adjustable input to the model?

A. (Dr. Mercer) You could do it either way. In the California proceedings, for instance, where we had specific UNE's that were not produced inherently by the model, we added a California UNE rate sheet, one for SBC and a different one actually for Verizon, that did that kind of calculation. So you could do it in a separate worksheet that was added to the model that acquired investments from the modules and then created that calculation, or if so ordered you could actually build

it into the model calculations themselves. It would certainly be more straightforward to do it in a calculation in a separate worksheet than to go back and revamp the model.

Q. And to revamp the model would require the assistance of TNS, correct?

A. (Dr. Mercer) Yes, I guess it would. I started to say no, I didn't see why they would be involved. They would be involved because you would need to separately identify that category separate from the other high capacity services, so you would need TNS to indicate which DS1 on fiber lines were in which cluster, yes.

MR. HUTHER: That's all I had, thank you.

JUDGE MACE: Dr. Gabel.

E X A M I N A T I O N

BY DR. GABEL:

Q. Good morning, Dr. Mercer.

I'm not sure I understood your response to Mr. Huther right before the morning break. I thought I heard you say that when you develop the DS0 loop rate you exclude the DS1 investments associated with DS0 loops.

A. (Dr. Mercer) Okay, if I said that, I said it

really badly.

Q. All right.

A. (Dr. Mercer) Because what I was trying to say was Verizon has also provided certain customer records that say there is a DS0 on fiber. So what I said was that we are not combining the DS0 on fiber service with the DS0, normal DS0's that are on copper. I could give a similar answer about being able to do that would require a separate identification of those, but I was not intending to mix up DS0 and DS1. I was trying to say that we have not combined the DS0 on fiber service cost with those normal DS0's you think of as being on wire pairs.

Q. Okay, so I want to make sure I understand this, so there is a DS0 POTS on fiber, and then there's DS0 non-POTS on fiber, and that's the distinction you're making?

A. (Dr. Mercer) Let's see, DS0 POTS, there is -- it's not -- it's probably when we're talking DS0 we're normally not talking about the POTS, the telephone service, we're talking about non-switched private line services. And in the model database you will find a category called individual non-switched services, those are the DS0's that are not part of the switched loops that are going into the switch but are these private

line things. And then you will find as part of the high capacity services there are some amount of DS0's on fiber in there. So yes, so we're talking on the one hand about DS0's provided over wires that are provided -- that are given wire pairs in the model, and they're, you know, and we have a UNE rate for loops that includes loops that are used for switched and loops that are used for DS0. But then there is this other category of DS0 services offered on fiber. That's the way it shows up in the Verizon database.

Q. And for those DS0 non-switched loops where you exclude their investment, is that what the exchange was --

A. (Dr. Mercer) That's what -- when they are called -- when Verizon has identified a service as being a DS0 or a DS1 on fiber, we are not developing the cost of those, we are calling those other high cap optical services. We're recognizing the demand for fiber, and we're saying there's investment associated with them, but we're not developing specific UNE costs.

DR. GABEL: Thank you.

JUDGE MACE: Go ahead.

MR. HUTHER: Thank you.

C R O S S - E X A M I N A T I O N

BY MR. HUTHER:

Q. I would like to turn to some of the engineering issues in the model and the modeling implications for some of the decisions that have been made. Before I get to you, Mr. Fassett, Dr. Mercer, is it true that exempt materials have generally been accounted for within the model as a load to the technicians labor rates?

A. (Dr. Mercer) Yes, I believe that's a fair statement.

Q. And so then the labor to install plant such as telephone poles is included in the capital accounts for that equipment, correct?

A. (Dr. Mercer) Well, now we're talking about two different things. There's no exempt material -- the pole is not exempt material and you're probably actually -- Mr. Fassett can tell you a lot more how stuff is categorized in outside plant. If I look at a pole, there is a labor component of a pole and a material component of a pole. The, as I understand it, again I believe Mr. Fassett can speak to this better than I can, but certain incidental things that go on a pole, and I assume they mean things like faceplates or the things you stand on sticking in the side of the pole, you can

tell why we have an outside plant person, anyhow that kind of, you know, screws and tie downs and things like that are what I understand to be so called exempt material, and they would be included in labor rates.

Q. Okay, so the exempt materials you agree are included in labor rates for purpose of the model?

A. (Dr. Mercer) Yeah, I mean there's lots of kinds of exempt stuff, and as I understand it, again, there are certain materials. It's the stuff you find in bins, you know, in the warehouse as opposed to a whole pole, but there are stuff laying around in bins that a craft person needs to completely equip a pole. And in as much as the telephone companies, you know, don't categorize that stuff separately as part of the pole investment, it's being picked up as labor. That's my understanding.

Q. Okay.

Mr. Fassett, let's go to page 24 of Exhibit 956TC. That is your reply testimony.

JUDGE MACE: You're going to have to repeat the page number.

MR. HUTHER: I will try that again.

BY MR. HUTHER:

Q. Let's go to Exhibit 956TC, that is your reply testimony.

A. (Mr. Fassett) Okay.
Q. And if you could please turn to page 24.
A. (Mr. Fassett) I have it.
Q. There you state:
Anchors and guys are not classified as capital items of plant but as exempt materials and therefore are correctly not capitalized within the model.
A. (Mr. Fassett) That's correct. I think for the Commission I will explain what on a pole is capitalized. The pole material and the labor for placing that pole becomes a unit of plant, and that goes into the company's continuing property records. The other attachments to the pole that or hardware that's attached to the pole or maybe support the pole such as a anchor, a guy, the through bolts, the bolt that goes literally through the pole and attaches the fixture there, the strand which goes down as a down guy piece, any of that incidental hardware is not classified as a unit of plant, and it's not on the company's continuing property records, and it's included into the exempt material loadings that are added onto the labor rates for the technicians.
Q. Do you agree with that, Dr. Mercer?
A. (Dr. Mercer) Yes, it's my understanding, but

let's be clear here. What's happening with a pole investment in the model is a pole has material and it has labor. So when this kind of material is getting put into labor, the $400 plus of a pole has the labor piece and the material, the wood if you will, and therefore all of that is now becoming part of what the model capitalizes. It's treating it as the investment in pole, so there's a lot of pieces to the network that have a labor component for installing that equipment, and that's part of the capital investment.

Q. Dr. Mercer, you would agree that there are instances in the version of HM 5.3, at least as of yesterday separate and apart from what you filed today that no party has been able to review yet, but in the prior version of HM 5.3 you would agree there are instances in which the model designs loops in excess of 18,000 feet, correct?

A. (Dr. Mercer) No, I wouldn't agree with that characterization. The model has a limit on 18,000 feet. When it looks at a cluster, it looks at the amount of cable required to get out to the furthest point on the -- in the cluster. And if that's greater than 18,000 feet, it will actually split the cluster.

I believe what you may be referring to is if you will remember the answer this morning about strand

distance, I mentioned that the model is normalized to the strand distance, and I gave the example of the strand distance being 2,000 feet, quite a small cluster, but 2,000 feet and the model having only produced 1,600 feet, it says there's a ratio of 2,000 to 1,600, and it multiples that plant component. Your characterization of that is that the loops then become longer than 18,000 feet, but that's because you're still producing pictures that just expand or shrink the backbone and branch cables. That's not what the model is trying to do at that point.

The reason you're doing the strand normalization is because customers are not always uniformly located in a cluster, they're not always on evenly spaced straight streets. The strand distance is telling you what it really takes to connect to those customers. In certain clusters where I may have streets closer together or streets turn in a certain way, I will produce a strand distance that's greater than 1. In my mind that's quite a different statement than saying that all of a sudden there are loops that are greater than 18,000 feet. So I think it's only in that last stage of the picture we saw yesterday with the either shrunk or expanded rectangles.

And understand, by the way, as a result of

the revised model that we submitted this morning, in general those little -- those shrunk rectangles we saw yesterday are going to be significantly larger, because that's the net effect of the change to -- that we made to the model. But be that as it may, your characterization is that you have changed loop lengths, that's not my characterization.

Q. Let's turn to Exhibit 861T, Dr. Mercer, that is your reply testimony.

A. (Dr. Mercer) Okay.

Q. And specifically page 29.

CHAIRWOMAN SHOWALTER: Can you wait until we get there.

MR. HUTHER: Oh, sure.

BY MR. HUTHER:

Q. Page 29, Dr. Mercer, of Exhibit 861T, you state on line 7 that, and I'm paraphrasing here so, that Dr. Tardiff's proposal may have merit subject to further examination, and you continue on line 8 to say:

To the extent that the strand normalization factor is greater than unity for a cluster, it suggests customers are more spread out than the backbone and branch calculations originally assumed. That being the

case, it makes sense to check the need to deploy fiber feeder and potentially subdivide clusters using the post normalization rather than the prenormalization distances.

Did I read that correctly?

A. (Dr. Mercer) You did.

Q. And so you're agreeing there with Dr. Tardiff's criticism, correct?

A. (Dr. Mercer) Actually, if you read the thrust of that, I say in there Dr. Tardiff's proposal may have merit. This falls in the category of the process I described this morning where I said that along with a rather large amount of chaff that's thrown up about the model, there's sometimes kernels of truth, and we're looking at those. And as I indicated there, we're looking at that issue.

However, as with my answer before suggested, what we're beginning to find is yes, there are clusters where you get a strand normalization greater than 1. And the reason that happens is that, I'm going to have to paint a picture in the air, so I will try to get the words to keep up with it, if I have a cluster with very few lines in it, what's literally done in the model is that lots are uniformly distributed in a cluster. And

if I have a very few lines in a cluster, that implies in the initial step of laying out cable that I have large lots and I only run to the edge of the lot that's furthest out towards the edge of the cluster. In other words, I stop the cable at the edge of what may be a large lot.

And what strand normalization in that case tells you is, you know what, the customer is not really on a uniformly large lot like that, they may be much closer to the edge of the rectangle, and therefore a strand distance greater than 1 may be saying that you have to go further out to the edges than the way the model initially calculates. And that's true, that does happen.

But you know what we're finding happens, that happens in a small fraction of cases. You don't have that many clusters with a very few lines in it. What seems to be much more commonly happening is that you just have places where customers are intensely close together, and therefore it takes more cable to reach them, but they're intensely -- they're, intensely is the wrong word, they're closer together than the model is suggesting, but they're closer together in an area where the model already knows there are cable. In that case you haven't increased the loop length to reach those

customers, you have increased the route miles.

Well, the strand normalization takes care of the route mile problem, but it does not translate into saying that I have to adjust the loop length. So my exactly the examination that I'm suggesting I'm doing in this paragraph is what we're doing, and the more we're doing it, the more we realize the cases where you would suggest there needs to be a longer loop length are much smaller than the cases where you're saying strand normalization is just adding route miles because there are just -- because of the situations where there's more customers packed together.

Q. Did you account for the change here that you have identified in the new version of HM 5.3 referred to as HM 5.3R?

A. (Dr. Mercer) Did I account for what?

Q. Did you -- does the new version of -- does HM 5.3R account for the modeling change that Dr. Tardiff has proposed and that you have agreed with here?

A. (Dr. Mercer) No, it does not, and I have not agreed with it here. Again, I will point out to you the language. It says it may have merit subject to further examination. We're doing that examination, we don't believe at this point that's an appropriate change. The model changed exactly the way I described this morning,

and it does not include any change in this area. It includes only one thing, and that's getting rid of the erroneous subtraction of drop distance from the strand distance.

Q. Mr. Fassett, let's go back to your testimony that has been marked, bear with me a moment, 956T.

A. (Mr. Fassett) Okay.

Q. At page 13 on line 17 through 18. There you disagree with Mr. Murphy's testimony regarding the model's design of maximum copper loops in excess of 18,000 feet, correct?

A. (Mr. Fassett) Yes, that's correct. And in that testimony, in that very paragraph, I state that, as explained by Dr. Mercer in his testimony, which I believe we just heard.

Q. What analysis did you perform on HM 5.3 to verify that statement contained on line 17 that the model limits the maximum copper loop lengths to 18,000 feet?

A. (Mr. Fassett) I discussed that with Dr. Mercer, and it's always been my knowledge that the maximum loop length within the model was 18,000 feet, and I discussed that with Dr. Mercer, and that's part of what he has talked about in his testimony.

Q. You --

A. (Mr. Fassett) He did an analysis, I did not do an analysis of that, no.

Q. So I take it you didn't look at any of the model's output or algorithms or intermediate results to --

A. (Mr. Fassett) No, I'm an outside plant engineer, and I focused strictly on the outside plant engineering assumptions and input values.

Q. So you don't know whether it's possible, if you can look in HM 5.3 to determine whether the model produces maximum copper loop lengths in excess of what Dr. Mercer told you it calculates?

A. (Mr. Fassett) That's correct, I do not testify that I have looked at the model and the outputs within it for that.

Q. Did you look at any -- I'm sorry.

JUDGE MACE: You need to let him finish his answer and then ask your question.

MR. HUTHER: I apologize.

A. (Mr. Fassett) For those very reasons that I explained, I had referred it to Dr. Mercer, and then he's the HAI witness or expert on the model, and I am not.

Q. Did you analyze any of Mr. Murphy's workpapers establishing the method by which he

determined that there were 215 clusters produced by HM 5.3 that contained loops in excess of 18,000 feet?

A. (Mr. Fassett) No, I did not.

Q. Let's talk about the engineering of the network. Mr. Fassett, is there a user adjustable input in HM 5.3 that would allow the user to alter the location of the SAI that is assumed by the model?

A. (Mr. Fassett) To alter the location?

Q. To change the location, to relocate the SAI.

A. (Mr. Fassett) I believe my -- what the model does, it locates that within that cluster as described in the HIP, and I don't know for sure --

JUDGE MACE: As described in what?

MR. FASSETT: The HIP, the Hatfield Inputs Portfolio, which is a -- the documentation that provides all of the various support and for the various assumptions and inputs values within the model.

JUDGE MACE: Thank you.

DR. MERCER: That's Exhibit RAM-5 of my supplementary direct.

MR. KOPTA: Exhibit 856.

JUDGE MACE: Thank you.

A. (Mr. Fassett) But I don't know, to answer your question, I don't know whether there is a change or a modification to the model that would allow you to

change that from -- so that you're talking about movement, I'm not aware of that, to change the location of the SAI. I believe that's what your question related to.

Q. That's correct, Mr. Fassett.

Isn't it the case that in most instances the location of the SAI, and SAI means -- is an acronym for serving area interface, is set on or about the centroid of a cluster?

A. (Mr. Fassett) That's correct.

Q. And do you know whether -- strike that.

Dr. Mercer, isn't it true that the placement of the SAI on or about the centroid of the cluster occurs in the TNS clustering process, that is the preprocessing to the model?

A. (Dr. Mercer) Well, TNS does not place SAI's, TNS provides information on where the centroid is located, and the HAI model distribution module then puts an SAI of the right size at that centroid.

Q. Okay. But then you agree that the determination of the location of the SAI is performed by TNS in the preprocessing portion of the model?

A. (Dr. Mercer) It is. However, an awful lot of attention is being paid to the limitation of that process. You heard from Mr. Spinks and we have also

readily within the model been able to move the centroid to the center of the cluster instead of its sometimes edge as it will happen in certain shaped clusters in order to see what the effect of that would be, and we agree with Mr. Spinks. Not that we did the same run, but I'm saying his results that he reported the other day are very much like ours. We actually saw a 1 penny increase in the loop, I believe he said there was a small decrease, but he's also using a different set of assumptions. The point of that is to say that it may be set in preprocessing, it can be corrected by I guess I would describe it as a reasonably sophisticated user that understands GIS, geographic information systems, databases.

Q. Am I correct, Mr. Fassett, that the cable that runs from a wire center to the centroid of the cluster is feeder cable?

A. (Mr. Fassett) To the SAI would be feeder cable.

Q. Yes.

A. (Mr. Fassett) Yes, that's correct.

Q. And is it true, Dr. Mercer, that the feeder routes are also determined in the preprocessing stage of the model based on calculations performed by TNS?

A. (Dr. Mercer) No, that's not correct.

Q. Where --

A. (Dr. Mercer) The feeder route calculations are all done within the feeder module, not -- I shouldn't say all done, because there's some done in the distribution module, but it's the distribution and feeder module together that knowing where the clusters are located, where the centroids are, it lays out the feeder plant to serve those. You could have a different algorithm, you could use some minimum spanning tree calculation of how the feeder should run to connect those centroids, that's certainly not a function performed by TNS.

Q. If a user wanted to adjust the feeder routes contemplated by HM 5.3, how would that be done without using TNS?

A. (Dr. Mercer) Without using TNS, they have available to them -- there is a -- speak with my hands, this is difficult -- there is a wire center in one place, and there are a bunch of centroids of clusters, and you know the location of those centroids relative to the wire center, you know how many lines are being served out of that SAI. You could certainly write a different feeder program that instead of laying it out as we do, which is to assume that there are right angle routes where there is a main feeder running out from a

central office and then branching out at right angles to reach those centroids, you could certainly write an optimization routine if you thought there was a better one that would completely replace the feeder module.

Q. There's no user adjustable input that would affect that change, correct?

A. (Dr. Mercer) No, there's an assumption of engineering done a certain way in the model, and we're talking here about a rather significantly different engineering. I would not know any way that our model or Verizon or any other model can reduce every engineering change you might think of making to simply an input change.

There is, by the way, I would point out there is one capability that is in the model, and that is that we have something called feeder steering that you can enable. Feeder steering says that instead of assuming that each -- the cables, the main feeder cables run north, east, south, and west, you can look at let's say the eastward running feeder cable, look at where its clusters are located that it's serving, and allow the model to steer that feeder so that it more optimally runs past those clusters.

For instance, if all the clusters being served by that east running feeder happen to be located

slightly above that east-west line, the model will steer that to go -- so there is one capability like that, but you're talking about significant reengineering, and that's why the model is available in Excel form. You can write feeder engineering modules to your heart's content and plug them into the model and place the one that's in the model already.

Q. Is distribution cable length determined by the strand distance; is that what I understood you to testify earlier?

A. (Dr. Mercer) Distribution cable length, no. Again, distribution cable length is determined by the particular algorithm that we believe is appropriate in the model that has both a -- your question is about distribution feeder lenth, distribution length; is that correct?

Q. Distribution cable length.

A. (Dr. Mercer) I was going to talk about feeder as well, but in the distribution case, again our algorithm says you lay out plant in a backbone and branch arrangement where there is a cable, a backbone cable, running in one direction along the rectangle, and there are branch cables running at right angles to reach the customer locations. If you decided that you wanted a different algorithm for doing that, you could write

such an algorithm, but this is the one that we put again in the initial step in the model before strand normalization, this is the one that we have put in our -- in the model at this time.

Q. And precisely where in the model is that, what part of the model is that located?

A. (Dr. Mercer) Is what located, that calculation?

Q. That calculation.

A. (Dr. Mercer) That's located in the distribution module.

Q. Mr. Fassett, you agree that feeder structure and the placement of that structure is one of the main cost drivers in deploying loop plant, correct?

A. (Mr. Fassett) Well, structure is one of the main cost drivers in place whether you're placing feeder or distribution, and feeder structure would be a part of that.

Q. Mr. Fassett, do you have in front of you, I'm looking for RAM-5, it is Exhibit 856. 856 is Exhibit RAM-5 to Dr. Mercer's testimony, and it is a document entitled the HM 5.3 Inputs Portfolio or sometimes referred to as the HIP.

A. (Mr. Fassett) Yes, I have it.

Q. Let me catch up with you, Mr. Fassett. On

page 14 of that exhibit you will see under the heading 2.6, fiber cable installation factors.

A. (Mr. Fassett) Yes.

Q. I would like to walk you through the default value that's set forth in the table there I guess entitled OSP technician labor rate and productivity for fiber cable; do you see that?

A. (Mr. Fassett) Yes, I do.

Q. Now it's your testimony that a 2 person crew working 8 hours a day could install 8,000 feet of fiber cable; is that right?

A. (Mr. Fassett) That's correct.

Q. And so this crew, this 2 person crew, would work a total of 16 hours, that is the 8 hours times 2, times the $60 an hour labor rate for a total of $960 to place that 8,000 feet of cable?

A. (Mr. Fassett) Yes, but it's important to realize what that placing involves. Like for buried it may be jetting that fiber cable through the interduct that's there, it may be direct plowing. For aerial you're basically just lashing that fiber, or you could in some instances be jetting it through an aerial interduct.

Fiber is extremely light, it weighs like 100 pounds per thousand feet, and you can place -- it's a

very easy piece of plant to place just because of its light weight. I mean you walk down the street and you've got -- you can carry 1,000 feet of it with no problem at all, so it's a relatively easy component of the network from a physical point to place. And the fact that these are relating to in a buried it may be just placing that into a trench possibly.

Q. Okay, so I see you have a calculator there, and given my previous demonstration of my math skills, you may want to use it.

A. (Mr. Fassett) Do you want to borrow it?

Q. I think I've got it right in my notes here, but let's see. Am I correct that that $960 labor cost to install 8,000 feet of cable translates to a 12 cent per foot labor rate?

A. (Mr. Fassett) Yes, for that particular function.

Q. Yes. And am I correct that HM 5.3 assumes that placement cost to install a 12 strand cable are the same for installing a 288 strand cable?

A. (Mr. Fassett) Yes, I believe so simply because -- and to explain that the -- how cables or fiber cable is actually made up, you've got basically a small tube, and with inside that tube you're going to have your fibers whether it's a ribbon fiber which would

be 12 fibers in a ribbon format in different layers, or if it's single tube they would be little tubes inside that other tube, and inside those tubes you may have 6 fibers or in some larger cables you may have 12 fibers in there. So it's a very, again, it's a very light weight easy component to place in the network. And the difference between a larger cable and a smaller cable, the same sheath is basically used in the majority of the sizes.

Q. Okay. And it's also true that HM 5.3 does not assume a cost different than that 12 cent per foot depending on whether the cable is being deployed in one density zone or another, correct?

A. (Mr. Fassett) Well, the placement of it, I believe that is probably correct. But the other costs that are or would be associated with it, the trenching and the excavation or whatever, you know, the structure that it was going to go in, those are significantly different by density zones. If you look at some of the highest density zones we go up to basically $75 a foot, where in the lower density zones where your placement would be considerably less because you don't have the concrete, you don't have all those obstacles to work with.

Q. But the labor rate doesn't change?

A. (Mr. Fassett) The labor rate doesn't change, no.

Q. Isn't it true, Mr. Fassett, that you testified recently in an Alaska proceeding on behalf of GCI?

A. (Mr. Fassett) Yes, that's true.

Q. And in that UNE proceeding, didn't you testify that the cost of installing small aerial fiber cable would be about 65 cents per foot?

A. (Mr. Fassett) Yeah, that was the total cost of placing that aerial facility, and also we had looked at, just to give you an example, we -- I took the -- go ahead, go ahead, I will answer your other -- but yes we -- I will -- subject to check. I would have to look at whether that was what we calculated. We had actually used -- the model that was being used up there was ACS's 7.2, and we used their spreadsheets or did our calculations within their spreadsheets, and we were very, very conservative on the amount of time up there.

Q. Okay. So you testified in that proceeding of a labor cost for the placement of fiber cable less, 96 strand or less at 65 cents per foot, and isn't it true that you testified that labor cost for the placement of fiber cable in excess of 96 strands would be 95 cents per foot?

A. (Mr. Fassett) subject to check, I would have to look at how we did those calculations and what was included in those calculations.

JUDGE MACE: Do we have a copy of what you're referring to, Mr. Huther?

MR. HUTHER: Yes, it is Exhibit 878.

BY MR. HUTHER:

Q. Do you have a copy of that exhibit in front of you, Mr. Fassett?

CHAIRWOMAN SHOWALTER: Can you hold up a minute, is this one of the things that got passed out kind of later in this proceeding?

MR. HUTHER: I don't believe it was. I believe it was passed out on the date of the pre-hearing conference.

JUDGE MACE: And what page are you referring to?

MR. HUTHER: I am referring to page 1134.

MR. FASSETT: Of 878?

MR. HUTHER: Yes, Mr. Fassett, it is the November 7th, 2003, transcript from that Alaska proceeding.

MR. FASSETT: Excuse me, you said 1134?

MR. HUTHER: 1134.

CHAIRWOMAN SHOWALTER: Is there a specific

line that talks about the 65 cents, or was that a math --

MR. HUTHER: No, I was just --

CHAIRWOMAN SHOWALTER: -- that you did?

MR. HUTHER: I was going to direct him right to it. Actually, I would like him to begin reviewing on line 4 of page 1134.

BY MR. HUTHER:

Q. There, Mr. Fassett, the question reads:

Okay, all right, and what is the GCI price for placement of aerial? I think there --

And then the answer reads:

It --

Question follows:

-- are two actually, aren't there?

And could you read your answer that begins on line 8.

A. (Mr. Fassett)

Yeah, because we have increased the price once we got above 96 fiber just because you're going to -- it's going to be a little bit larger, not much, because fiber is very, very small.

Q. And then the question that follows on line 12

reads:

Okay, and can you confirm for me that your two GCI prices for placement of fiber are 65 cents and 95 cents per foot.

And your answer?

A. (Mr. Fassett)

Yes, for the aerial.

Q. Does that refresh your recollection, Mr. Fassett?

A. (Mr. Fassett) Yes, but again I would have to go back and look what we calculated into that 65 and 95 cent cost. And again, we were very conservative if I recall up there, and also we had relied upon some of the short term, short source contracts that were probably made available in that case. But again, I would need to go back and look at the calculations, what was actually included in that 65 and 95 cents.

Q. Mr. Fassett, did you account for the information that you relied on in this proceeding in developing the input prices that you have advocated before the WUTC?

JUDGE MACE: When you say this proceeding, you mean the Alaska proceeding?

MR. HUTHER: The Alaska proceeding.

A. (Mr. Fassett) The inputs that we have utilized in this proceeding are based upon, number one, my knowledge and the knowledge of several others that have placed that, upon the actual contracts that we have looked in different proceedings. And also one important point, I took the placement cost in Alaska and tried to, initially, and tried to take Hatfield's cost and adjust it to Alaskan labor, which is a factor of 1.25, and that I came up with a cost, and I will use an example of a buried trench for example, the cost of that was $5.98. Then in that proceeding we were able to look at --

JUDGE MACE: It would be really helpful, you're talking about the Alaska proceeding, that's that proceeding?

MR. FASSETT: Right, but what I'm trying to say is the relationship between the dollar amounts that are allocated in this proceeding --

CHAIRWOMAN SHOWALTER: Can you just use Washington or Alaska so we know which one you're talking about, say the Washington proceeding or the Alaska proceeding.

MR. FASSETT: Okay.

A. (Mr. Fassett) I will start with the Alaska proceeding. To validate some of the costs and initially to get an idea of what it should cost to do this type of

work in Alaska, we took the buried trench costs that are in HAI 5.3, applied the Alaska labor factor, which is a 1.25 labor factor, came up with a cost, and I will use the one for buried trenching in that, it was $5.98 per foot. And what we did, we took the various density zones and the number of customers that are going to be in there, so we get a fairly accurate amount. Then in Alaska we were able to look at the Chugach Electric Company's piggyback contract that they have with ACS and GCI where each one of those companies ends up paying a percentage of what that costs. Their cost was $6.07, and that's for whatever trench they're going to dig up there. So that told me that the dollar amounts in HAI 5.3 that we used are fairly reasonable and again that the two models or the two costs balance pretty good. Now in Washington --

E X A M I N A T I O N

BY CHAIRWOMAN SHOWALTER:

Q. What was the $6.07?

A. (Mr. Fassett) That was the trench cost, the total trench cost for it was the piggyback contract, which is a contract that the power company in Alaska has with GCI, with ACS, and that cost --

Q. Per is it what?

A. (Mr. Fassett) Per foot.

Q. Okay, thank you.

A. (Mr. Fassett) Per foot was $6.07 compared to the adjusted HAI cost of $5.98, so we're talking pennies between what they're really paying for short-term contracts and what the HAI did.

Now in Washington we're looking at what these costs are and how much it is per foot, but when you again go back to Alaska and say, hey, those costs were appropriate there and that the costs would be reasonable here that we're showing in Washington for HAI 5.3.

Q. Were you just, you said you made a kind of a real world comparison in Alaska of $6 and change compared to the model's $5 --

A. (Mr. Fassett) 98.

Q. 98. Did you make a similar comparison in Washington?

A. (Mr. Fassett) No, because I haven't had access to some of the contracts. Well, I shouldn't say I haven't had, because I have looked at contracts down here, and our prices in the model down here are based upon a lot of those contracts that I initially had looked at. And those contracts, if you look at contract prices that have been provided in proprietary format, those are, you know, usually our costs are more in HAI

than those contracts actually show. So if you look at an apples to apples, whatever the contract price was in Alaska and what the adjusted HAI price was in Alaska and then when you look at Washington and other states, you get that same closeness of HAI prices and actual contract prices that are being paid for by ILEC's and other companies placing those type of facilities.

Q. I'm not -- the reason I'm not understanding your answer is my first question was did you make the comparison, and you said no, but then it sounded to me as if the rest of your answer was a kind of yes.

A. (Mr. Fassett) Well, I -- the no, I shouldn't have said a no, because when I thought it through a little bit, yes, we did make that and have continued to do those type of comparisons and analysis of what contract prices are really being paid, real lump sum big competitively bid big contracts, not the little short type of source contracts that you heard about a little bit yesterday where you will in a lump sum competitive bid contract, and a lot of companies use a dollar amount, say $50,000, any job that has $50,000 worth of expenditures, that job is bid out to a group of contractors, and those contractors will give you a very -- very good pricing, and that's the type of pricing that should be reflected in this type of environment.

C R O S S - E X A M I N A T I O N

BY MR. HUTHER:

Q. Mr. Fassett, what is a piggyback contract?

JUDGE MACE: You know, Mr. Huther, I know that you have your lap full of those exhibit books, and I know it's hard to make this physically work, but you need to talk into the mike, because people on the conference bridge can't hear you, and it's also difficult for us to hear you.

MR. HUTHER: I understand, I apologize.

BY MR. HUTHER:

Q. My question, Mr. Fassett, is what is a piggyback contract?

A. (Mr. Fassett) A piggyback contract is a contract that in this case the electric company has with other service providers that may want to go into the trenches that they're going to place or whatever facilities they may happen to place. And on that contract, the primary contractor I will say is the electric company, and they may sub it out to, which they probably definitely do, to somebody else. Then the actual bill when they get that cost per foot like the $6.07 in this instance is divided out between a share for the power company, a share for the cable TV company,

a share for the telephone company, and a share for any other occupants that happen to be part of that piggyback contract agreement that is in place. It's a form of sharing that incorporates the actual contract for placing these facilities.

Q. In your response to the Chairwoman's question you referenced a what I think you're referring to is a regional labor adjustment factor of 1.25; is that correct?

A. (Mr. Fassett) Yes, that was the factor that's adjustable for the labor portion, and the 1.25 was applicable for Alaska. In the HAI model there is a cost factor for labor that's an adjustment for particular regions in the states, you know, and maybe in Florida it's different than Washington and so forth.

Q. And if the Commission were to refer to Exhibit 856, that is the what we have been calling the HIP or the HAI model Inputs Portfolio, if they were to refer to page 169, the regional labor adjustment factor you were just referring to --

A. (Mr. Fassett) I believe that starts on 167 or at least on my page 167.

Q. If you -- yes.

A. (Mr. Fassett) It's on 167 and 168.

Q. And what do you have on your version of page

169, do you have a large chart that under the heading regional labor adjustment factor that --

A. (Mr. Fassett) No, I have a --

JUDGE MACE: That's not what we have either.

A. (Mr. Fassett) I have Appendix A, which is the OC3 --

Q. It appears our pagination is off a bit probably from the printer, but what I'm referring to is the chart under the heading regional labor adjustment factor where you see the first state in that chart is Alaska, and it has a factor of 1.25; is that what you were referring to?

A. (Mr. Fassett) Yes, that's what I was referring to.

CHAIRWOMAN SHOWALTER: It's our page 167 in the reference.

Q. And if you go on down that chart, Mr. Fassett, you will see the regional labor adjustment factor for the state of Washington, correct?

A. (Mr. Fassett) Yes, that's .92.

Q. .92. So just so the record is clear here, the 12 cent per foot labor rate for the installation of fiber cable would be increased from the -- in the state of Alaska because it has a larger adjustment factor, correct?

A. (Mr. Fassett) Yes, but I have to go back, like I said, to look at the calculation in the model, in the ACS 7.2 model, how that calculation, what was included into that and how that actually, 65 and 95 cents, was actually developed within that model.

Q. Okay, and again, at the risk of getting into the math, just so it's clear, by my calculations the ratio of Alaska to Washington, that is 1.25 over .92, 1.25 being the Alaska regional labor adjustment factor and .92 being the Washington state adjustment factor, gets you 1.36; is that correct?

A. (Mr. Fassett) Yeah, your math is correct.

Q. And so if I multiplied the 12 cent per foot by that ratio of 1.36, I would get something on the order of about 16 cents; is that right?

A. (Mr. Fassett) Yes, that would be correct.

Q. But it doesn't get me to 65 cents?

A. (Mr. Fassett) No, but like I just got done stating a few minutes ago that I would have to go back and look at what the model, the ACS 7.2 model, did and how that actual cost -- what was applicable in that cost.

Q. And why is it in the Alaska proceeding you were advocating an increased price, I'm sorry, an increased rate for the installation of fiber cable when

you exceed 96 pair and you're not making any adjustment in this proceeding in 5.3 for the installation of larger paired cable?

A. (Mr. Fassett) I think in that testimony I also state that it was we raised it a little because of the little bit difference in size, figuring that it might go up a little bit, the outer sheath, and I was also working with, you know, we looked at other contracts that were up there, and we just broke that point off. There's probably no basic reason why it would cost you more to place a 144 fiber cable than a 72 fiber cable. We were extremely conservative or generous with the labor amounts that we did for that up there.

Plus the environment up there is considerably different from a contractor point of view that any -- we had trouble even getting any contract input from local contractors. And then to get national contractors, they've got to ship their equipment up there, they've got to do -- Alaska is a different beast when it comes to building plant as far as getting national contractors involved. So you've got all those other things that have to be considered in Alaska.

It isn't just the labor of the guy physically, the labor rate up there, it's you've got to get the bucket trucks, you got to get the cable plows,

you got to get the blowing machines, you got to get that equipment to Alaska in Anchorage, which is a very small nucleus of where you were going to do this type of work. Had you done -- been able to do the same work in Washington, Utah, you know, large areas where contractors are out here today, there's not a lot of people up there looking to do this kind of work in Alaska. So yeah, you get a difference there as well.

JUDGE MACE: I think it's time for our noon recess, we'll adjourn until 1:30.

(Luncheon recess taken at 12:00 p.m.)

A F T E R N O O N S E S S I O N

(1:35 p.m)

JUDGE MACE: Mr. Huther.

MR. HUTHER: Yes, thank you.

C R O S S - E X A M I N A T I O N

BY MR. HUTHER:

Q. Mr. Fassett, when we broke for lunch we were talking about testimony that you gave in an Alaska UNE docket with respect to the labor price for installing fiber cable; do you recall that discussion?

A. (Mr. Fassett) Yes, I do. Could you please tell me which exhibit that was, or don't I need it?

Q. No, I will have you go back to it. It is --
A. (Mr. Fassett) Was it 878?
Q. -- 878.
A. (Mr. Fassett) Okay.
Q. And just to be clear, Exhibit 878 was the November 7, 2003, transcript, and I believe we established before we broke that you had advocated two prices for the placement of fiber cable; is that right?
A. (Mr. Fassett) That's correct, based on that cost modeling.
Q. That's right. Now those cost estimates, the 65 cents and the 95 cents per foot, were based on your experience and judgment, correct?
A. (Mr. Fassett) Yes, and they were based -- and in that model, because I did get an opportunity to look a little bit at what I had from the calculations, that model included, in the cost, included a lot of the exempt materials that we have talked about, the things that typically would not be part of a unit of plant.
As an example, in the fiber splicing component, that included the -- not only the fiber splice but the closure, the trays, which are little, if you will, little slots where the fiber actually gets laid after it gets fused together and gets spliced, and then there's a protector that goes over that. So all of

those little piece parts are included in that particular model, and that's part of the, you know, justification for the difference in the cost.

The other key point, I went back just to look at for a comparison what the HAI model for example of a 48 fiber cable was in comparison to the cost up there, and there was a difference of like 23 cents, and the cost up there included those exempt materials that I just talked about. So we're -- that's the better way to look at an apples to apples comparison, if you're looking just at what that labor rate there is, it's an apples and orange comparison, because the two models are drastically different is the point I'm trying to make.

Q. If you could turn to page 1137 of Exhibit 878, there's a question that begins on line 12, and the question reads:

And so I guess my question is this, since your prices that you got from these people, these fair and honest prices that you got, range from 2.25 it looks like.

And that was $2.25, Mr. Fassett?

A. (Mr. Fassett) I am assuming so, not knowing what he's really referring to at this point.

Q. (Reading.)

I think that was the lowest one, to about 4 bucks, and you went to 65 cents and 95 cents, did you decide, did -- was it your thought process to decide to just throw out all those prices and use your judgment?
Do you see that?

A. (Mr. Fassett) Yes, I do.

Q. And just to flesh that question that you were being asked in Alaska out a little bit more, isn't it the case that you conducted a survey of local contractors to develop estimates on what it would cost to deploy as a labor rate aerial cable?

A. (Mr. Fassett) Yes, we conducted or tried to conduct a survey with local contractors. We ended up with only one local contractor to provide us any prices at all, and then there was -- it was -- it got to be quite an issue with that particular contractor with how he provided us with the prices and what was involved. With other contractors because of the strong union environment that existed up there and the fact that they wanted to work for ACS, they wanted to work for GCI, were extremely reluctant, and we couldn't get any other prices.

We tried to get prices from national

contractors, and again their prices had to take into consideration that we're going to ship our placing equipment, our splicing equipment, and all that up there. So the survey that we tried to do there was really not the way you would hope to competitively bid a network up there. We were very limited by that situation with the contractors and the environment where we were trying to get bids solicited for.

Q. Just so I understand, how many bids did you have from these contractors that ranged from $2.25 to $4, what's the number?

A. (Mr. Fassett) There was a total, if I recall correctly, I think there was a total of three contractors, one contractor that was in Alaska.

Q. Okay.

A. (Mr. Fassett) And then there was another issue that came up with that contractor as well.

Q. Okay. And then just to go to the answer to that question that began on line 12, you stated in response:

> I developed the cost based on my experience and judgment, yes. Another piece was that ACS's cost was actually less than ours on some of the other fiber placements.

Do you see that?

A. (Mr. Fassett) Yes, when we looked at ACS's contracts that were provided to us, we found that their cost, again realizing too that those costs were based on short volumes of work, not lump sum, not big volumes of work, small volumes of work, so we were extremely limited in that case in getting information on the same scenario that we're trying to do here in Washington.

Q. How many Washington state contractors did you survey to confirm that the 12 cent per foot aerial labor rate was accurate?

A. (Mr. Fassett) I haven't spoken to any Washington state specific contractors since the model was -- well, initially we used some contract rates that I had gotten from a survey that I had done previously, but the format of how we priced that has changed because it was I guess apparently some commissions wanted it broken down, so that's how that came about.

Q. And do you recall the date upon which the 12 cent per foot that you're advocating here was established for purposes of use in the model?

A. (Mr. Fassett) No, I don't know that, I do not know that.

DR. GABEL: Mr. Huther, just one clarification, I think I just heard you ask about 12

cents for aerial, but I thought it was for buried, because I remember earlier today Mr. Fassett referred to plowing and shooting the cables through the ground. Is the 12 cents for aerial, or is it for buried?

MR. HUTHER: It's for aerial.

Correct, Mr. Fassett?

MR. FASSETT: Yes, in the questioning that you asked me that was aerial but --

DR. GABEL: And this morning it was aerial too?

MR. HUTHER: Just before the lunch break, yes. Now I think he, and I don't want to put words in Mr. Fassett's mouth, but I believe in response to a question from the Chairwoman he gave other statistics for other, and I think it was buried.

MR. FASSETT: Well, what I spoke about was comparing the cost in a HAI model to the costs that were in Alaska, and part of that was the piggyback contract issue that I talked about, and then I was able to go back and find some notes on the installed cost, which I think is a key point. That's the total installed cost which includes exempt loadings and all that on the cost model or the costing in Alaska. And you compare that to the HAI without those loadings was a comparison on a 48 fiber cable for example of $1.60 and $1.83 I believe.

So if you pull out that exempt loading piece, we're on an apples to apples comparison. But if you try to look at just the labor component in the Hatfield the way it's broken down, you're not going to be able to make that apples to apples comparison with the pricing that was done in Alaska.

BY MR. HUTHER:

Q. Mr. Fassett, you I think made reference to a survey that you conducted many years ago with respect to some of the input assumptions that were or input values in an earlier version of the Hatfield model. Is that the survey to which you were referring earlier?

A. (Mr. Fassett) Yes, that's -- but that's been also continued ongoing personally to look as the opportunity to look at contracts and other stuff, so. But yes, that's the actual survey, if you will, that initially I undertook to kind of get a feel for what the appropriate costs should be.

Q. Right, and that survey, in the course of developing that survey, you assembled a great deal of materials that have come to be referred to in these UNE cases as the Fassett papers?

A. (Mr. Fassett) I guess so, that's what I hear them referred to as. They were actually just my own notes initially when I started just to do some

validation, and they grew, and they are known as the Fassett papers, the Fassett documents.

Q. And just so the record is clear, those so-called Fassett papers are marked as Exhibit 888. They were produced as the exhibit list designates in response to Verizon Data Request Number 6-2.

Now one of the input values for which you conducted your survey, Mr. Fassett, had to do with pole investment; is that right?

A. (Mr. Fassett) The survey you're talking about in the Fassett documents?

Q. Yes, I'm sorry.

A. (Mr. Fassett) Yes, that was.

Q. And so what you did I believe it was in 1997, is that about right, when you conducted the survey?

A. (Mr. Fassett) That's when I started it, yes.

Q. And how long did it take to complete?

A. (Mr. Fassett) Well, it was kind of an ongoing process. I mean it was whenever I had the opportunity to talk to a contractor or be in a different state and try to make contact. So it was a continual process to try and update and keep -- just so that I personally as a witness would know whether, you know, the cost here is substantially different than the cost should be someplace else.

Q. Referring to the Fassett papers, that is Exhibit 888, what is the time period for which those documents correspond? I understand that you may have continued to consider information received from vendors along the way, but I'm trying to confine the time period of the so-called Fassett papers.

A. (Mr. Fassett) I believe it was 1997.

Q. Okay.

A. (Mr. Fassett) But like I have said, I have also continued to validate and continue to validate what those numbers were.

Q. Okay.

A. (Mr. Fassett) But I haven't updated the papers, no.

Q. In the version of the Hatfield model that was being sponsored by AT&T and MCI in that 1997 or 1998 time frame, there was an input value for pole investment that totalled, that is labor and material, totalled $417; do you recall that?

A. (Mr. Fassett) Yes, that's correct.

Q. And that value of $417 total pole investment continues to be the input value used in the model today, correct, the default input value?

A. (Mr. Fassett) That's correct, and another point on that pole investment, as I stated in my

testimony, is the fact that when the FCC conducted their analysis of investments by ILEC's, I believe it was GTE's cost, your total cost, I think subject to check was $499, there was another cost that was less than that. So in each one of those instances in the state of Washington specific to Washington, the HAI model cost for pole investment is less, so.

Q. I think --

A. (Mr. Fassett) There's no -- there would be no reason to modify that cost of $417.

Q. Okay, can you turn to Exhibit 856, that is the --

A. (Mr. Fassett) That's my testimony, correct?

Q. No, I believe that that is the --

A. (Mr. Fassett) Oh, the Hatfield.

Q. -- HIP.

A. (Mr. Fassett) Yeah.

Q. On page 25 under heading 3.4, poles and conduit, you will see the calculation that yielded the $417 value, $417 input value that we have just been discussing, correct?

A. (Mr. Fassett) That's correct.

Q. And that $417 value is derived from a material investment for a 40 foot class 4 treated Southern Pine utility pole of $201, right?

A. (Mr. Fassett) That's correct.
Q. Combined with the labor price of $216 that would be associated with installing that pole?
A. (Mr. Fassett) That's correct.
Q. And we were talking earlier about the application of the Hatfield model's regional labor adjustment factors.
A. (Mr. Fassett) Mm-hm.
Q. And am I correct that that $216 default value is a national value, right?
A. (Mr. Fassett) Yes, that's the cost that's in the model nationally.
Q. And then that, to determine the input value that is actually used in the version of the model filed here, you would have to apply the regional labor adjustment factor to the $216, correct?
A. (Mr. Fassett) That's my understanding.
Correct, is that how the model does it?
A. (Dr. Mercer) We may have to take that subject to check. I'm not sure that labor factor gets applied to that labor component. It probably does, but I'm not sure off hand.
A. (Mr. Fassett) I think my understanding from when I have asked that question myself was that there's a portion of that, and I don't know how that, you know,

is actually attributed directly to the labor, so that would be something we would have to check.

Q. Okay. But given that the regional labor adjustment factor for Washington is .92 --

A. (Mr. Fassett) Mm-hm.

Q. -- as we discussed earlier, if that factor were applied to this, the labor rate would decrease, not increase in Washington?

A. (Mr. Fassett) That's correct under those assumptions.

Q. Now likewise if we were in Alaska and we -- and that regional labor adjustment factor had been applied to the $216 value, because the regional labor adjustment factor for Alaska is 1.25, that $216 labor rate would increase, correct?

A. (Mr. Fassett) That's a correct assumption.

Q. And if my math is right, it would increase by a factor of 25% which would get us from $216 to about $270; does that seem in the ball park?

A. (Mr. Fassett) It might be just a tad -- but approximately. I will take your --

Q. Well, don't --

A. (Mr. Fassett) -- I will take your math.

Q. We've already been through this with my math. There's a reason I went to law school.

If you want to calculate it just to make sure we're accurate.

A. (Mr. Fassett) Yeah, it's $270 for labor.

Q. Okay.

A. (Mr. Fassett) If all of that labor component is, you know, part of that regional labor, and that I don't know.

Q. Right. So if the regional labor adjustment factor were applied, which you've got to get back to us on, it would produce a labor rate of $270 to install the pole, correct?

A. (Mr. Fassett) That's correct, in Alaska.

Q. In Alaska, okay. Now let's go to your Alaska testimony, that's Exhibit 878.

JUDGE MACE: Just to tie up a loose end, I'm going to make that a record requisition, to provide the information to you about whether or not the regional labor adjustment is applied to the labor cost of the pole.

MR. HUTHER: Thank you.

JUDGE MACE: And that's Number 1.

BY MR. HUTHER:

Q. Do you have Exhibit 878 --

A. (Mr. Fassett) Yes, I do.

Q. -- in front of you, Mr. Fassett?

A. (Mr. Fassett) Yes.
Q. Now in the Alaska proceeding, you --
A. (Mr. Fassett) What page do you want to be looking at?
Q. 1058. On line 19, you were asked the question:
Now in your pole placement price, you said $315.77, do I have that right?
Do you see that there?
A. (Mr. Fassett) Yes, I do.
Q. And your answer is:
That's for the labor component, yes.
A. (Mr. Fassett) Yes.
Q. So in Alaska --
A. (Mr. Fassett) In that model. And again, I don't know without looking where we got that $315. It may have been a small volume contract that we looked at or something specific to that particular environment. But, you know, without -- what my testimony says is what my testimony says, but I said yeah, the pole placement price is $315.77.
Q. Now did you survey any vendors operating in the state of Washington to identify what they would charge to install a 40 foot class 4 southern treated Pine pole?

A. (Mr. Fassett) Not recently, no.
Q. I think that you -- strike that.
You said not recently, when was the last time that you surveyed a vendor operating in Washington for the cost of installing a 40 foot class 4 treated Southern Pine utility pole?
A. (Mr. Fassett) Well, that would have been in 1997. And a pole actually out here, there may have been a different species of pole rather than Southern Pine, but yes, it would have been in 1997 I believe was the last time I actually spoke to someone about specific pole placements in Washington.
Q. And how many vendors or contractors did you speak to back in 1997 that were operating in Washington when you were conducting the survey of vendors that comprised the Fassett papers?
A. (Mr. Fassett) I can't recall. There was several, I tried to get a hold of everybody I could that was a national contractor so I had a broad base to make my assumptions on and validations upon.
Q. Okay. Now if we could turn the page in Exhibit 878, 1059, do you see on line 6 you were asked the question:
Did any contractor from your survey --
That is the survey you conducted in Alaska

for purposes of the Alaska proceeding.

-- give you results as low as 315 bucks?

What was your answer?

A. (Mr. Fassett) No, they did not. Again, we were surveying a very small number of contractors, and it was, you know, just a different situation in Anchorage, Alaska.

Q. It was a different situation you say, but the topography in Alaska wasn't more difficult than what you experience in the state of Washington, is it?

A. (Mr. Fassett) No, but there's in -- well, in Anchorage. We were just looking at Anchorage, okay. In Alaska itself there's a lot of different --

Q. I understand.

A. (Mr. Fassett) But just looking at what we were looking at in Anchorage, the big difference is the availability of contractors in the competitive environment that exists there. There's very little competitive environment for contractors to do this kind of work. And to compare Washington contract environment to Alaska as far as getting contractors to do work, it's an apples and oranges relationship simply because there's a transportation issue of equipment and a small volume of work. I mean you can't talk a contractor into going to Alaska and placing 100 poles. In the state of

Washington I could go out and meet with a contractor and say I've got this job, it's going to require 100 poles, he's going to give me a much better price than I'm going to get from a contractor in Alaska, because he knows I'm only going to give him 5 or 10 poles or whatever because of the volumes of work that we're talking about and the location.

Q. Does the Hatfield model as filed in Washington calculate the number of poles it is assumed to replace to rebuild Verizon's network?

A. (Mr. Fassett) Does the model calculate the number of poles, that would be Bob could probably answer that better.

A. (Dr. Mercer) I'm not sure it has the number calculated per se, but you can infer it from the amount of investment in poles. I just can't remember whether the actual number shows up or just the normal investment in poles.

Q. So you could take the total pole investment and divide by 417 to derive the number of poles that it assumes are placed?

A. (Dr. Mercer) No, not quite, because it turns out that in response to the Bench request, if I can answer that in real time, the labor content does affect the labor part of the pole, so the $216 in pole labor is

knocked down by that .92 factor, so the actual total investment is going to be something less than 417.

Q. Okay, so --

A. (Dr. Mercer) But we can do it. I mean remembering that, you could then proceed the way you described.

Q. It would be the whatever the Washington specific pole investment input value divided by the total investment, total pole investment, correct?

A. (Dr. Mercer) You would have to be real careful in doing that, because poles are shared with other utilities, so when you look at the pole investment, again depending on where you look in the model, and I would need to brush up on this, but the pole investment you might be using if you're not careful could be the reduced pole investment because the investment has been shared with other utilities. So that, you know, if you want to get a number of poles, you need to take that into account properly.

MR. HUTHER: Could I ask as a record request for the number of poles that HM 5.3 assumes are deployed in the modeled network.

JUDGE MACE: That will be Record Request Number 2.

MR. HUTHER: Thank you.

BY MR. HUTHER:

Q. Mr. Fassett --

CHAIRWOMAN SHOWALTER: You know, just there's nothing wrong with a record request, it goes to you and then you do whatever you want with it. If you want us to have it in the record, we could make it a Bench request, and that sounds like a reasonable thing to ask for, and then if you want to make something of it, we have it in the record.

MR. HUTHER: Thank you very much, yes, I would like for it to be in the record.

(Discussion off the record.)

JUDGE MACE: Let me indicate that Dr. Mercer has responded to what I designated as Record Request Number 1 in his earlier response to Mr. Huther's questioning, and I think I already indicated on the record, if I didn't, Bench Request Number 17 is the number of poles that are assumed to be deployed in the HAI modeled network.

CHAIRWOMAN SHOWALTER: In Washington.

JUDGE MACE: In Washington.

MR. HUTHER: Thank you.

BY MR. HUTHER:

Q. Mr. Fassett, the question I was asking was what have you done to ensure that in the state of

Washington there are a sufficient number of contractors capable of providing and installing all of the poles that are assumed to be modeled in HM 5.3?

A. (Mr. Fassett) I am highly confident that there is more than enough contractors willing to come to Washington that are in -- exist in Washington, may be located in Oregon, may be located in Minnesota or wherever. There's national contractors, a number of them that specifically do this kind of work, and that's their bread and butter is doing utility type work. They would come in here and if you were doing a large volume job more than gladly bid on that. They're eager, whenever you talk to these contractors, the biggest thing you have to stretch to them is we're not really building a network, because they're all excited, they're ready to ship crews to you and everything else. So there's a very competitive market for contractors to want to go, and Washington would be no different than New York, Utah, or wherever. They're national contractors, they have bases in various states and I'm sure they have bases here.

Q. But these national contractors are not eager to go to Alaska?

A. (Mr. Fassett) Not for a small job in Anchorage. If we were building an entire network --

well, they have gone up to -- some national contractors went up when they did work up on the pipeline. You're going to be plowing fiber for 800 miles, yes, that's attractive to you, you can ship crews up there, you can afford that. But if you're going to place 100 poles in Anchorage, it's not effective for you as a business person to ship crews, equipment, and all that up there to do that.

Q. So the network that you were modeling the cost of in Alaska consisted of 100 poles?

A. (Mr. Fassett) No, I'm just using that as an example, but it's a much smaller scale. We were looking at Anchorage itself, and in fact a pole cost of -- if you read farther into my testimony, you will see how we developed that. We used the formula that ACS had used in theirs, and we cut down a little bit on the labor times because they had unbelievable -- they have a labor issue up there in their company, and they had unbelievable labor people involved in that, which from my experience, the experience of the local people in Alaska that worked with me on this knew -- and we also looked at their own contracts, the contracts that were presented, and the $350 or $315 was well within the range of reasonableness.

Q. I thought you and I just discussed your

testimony on page 1059 of Exhibit 878 where you indicated that none of the contractors that you surveyed provided you a figure as low as the $315 input that you were using?

A. (Mr. Fassett) That's correct, because we only had one local contractor, and again there was an issue with his prices when it went farther on with the situation. But if you will read farther into my testimony down that page on 1059, you will see how I discussed how we developed that cost of $315. And Blaine Brown is a engineer who works in Anchorage, Alaska, so we had local input into it, and we also validated with costs that GCI gets from, you know, their source contractor as a single source contractor type thing that was discussed here yesterday a little bit. But there is a short-term low volume type of work contracts, not what we're talking about here in the state of Washington.

Q. How many poles were assumed to be deployed in the network you were modeling in Alaska?

A. (Mr. Fassett) I can't tell you off the top of my head, I don't know. There wasn't that many because we were primarily looking at buried placements in the environments that we were looking at. We had looked at 21 sample CBG's when we did our redesign work.

JUDGE MACE: What's a CBG?

MR. FASSETT: A CBG is a census block group.

JUDGE MACE: Thank you.

A. (Mr. Fassett) And that was the basis in that model, and they had elected to choose 21 sample CBG's, and we actually did a design or tried to come up with a simulated design in proportion to that so that we could develop a cost.

BY MR. HUTHER:

Q. How long did you assume it would take to rebuild the network you were modeling in Alaska?

A. (Mr. Fassett) I don't think we made any definite assumption, but my belief was that you could build that within a year or two years, what we were talking about there, depending again on the willingness to get contractors to come up there and do the work. If they knew they could come up and work all summer and have a volume of work, you will have a, you know, you could do it in a much shorter time. But if you had to rely on local contractors up there, you could have taken, you know, substantially longer.

Q. How long do you assume that it will take to rebuild the network you're modeling for Verizon in Washington state?

A. (Mr. Fassett) I haven't made any assumptions

about that.

Q. And in your engineering judgment, how long would it take to rebuild the network that we are modeling the cost of in Washington state?

A. (Mr. Fassett) Again, I would have to take a look at the entire network before I could make an educated guess on that.

Q. If you could return to Exhibit 856, Mr. Fassett, that is the HIP.

A. (Mr. Fassett) Okay.

Q. We're going to go back to page, well, I believe we left off on page 25, that is the input value for pole investment, if you could turn to page 26, please. There's not a lot of text contained on my page 26. There is one important sentence, however, and that reads:

> Pole data has also been recently filed by large telephone companies with the FCC.

Do you see that?

A. (Mr. Fassett) Yes, I do.

Q. What is this -- when was this pole data filed?

A. (Mr. Fassett) I believe it was in the '96, '97 time frame I believe.

Q. And that in your view is still recent now that we're in 2004?

A. (Mr. Fassett) Yes, given that the environment that we're in, the contract environment, the competitiveness that's out there right now.

A. (Dr. Mercer) Let me, in case you were concerned there's something missing from that page, it's not. The three figures on the right page happened to be tied together, so they all had to print on one page, so there is nothing missing if that was your concern.

Q. No, no, my concern was that I knew there had been data produced back in the 1997 time frame, and I thought that was what Mr. Fassett was referring to, and then I can't help but note that the reference here suggests that it was recently filed, which led me to believe that perhaps there was some additional data that I had not been aware of that had been relied upon to set this input value.

A. (Mr. Fassett) Well, to my knowledge that's the latest recent national data for that that the FCC has actually published or has available, so to my knowledge it's the latest again national information that's available.

Q. There are a great many other input values contained in the HIP that were based on the engineering

judgment of either you or Mr. Donovan or other members of the Hatfield model engineering team, correct?

A. (Mr. Fassett) In part. As explained I think in the HIP and in our testimony, and Bob touched on it a little earlier, all of the input values and assumptions, the model -- I have been involved with the model since 1996 in numerous dockets. We have been challenged on different input values and assumptions, we have reviewed them, we have modified some that were legitimate, and so it's not just based on our expert opinion.

Our expert opinion, there was a number of us, personally I have been involved in the business now 34 years, and others comparable, but that wasn't the only basis for those input values and assumptions. It's been a whole conglomerate of different analysis and processes that support those documents. And even, as I stated in my summary, Verizon's own engineering documents and other data that's been -- was produced in this docket have supported those input values and assumptions.

Q. Just a couple more questions, Mr. Fassett. If I could ask you to turn to Exhibit 879, this is a different day of the Alaska hearing transcript than what you have been looking at earlier. Do you have that in front of you, Mr. Fassett?

A. (Mr. Fassett) What page are you referring me

to?

Q. Well, the exhibit right now --

A. (Mr. Fassett) Yeah, I have the exhibit.

Q. Let's go to page 1233, and I find on lines 2 and 3 of that page a reference that I recall seeing elsewhere in your testimony, and I'm wondering if this doesn't refresh your recollection as to how long you assumed it was going to take to rebuild the network that you were modeling the costs of in Alaska. And on line 2 there it says:

Did you consider that your two to three years, so they're work -- the teams are working May through September a 24 hour schedule?

Do you see that?

A. (Mr. Fassett) Yes, I do.

Q. This is the one reference I could find here, and I realize that has -- that's in the form of a question from counsel, but were you assuming a two to three year rebuild schedule?

A. (Mr. Fassett) Probably, you know, looking at it now, probably that's what we had assumed looking at the CBG's that we were talking about, again the 25 or 21 sample CBG's in the Anchorage area.

MR. HUTHER: I have nothing further, thank

you very much, Mr. Fassett and Dr. Mercer.

JUDGE MACE: Dr. Gabel.

E X A M I N A T I O N

BY DR. GABEL:

Q. Mr. Fassett, I would like to begin with a discussion of the cost of aerial fiber cable, which Mr. Huther has been asking you about. I was trying to get a sense when I was looking through Exhibit 856, that's the HIP.

A. (Mr. Fassett) HIP.

Q. At pages 13 and 14, if I add up all of the components, what is the cost per foot for putting in a 12 tube aerial fiber cable, because I would like to walk you through the steps and tell me if I'm missing something.

A. (Mr. Fassett) Just a minute, I'm trying to catch up to you here.

Q. Okay?

A. (Mr. Fassett) Okay, go ahead.

Q. At page 13 we start off with a material price of 59 cents per square foot; is that correct?

A. (Mr. Fassett) Yes, for the 12 fibers, that's what's in the Hatfield model.

Q. Then at the bottom of the table there's a 3

cents; what does the 3 cents represent?

A. (Dr. Mercer) Can I answer that?

Q. Yes.

A. (Dr. Mercer) Okay, that is a calculation that's actually completely separate from the one that's calculating the investment per foot. It's used when we are trying to look at the optimization of fiber versus copper feeder. You don't at that point know how big cables are going to be at the point you're doing that calculation, so you needed a, you know, a good average number cost per strand foot to be able to do that life cycle analysis of cost. So it's really used for a completely different purpose, although it's supposed to somehow be representative on the average what does a fiber cable cost before you really know how big the cables are going to be.

Q. All right.

Then, Mr. Fassett, turning to page 14, we need to add on engineering cost?

A. (Mr. Fassett) Yes.

Q. And what you have is that if we're -- the engineer's workday is 8 hours, his pay rate is $60 per hour, the assumption is that the engineer could lay out 10,000 feet per day?

A. (Mr. Fassett) Yes, of fiber.

Q. And then we also need to add in the minutes per splice engineered. Now am I correct we could restate all of that on a per foot basis by doing $8, I'm sorry, 8 hours times $60 divided by 10,000 without taking into account the splice?

A. (Mr. Fassett) Yes, that would be correct.

Q. Okay. And could you do that calculation?

A. (Mr. Fassett) That comes to 4.8 cents per foot.

Q. Okay. And then if we add on the splice, how much more would that be, you would -- am I correct you assume that a splice is every 6,000 feet?

A. (Mr. Fassett) Yes, that's correct in fiber, and so that would be, let's see, we've got 1/6 of -- so we've got $10 per splice.

Q. No, we have 10 minutes per splice.

A. (Mr. Fassett) 10 minutes per splice, but that, with a 60 labor figure, that would amount to $10, correct?

A. (Dr. Mercer) Yeah, that's right.

A. (Mr. Fassett) That's right, it would be $10, so that would be on a per foot basis if you broke that down to a per foot basis it would be a .0001.

Q. So basically we're maybe 4.8 or 4.9 cents just for --

A. (Mr. Fassett) Just under 5 for that.
Q. Okay. So for engineering we're adding, to the 59 cents we're adding about 4.9 cents?
A. (Mr. Fassett) That's correct.
Q. Okay. Then we get to the installation cost, which is in section 2.6 at page 14. Here am I correct that we have two technicians, each being paid $60 per hour and working for 8 hours in a day?
A. (Mr. Fassett) That's correct.
Q. And you assume that in a day they can install 8,000 foot of cable?
A. (Mr. Fassett) That's correct, 8,000 feet of fiber cable.
Q. So am I -- could you turn these numbers into a per foot cost?
A. (Mr. Fassett) That's the 12 cents per foot.
Q. All right, that's the 12 cents per foot. So if we add these three numbers together, 59 cents for the material, about 5 cents or less for the engineering, and 12 cents for installation, we're at a little bit less than 80 cents per foot; is that correct?
A. (Mr. Fassett) That would be correct.
Q. Is there anything else that would be added on in order to get the total equipped, installed, and then furnished cost of installing a 12 strand fiber cable?

A. (Mr. Fassett) In the Hatfield model no, there would not be. The exempt materials there would be, you know, part of the, in this particular model, are part of that labor rate.

Q. All right. Now have you compared your cost estimates with the aerial equipped, furnished, and installed equipment in the FCC's universal service model?

A. (Mr. Fassett) Yes, I have, I can't recall exactly what they --

Q. Well, if you will accept subject to check that if you go to the USF order of the Federal Communications Commissions, the input order, the Tenth Report and Order, in Appendix A the cost per foot for aerial 12 strand is $1.50. Could you provide your expert opinion about why the FCC ended up with a number which is almost twice as high as your number?

A. (Mr. Fassett) I would have to look at how they developed that number, what was the -- was the material cost the same and what other factors were in there to make an apples to apples comparison. If I knew that the -- if the material cost was exactly the same, then again I would have to see where the differences were in that.

Q. All right. What I now want to do is run

through your rebuttal testimony, and then I will turn to some questions for Mr. Mercer, so. But I would like to go actually to your reply testimony, which is Exhibit 956.

A. (Mr. Fassett) Okay.

Q. At page 11.

A. (Mr. Fassett) Okay.

Q. Lines 17 and 18. I'm a little confused about what's the difference between a secondary system and the distribution area, are they synonymous?

A. (Mr. Fassett) They are synonymous. It's like when we do the cable facilities we'll have a F1 facility which is known as the feeder facility from the central office to the SAI, and then in -- this is the way FAC's and some of those assignments are, then the facility from the SAI to the customer locations, F2, and in this document which is in that particular BSP, it refers to the distribution as a secondary.

Q. Okay.

A. (Mr. Fassett) And that's the best explanation I can provide for that.

Q. All right, you just used two acronyms, and could you define them for the record, FAC's and BSP?

A. (Mr. Fassett) FAC's is facilities assignment -- I can't tell you what the last two parts are right

now.

JUDGE MACE: Is it F-A-C-S.

A. (Mr. Fassett) It's F-A-C-S.

Q. And then the second acronym is BSP?

A. (Mr. Fassett) BSP is the Bell System Practice. It's the group of standards and practices that have been throughout the industry ever since it actually began.

Q. Now, Mr. Fassett, would you now turn to page 12, line 11 and line 10 also, you state:

Planning parameters permit three to five DA's.

Distribution areas?

A. (Mr. Fassett) That's correct.

Q. (Reading.)

To be considered as a CSA or carrier serving area.

Within the Hatfield model, and maybe this is a question for Dr. Mercer, do you have three to five distribution areas assigned to a carrier serving area, or is there a one to one match?

A. (Dr. Mercer) There is a one to one match. There was an issue about that in the proceeding because the -- at one point in the California proceeding we made it possible to have multiple, I may get my acronyms

backwards here, but littler areas, DA's, and the way that was done is that you could limit the size of an SAI, and therefore you could force a serving area to be broken up into multiple pieces.

We did not implement that in the model. It could be implemented in the model, but we still are of the opinion, and I believe the outside plant team advised us on this, that this one to one correspondence was sufficient. And the confusion was that we described it as if it was available and made a parameter available that looked like you could set the SAI size. And then when it had no effect, the Verizon witnesses, you know, naturally asked why, and they said because it actually is not implemented in the model.

Q. And Mr. Fassett's testimony at page 12, he says planning parameters permit from three to five DA's, and maybe I misinterpreted this, but I thought he was conveying that this was the convention, and it seems to be from your response, Dr. Mercer, you're saying either I misinterpreted this testimony, it's not the convention, or you're designing a network which isn't in line with the engineering conventions of the industry.

A. (Dr. Mercer) Again I may have to turn to Mr. Fassett to remind me of the history of this, but at the time the outside plant team was advising the

development of the HAI model, if I'm remembering right why we did that and I believe I am, I thought the outside plant team had said the way we were designing this was sufficient.

JUDGE MACE: Can you slow down just a little bit, please.

A. (Dr. Mercer) Just to adjust a little bit to that, what I'm saying here is that you've got three to five distribution areas that you could combine into a carrier serving area so that you're going to feed that area, that combined area now, with one digital loop carrier system rather than have, you know, you can do that according to the parameters without having to put a single digital loop carrier system in each one of those three to five distribution areas. And that's the point in an efficient network, and that's how carrier serving concept is designed.

Q. Mr. Fassett, please turn to page 16, line 6. Here you're discussing the sharing of aerial structure with other utilities; is that correct?

A. (Mr. Fassett) That's correct, and I think that it's -- to get a clear understanding of what we're saying here, if you look at a pole structure, the pole is essentially divided between high voltage providers, which is the power company mainly, the electric company,

and the low voltage providers which is the cable TV company, it's the telephone company, it could be a private company that wants to put something on there for their own use, but that's the lower portion of the pole.

And what I'm saying is that the 25% of that low voltage or the total cost of the pole being that the low voltage is usually divided up to be 40% to 50% of the total cost, so in other words you've got a -- let's just say you've got a $10 pole and that 50% to 60% of that pole cost belongs or goes to the power company or high voltage users, the remaining 40% to 50% belongs to the low voltage providers, which includes the telephone company and the cable TV company and those other instances. So what I'm saying here is that the 25% or less of that pole structure attributable to the telephone company is -- that's what I -- the point that I'm making of the total structure cost.

Q. Are you aware, Mr. Fassett, of testimony in this proceeding that addresses the actual level of payments by cable television companies when they hang their cables on poles?

A. (Mr. Fassett) Yes, I have seen testimony to that about the attachment fees that they pay.

Q. And is it your understanding that the attachment fee paid by a cable company would be

essentially 25% of the cost, or is it less?

A. (Mr. Fassett) A lot of cases it's less than that, because cable TV companies traditionally were given lower access or encouraged to provide cable facilities, so the attachment fees were less. But on a going forward basis, that's probably not going to be totally true. And in a lot of cases, joint pole agreements are structured so that they actually pay an attachment, or they own part of the pole in some instances. But yes, there are attachment fees for cable TV companies that would be less than the 25%, if you will.

Q. All right. Now you're suggesting that in the future that will be different, and why is that?

A. (Mr. Fassett) Well, because --

Q. Why might that be the case?

A. (Mr. Fassett) That might be the case in the future because you've got cable TV companies now are providing Internet services, providing a lot of other services. And besides the cable TV company, there's other providers that would be on those poles. We're not just saying that it's strictly the cable TV company. So there's a magnitude of possibilities that are there, and there's a lot of those that currently exist.

Q. Staying on that page moving down to lines 14

to 16, you're talking about different methods of plowing, and you refer to spider plows at line 16. Are the cost of these types of plows reflected in the Hatfield model, and if so, how could we validate that that is the case?

A. (Mr. Fassett) Well, the cost of plowing is a, that we have got in the Hatfield model, is based on contractors giving us prices. A lot of contractors have spider plows, they have multishooted plows, which means that the plow itself has a capability of placing more than one facility, more than one cable at a time, more than one interduct. And by shoots, that's what the piece of equipment that goes into the ground, and there were some pictures handed out the other day that showed actually a, well, I don't know if it had a multishoot on it, there was another picture of a spider plow, and that's actually a plow that's pulled, and you can do up to 12 interducts with that or 12 fiber facilities in one operation.

So the prices within the Hatfield model are based on contractor prices, not specific equipment. We don't specify that this is so much for this type of plow and so much for that type of plow.

Q. Two more questions, Mr. Fassett. First I would like to ask you to turn back to page 14 of your

reply testimony. Starting at line 1 you're discussing the degree to which the Hatfield model assumes that cables larger in size, copper cables larger in size than 2,700 pairs are deployed in the Hatfield model. Were you in the room yesterday when Verizon cross examined the Hatfield Verizon panel on this issue?

A. (Mr. Fassett) Yes, I believe I was here.

Q. And there was an exhibit that showed that cables larger than 2,700 pairs were used within the Hatfield model?

A. (Mr. Fassett) Yes.

Q. Okay. Could you explain why that's the case?

A. (Mr. Fassett) Okay, first I need to explain how plant accounting works. Just because it's a 4,200 pair cable doesn't mean that it's placed on, or just because it's an aerial cable and in this case that they were referencing a 4,200 pair cable, doesn't mean that it's physically placed on pole structure.

Plant accounting, if you had an underground route let's say going in this direction and you've got some buildings or maybe you actually did ultimately go to a pole section over here, the point, the splice point at which that lateral cable extends over to, and maybe it goes up a pole, maybe it goes into a building, but if that is -- ends up being like a block cable or into a

riser into a building, that cable accounting is actually the aerial account. The same would happen with buried. If you had an underground cable going down through in conduit and it came out on a side leg and went to buried side legs down through, whether it was either plowed or trenched, the point of change from a plant accounts perspective is the point at which that splice leaves that manhole, if you will, if it's underground. So that's number one.

And the -- a lot of the cables that were in question yesterday would fall or most of the cables I would assume in all of them would fall into that type of bracket, that it's the accounting practice that drove it to aerial and the fact that you still do not have -- I agree you do not have pole structure, you're not going to put 4,200 cables on aerial pole structure. You're just not going to do that.

Q. My last question, Mr. Fassett, is you have made recommendations on the topic of structure sharing. Your recommendations are, am I correct, they're generic to Alaska or any state where you may be testifying, your recommendations here wouldn't be different than your recommendations in California or Alaska?

A. (Mr. Fassett) Well, they may have been a little different in Alaska just because the environment

we were looking at up there. But as I have looked at like Washington in this state, I don't see any reason why there would be any difference here in looking at joint pole agreements, looking at the structure sharing as far as feeder and distribution. And even Verizon's own documentation in this thing, in this proceeding, indicates that they actually share structure between feeder and distribution. So there's no reason to dispute what the structure sharing would be applicable to in the state of Washington.

Q. Okay. And what is applicable to Washington, what have you done in terms of surveying Verizon's facilities in Washington to see if the assumptions that you had made are applicable to Washington?

A. (Mr. Fassett) And I don't know whether I was exactly in Verizon's territory all the while, but I was probably in part of a mixed bag between U S West or Qwest and Verizon's, but I have actually been around and looked at the facilities within the state of Washington. I went out to, and this was I'm going to say back in '98 I believe it was, '97, '98, anyway went out and looked, and there's no major change that I am aware of.

Q. Okay.

Dr. Mercer, I would like to ask you to turn to your Exhibit 861, your reply testimony.

A. (Dr. Mercer) Okay.

Q. Let me just begin first with one or two preliminary questions. At times in your testimony you -- I believe there's references to strand distances, and I think you defined it this morning, but could you define the term again?

A. (Dr. Mercer) Okay. In the process of producing the cluster database, in the process of producing the cluster database, TNS measures the amount of route distance that's required to connect the customers where they're located to each other and back to the serving area interface, which is at the centroid as they have defined it, so that the strand distance is the number they produce. And it appears in the cluster database, and it represents the connectivity basically or the route miles required to connect customers to each other.

As per our instructions, when they are running from one customer to another, they do that on a right angle route basis in the right angle coordinate system that they have used so that it's not a true minimum distance but has extra distance in it to reflect the fact that, you know, you can't cut across roofs, beds, and yards and hallways and things like that.

I might correct, there was some confusion

yesterday attributed -- and it was attributed to me as to what I said that the effect of that right angle routing was, this may be a good point to clarify that. It turns out on the average, if all angles are equally likely, it adds 27% to the routing distance. That's the ratio of 4 divided by pi it turns out, and it just comes out that way from calculus but -- so that effect is a 27% effect. I think Mr. Turner had talked about the square root of 2 at one point, that's if you had a 45 degree triangle, the sum of the two sides is equal to 1. -- well, it's equal to the square root of 2 times the hypotenuse, but on the average across all angles it's a 27% effect.

So to get back to the main -- so the strand distance is just that amount of connectivity or route miles required to connect all customer locations to each other and the SAI on a right angle basis.

Q. And in your last sentence you said it's strand or route miles, so I can think of those two terms as being synonymous?

A. (Dr. Mercer) Yes, the strand distance is just the name that has been given to it, and it really represents the amount of route miles you require in your distribution plant to connect those customers.

Q. Okay. Now on this topic, Dr. Mercer, I would

like to ask you to turn to Exhibit 611, this is the exhibit that was discussed yesterday with the Hatfield panel. This is the seven maps which were showing how the Hatfield model estimates the loop facilities for Richmond Beach.

A. (Dr. Mercer) I think it's coming.

Okay.

Q. So when the strand distance is calculated, is it done using the layout of customers that we see at page 1?

A. (Dr. Mercer) Yes, although it's done on a cluster by cluster basis. So this is a separate calculation in each cluster, which means you're better off looking at the second picture where you can see the color coded clusters. And, you know, for instance if I look at that yellow cluster in the upper right, there would be a strand distance for that cluster which is the amount of cable required to connect those customers.

Q. There was some discussion yesterday about if you have the actual customer locations, there was a suggestion that maybe that's what should have been used. Why didn't you stop at page 2 after the customers had been put into clusters; why did you proceed to manipulate the data in the way in which you do in slides 3 through 7?

A. (Dr. Mercer) Because it introduces a level of complexity in the way you would then define a spanning tree that we did not believe was warranted by the gain that you get compared to using the strand distance. The approach you're suggesting is the one that's used in the FCC model. As I say, in my mind it's complex and doesn't yield more than having that strand distance available to you, because the strand distance is effectively producing that same effect.

Q. Just to make sure that the record is clear then, going back to your testimony, this is Exhibit 861 at page 26, you discuss the strand distance normalization option. Am I correct you use that option in this filing?

A. (Dr. Mercer) Yes. It wasn't, just to relate this to numbers, until last night with the strand normalization turned on, it was producing a $7.64 route rate, and after correcting that strand, the use of that strand distance, which I need to emphasize was not a matter of having the strand distance recalculated. I mean TNS did not have to do anything. We had subtracted drop distances from the strand distance, and that was the mistake. So the correction was internal to the model, not a matter of having TNS do a new strand distance. But anyhow, that's the number that brings the

dollar -- brings the amount up to $8.50. If you run the model with the strand normalization turned off, which is a user option, then you produce a loop rate I believe it's $8.18.

Q. Now with the normalization, strand distance normalization option turned on, and now, I'm sorry, turning to page 8 of this testimony at lines 18 and 19, you're representing Mr. Dippon's testimony that your model is producing more route miles or more strand miles than the Verizon model; is that correct?

A. (Dr. Mercer) Yes.

Q. Okay.

A. (Dr. Mercer) I should say I have not independently checked that. I am citing Mr. Dippon here and believe that since he's drawn pictures correctly and the like that that is a correct calculation.

Q. Then I think I know the answer to this question, I'm going to ask it. Dr. Tardiff had included in his May testimony a footnote that was discussed during yesterday's hearing showing that in low density areas the distribution distances produced by the Hatfield model were greater than those for the Verizon model, but in the low density areas that Verizon, no, I'm sorry, thank you, but in the high density areas the distribution distance that is produced by the Hatfield

model were less than in the Verizon model. Are you familiar with that footnote?

A. (Dr. Mercer) I am.

Q. So have you made any comparison by density zone on route mile or strand distance?

A. (Dr. Mercer) No, I have not, and I would mention that as Mr. Huther recognized and pointed out yesterday, when you now redo those kinds of analysis that Dr. Tardiff did, the story will presumably be quite different. So I think you will not -- I'm not sure it will make that story go away, but it will change it. And the reason I say that is remember the error that we made is that we were subtracting some number of drop distances, and the some number was the number of lines or the number of premises times a geocoding rate. So in populated high density clusters where you have a lot more customer locations, we were making a bigger correction. With that error corrected and we're not taking out drop distance, that picture will shift. I don't know by how much, but that picture will change, but I have not done such a route comparison.

DR. GABEL: Dr. Mercer, as a request from the Bench, can you undertake a comparison using the revised version of the model, the version that you submitted today, will you compare by density zones both the route

or strand mile distances as well as the loop length distances by density zone, and the comparison would be between your numbers and those contained in the Verizon model.

DR. MERCER: And you wanted two comparisons did you say?

DR. GABEL: Yes, one would be the route miles, and the other would be the loop length distance.

DR. MERCER: Yes.

JUDGE MACE: And do you want a comparison between Dr. Mercer's --

DR. GABEL: Revised --

JUDGE MACE: -- revised HAI?

DR. GABEL: Right, and to compare that with the VzCost numbers by density zone.

DR. MERCER: The only caveat I have is that I may be wrong, I don't remember in Dr. Tardiff's testimony that he produced the loop lengths. I know the table you're talking about before is the route model comparison, we certainly have the numbers we need for that. Loop length, I mean I assume I can find somebody who can get that from VzLoop if it's not already in his testimony.

CHAIRWOMAN SHOWALTER: I need to interrupt here. We really can not have people in the audience

making motions. It's not on the record and it's not appropriate. If you need to talk with somebody you can talk through your counsel or someone else.

MR. TUCEK: Sorry, I was just trying to indicate --

CHAIRWOMAN SHOWALTER: Well, you can not participate except through your attorney.

DR. GABEL: Dr. Mercer, as a follow up, I think you're correct that Dr. Tardiff had distribution length comparison, not loop length comparison, so if you could do route mile, distribution, and then if it is also possible to do loop length comparison by density zone, also provide that information?

DR. MERCER: Okay.

JUDGE MACE: We'll take a 15 minute recess.

(Discussion off the record.)

JUDGE MACE: If I didn't indicate it, that will be Bench Request 18.

(Recess taken.)

JUDGE MACE: Dr. Gabel, you had some additional questions.

BY DR. GABEL:

Q. Returning, Dr. Mercer, if we could return to Exhibit 861.

A. (Dr. Mercer) Okay.

Q. Page 53.

A. (Dr. Mercer) Yes.

Q. Starting at line 11 you have a discussion about modeling to lots rather than to individual locations. Could you explain what is the difference between a lot and an individual location and how that would affect your cost estimates.

A. (Dr. Mercer) Okay, I will do it in the case of a cluster with not very many lines in it since that's the case where the words here make a difference. If I have a -- when I run backbone and branch cable in the model, I run it vertically until it's within one lot depth of the top of the rectangle, and then the branch cable runs over to within one lot width of the edge of the rectangle. And if I have few lines in a cluster, I may be dividing that cluster only a few times. And so when I stop one lot depth short and one lot depth wide, I may be stopping a long way or, you know, a significant distance from the boundary of the rectangle.

Whereas in reality you may expect there to be a customer either at or close to the corner of the rectangle, because that's, you know, ultimately the rectangles are representing the cluster shapes, and the cluster shapes were originally drawn, their vertices are presumably at or near where a customer is.

So my reason for emphasizing or why we talk about the lots being uniform is those uniform lots can still leave the parent customers being pretty far from the border, whereas in reality they may be closer to the border than that would -- than this calculation would suggest.

And that was why the FCC originally asked for something like the strand. I have almost forgotten the history a little bit about whether they literally said we had to do some normalization, I think they may have. They were concerned that in those rural areas with clusters with not very many lines that we were not getting enough route miles. And sure enough in those rural areas, you will -- the strand normalization will often be greater than 1, meaning that you were adding some amount of cable.

But as I mentioned this morning in response to a question Mr. Huther asked, I am also seeing many cases where the strand distance can be greater than 1, because in that particular cluster the assumption that lots are laid out uniformly, whatever size they are, may not adequately represent cases where roads turn an odd way or, you know, there are a bunch of roads closer together or something like that. So you may also have cases where you need more strand distance or more route

miles than the uniform lot distribution would suggest you need.

And that's why we do the strand normalization is to come up with where the real -- the real amount of cable needed to connect the customers.

Q. Dr. Mercer, does the Hatfield model have an option that would allow the user to change the maximum copper length from 18 kilofeet to 15 kilofeet or 12 kilofeet?

A. (Dr. Mercer) Yes, it does.

Q. All right. In order to change the maximum length of the copper, does the data need to be reclustered?

A. (Dr. Mercer) No, it does not. You might argue that if you did recluster with say a 12,000 foot limit, you might theoretically say, well, it leads to more efficient lots, I mean clusters or something like that, but the model is self contained in that sense. If you change let's say to 12,000 feet, the model will now check with the clusters just like they were, do I now exceed 12,000 feet in going from the SAI out to the edges of the cluster, and if so it splits the cluster in one or both dimensions and creates subclusters, mandates the use of fiber feeder in that point because if you're in trouble distancewise, you obviously need to get fiber

at least as far as the SAI. So you will come out to the original SAI, and then you will continue fiber to the middle of the two or four, maybe more, but usually two or four subdivided clusters. And from that point you now will have less than your new maximum, so that will -- that works.

Q. Prior to the break I was asking you about the comparison between the route miles between Hatfield and Verizon loop, also loop length estimates or distribution length estimates, the difference between the Hatfield model and VzLoop. In both cases your testimony and Mr. -- where you relied on Mr. Dippon shows that you're coming out with longer lengths, and just I would like to ask for your interpretation on why your approach to modeling would result in longer route miles and distribution lengths than the Verizon, and I would like you to especially focus on route miles.

A. (Dr. Mercer) Okay, the reason that we believe the route miles come out longer is because of this conservative estimate where we do all right angle routing. There is no air line miles because when we lay out feeder, the feeder goes out from the office along a certain north, east, south, west direction. The subfeeders branch off of that at right angles, so you always get to the SAI on a right angle. And then when

you're -- even before the strand normalization inside the cluster you're running a backbone in one direction and a branch at right angles, so all the paths out to customers are done at right angles. And then when you do strand normalization you're normalizing to a strand distance that has been calculated with right angle connections between the customers.

As a result, every place you are throwing in this factor that essentially says to be conservative because there are these complaints that over the years that have said when we weren't doing this that we weren't reflecting objects, bridges, highways, lakes, whatever. The intent of this angle, of this routing on the average is to add in distance, and I believe that's the primary effect that's going on.

Q. My last question, I'm going to end with an open end question as I often do with the witnesses, and that is, in this proceeding we have been -- we have learned that one of the primary differences between the Hatfield model and VzLoop is that VzLoop works with the existing location of pedestals and serving area interfaces, and you do not do that. Why do you think it's appropriate to ignore the current locations of the serving area interfaces and pedestals?

A. (Dr. Mercer) Because -- and I'm going to have

to answer obviously as a non-economist, so please forgive me, I can do 4 over pi.

I understand the idea of TELRIC when it was first developed was that you want to represent the costs that would be incurred by a new efficient carrier coming into the area and serving it. Whatever mistakes were made like distribution terminals placed in a way that the customers didn't really grow up there, they were off to one side of it or they were further away or whatever, you're now, if you use those existing locations, you're capturing the network the way it would have been built if it had unfolded the way the telephone company engineers did, but TELRIC says that an efficient carrier entering the market would design to the network where it was. So I believe that in a way that you can never quantify when you use embedded network configurations just like when you use embedded costs, you're too much running the danger that you're capturing that network with a -- with all of the failings that it may have and the flaws it may have and not capturing what a new efficient entrant would do.

Now Dr. Tardiff has often criticized, used the term yesterday, plopping the new network down. Plopping the network down says for instance often a distribution route has to be served by two cables,

because if I put in one and then it wasn't big enough, I put in a second. But if you listen to the discussion by Verizon witnesses yesterday, they also put one cable in their network. So even, you know, if you're theoretically going to argue that's the wrong thing to do, TELRIC has too efficient a criteria. When it comes to comparing the two models, both models are doing the same thing. And I have to, again I'm speaking as a non-economist, my understanding is that's the TELRIC standard, because the efficient entrant will put in one cable, not two cables, not multiple cables.

So I think that's the big difference is that HAI says take the customer locations and the amount of that -- let me, excuse me, start that sentence again. Take the customer demand where it exists and in the amount it exists, and construct a network that efficiently serves that demand. And when you use a network that takes existing locations, you're departing further from that than I believe TELRIC says you should depart.

DR. GABEL: Thank you.

E X A M I N A T I O N

BY CHAIRWOMAN SHOWALTER:

Q. I have a number of questions all along a

common theme, and I think if you do have Exhibit 611 in front of you that will be useful on occasion.

It is evident in this proceeding and others that any model is going to have its strengths and weaknesses. And some strengths are big, and some strengths are small, and some weaknesses are big, and some weaknesses are small. For the moment, can you wipe from your head the HAI model and the VzCost to the extent you know it and just think hypothetically ideally, trying to imagine the ideal model. You made the comment that certain features may have tradeoffs of cost, but right now I just want to think about ideal model. And this is a model that is supposed to produce TELRIC costs. My first question is, do you agree that this ideal model, if it can, should assume that existing houses and buildings are precisely where they are and would not change?

A. (Dr. Mercer) Yes.

Q. Do you think the model should assume that existing rights of way will not change? I didn't say anything about new rights of way, but just existing rights of way will not change.

A. (Dr. Mercer) I think so, except that I'm not the outside plant expert that understands how easy or hard it is to get rights of way, so I frankly don't know

is that a big deal when you run -- clearly running into an existing neighborhood and somebody saying I now own a third of your front lawn that I didn't own before is a problem, but I don't know along roads and highways and, you know, if you decided that it would be better to go on the other side of Interstate 5 to run a cable, I don't know if that is a substantial issue or not. And so what the models typically are doing, and both models have approximations of this --

Q. I didn't want you to talk about your models.

A. (Dr. Mercer) I know, I was going to say both models, but okay, I'll stop.

Q. No, I'm talking about the ideal model.

A. (Dr. Mercer) If -- then I guess I should -- the best answer I could give is if it's a big deal to change right of way, then you better make sure that the model is -- has enough cable in it to follow the rights of way.

Q. Okay. Do you think that the ideal model should assume that existing streets and highways and lakes and big bodies of water are where they are today?

A. (Dr. Mercer) Yes, I don't think that will change, the lake location, no. It's generally true, yes, I believe it should represent the area that you're in.

Q. So in this ideal model, if you are measuring the distances required to construct a TELRIC system, would the most accurate model use geocoded, I don't know what the right measurement is there, dots for every location if there were geocodes for every location, or would that be one of the types of things an ideal model would use?

A. (Dr. Mercer) The ideal model in the sense you're asking it would go even further and reengineer the local network, because no model can account for the little vale that you can't get through because it has a stream in the bottom or, you know, a bridge abutment you can't go under and things like that.

And we did what the Alaska commission thought was the ideal. They were swayed by the argument that what you should do, you couldn't redesign the entire Anchorage network, so they drew a sample or they had ACS draw a sample of census block groups, which were I believe something like 15% of the whole geographic area of Anchorage served by ACS, and literally reengineered the network, meaning that they sent outside plant engineers out to, you know, to follow routes for feeder and for distribution.

And interestingly enough, in some -- the experiment succeeded and it failed. It failed because

it turns out even outside plant engineers could still strongly disagree, and Mr. Fassett was part of the team of local and non-local people who reviewed what ACS said was necessary and found pretty different plans. And so for whatever reason, even that exercise didn't say there was a network that two parties could agree on, they differed substantially.

But the other thing it showed fortunately, the good news is that when you then applied a proxy model, which up there was the FCC's Synthesis model adapted to do UNEs instead of USF, you could make -- the two models produced very similar results. Which the good news to me about that was that you don't have to go out and do the ideal, which would be to redesign the local network and then add up how many feet of cable you get and this and that. Nor do you, because it was the FCC model, which does not do what Verizon is doing which is geocoding all your points as you described them, the proxy models work well, you know, well enough.

So fortunately having stated what the ideal would be, it turns out you can in my opinion safely back off from that ideal and go back to a model that represents obstacles and where you have to steer cable without necessarily, you know, redesigning.

Q. I'm not sure if you just put a straw man in

front of me, because I didn't ask about reengineering the model. All I asked about was distances using geocodes.

A. (Dr. Mercer) Okay.

Q. Now so your answer was long, and one of the problems with long answers is I have a really hard time holding in mind my next question and also listening to your answer. But I heard you to say, oh, I would go further than geocode, I would redesign the whole system, but you don't have to redesign the whole system, because a proxy is good enough. And I really wasn't asking about redesigning the whole system.

A. (Dr. Mercer) Okay. I'm sorry, I though you asked me what would be the ideal model.

Q. No, I said in an ideal model, would you use geocoded locations for every building, assuming that there actually was a geocode location for every building?

A. (Dr. Mercer) Yes, I would in the ideal.

Q. In an ideal model, would you assume that existing locations of poles owned by electric companies would remain where they were?

A. (Dr. Mercer) No, I would not.

Q. Okay, that maybe poses a good example, and it's the example of how much a TELRIC model should take

into account real world configurations. And you have just granted me some of them, but now we have reached the electric pole. And isn't it logical to assume that the price of renting space on an electric pole that exists today is cheaper than putting up a new one on the same route in a different location?

A. (Dr. Mercer) Yes, I believe it would be cheaper from what I understand.

Q. And so why would -- why is your answer no, you would not assume the existing pole?

A. (Dr. Mercer) Because I think you don't need to go to that level of detail to get the model right.

Q. Well, we were talking about my ideal model. I'm assuming all of my features have no additional cost to load in.

A. (Dr. Mercer) Okay, then I guess yeah, in that -- divorcing myself from the reality of what you could do, I think you would then benefit from knowing exactly where, not only where every pole is, but where every conduit may be or every conduit you can place if you had to place new conduit. In the ideal, that would be helpful.

Q. Can electric poles, poles owned by electric companies, be geocoded theoretically?

A. (Dr. Mercer) Yes, and actually they are

geocoded in a lot of locations. That's one of the ways that pole data bases have been modified over, I don't know, say the last ten years.

Q. While we're talking about geocoding, most of us are familiar with cars that nowadays have these geocoding systems in them, and you can put in an address, a Mapblast, Mapqwest type of exercise, and be told how to get most efficiently from one place to another. That in and of itself anyway doesn't seem like a major expense. I assume General Motors or somebody once spent a lot of money on it, but relative to the whole telecom system, am I right or wrong that that kind of exercise alone is not a major effort?

A. (Dr. Mercer) Well, the car has a transmitter in it, you don't want to, you know, to do your GPS, you don't want to incur the expense of putting that on every pole. So what you do instead, and they do tend to do this now with these commercial databases of customer locations, is that somebody walks down the street with a GPS transmitter, sends the signal that records where he or she is at this point, and that's -- you could do that. I mean if you added in the car, because it's kind of like a different application, but you could do that. You could walk down along the pole line and stop at each pole for whatever seconds it takes to get a satellite

read on where you are. So, you know, I assume that that's --

Q. Actually I realize I introduced a new complication by the car. You can sit at a computer and put in one location and another on Mapblast for free, and somebody gives you a route of how to get from one place to another.

A. (Mr. Fassett) That geocoding that you're speaking of for poles has been undertaken a lot I know specifically in the Northeast, because a lot of poles lose their numbers, and it's a lot easier to give a crew coordinates to go, and then they know exactly where they're supposed to go to to repair the pole or whatever facility they need to work on. So yes, it has been done as part of the inventory system.

Q. Now I'm going to start coming down from the ideal into some of the proxies and other techniques that models use, but I would like to use as an example the clock behind us. It's behind you, but anyway everyone can imagine a clock. Now we had an example yesterday, and Dr. Gabel gave a different example, but if you imagine that the clock is a given area, maybe it's one of these subareas on the Richmond map, and if you imagine 4 houses, one at 12, 3, 6, and 9, and you imagine SAI right in the center of the clock. Now in

that example -- oh, I have to tell you also that the roads run in a radial system from 12 to the center, back out to 9, you know, back to the center, down to 6, back to the center, and out to 3. Now in that situation, let's say the distance from the center to 12 is 1,000 feet, and the same is equidistant to the 3, the 9, and the 6 from the center. Now in that situation, if that's everything in your distant area or --

A. (Dr. Mercer) Distribution.

Q. -- distribution area, the true length of road, total road is 4,000 feet, right?

A. (Dr. Mercer) Mm-hm.

Q. Now if you imagine a different configuration and there are 4 houses all clustered around the 6, then the true length of road is about 1,000 feet?

A. (Dr. Mercer) Mm-hm.

Q. Now but that's only if the SAI stays in the center where I once put it.

A. (Dr. Mercer) Mm-hm.

Q. What does the HAI model do in those two situations?

A. (Dr. Mercer) In the first situation the TNS cluster, I'm sorry, the TNS strand distance will say that it's going to assume to be conservative that you run from the let's start at the 12 down to the middle

and out, and then it would I believe, if I think about the strands, it doesn't run back in per se, because it's only a connectivity thing, so it would go on down the middle. It would go from the 12 to the middle, and then it would go out to the 3 and then down to the 6 and out to the 9. In that case --

Q. Would it do a right angle from -- is it going from 12 to the middle and out to the 3 because that's a right angle?

A. (Dr. Mercer) Yes, it is.

Q. Okay.

A. (Dr. Mercer) Otherwise --

Q. So then getting from the 3 to the 6, it could take two different routes, it could go back to the center and down to the 6 or, you know, down to the air and over to the 6?

A. (Dr. Mercer) Yes, but the way in -- in graph theory terms you don't try to retrace routes.

Q. Okay.

A. (Dr. Mercer) So you would really look at opportunities to go to some point and then branch. So you should really be able to get down and then branch each way and really replicate the 4,000 feet. In that case, you really -- the right angle has not really hurt you, it's actually given the right answer I believe.

I'm trying to picture --

Q. That's because this is so equidistant --

A. (Dr. Mercer) Yeah.

Q. -- that it comes out the same?

A. (Dr. Mercer) Yes.

Q. Okay.

A. (Dr. Mercer) Now where if you came out a little bit further -- no, okay. So if we -- if we're talking your second example, if the model, if TNS still thought the centroid was in the middle where the hand is joined in the middle of the clock, the SAI was there, and then you had these people down at 6:00, it calculates some amount, a little bit of connection down there to get between the 4 houses that are close together, and then it will also -- it links back to the SAI. So it will have one arm of that clock, so it would have a distance that was equal to your 1,000 feet plus whatever additional distance it was, which again if they were all kind of equally spaced right around 6, you might have pictured them as being kind of a radial connection of 50 feet or whatever to get out to each of those 4 locations from the 6:00 point.

Q. Okay, now -- so you're saying in that case the model would do approximately what is correct in real life, that is I'm imagining roads connecting the houses

just in the manner I described, and in the second example there was one road from the center of the clock down to the cluster.

A. (Dr. Mercer) Yeah.

Q. You're saying that's approximately what the HAI model would do?

A. (Dr. Mercer) It does if you're using -- because you're using the right angle routing. In that particular case, if you didn't have the requirement of right angle routing, I think I remember my geometry well enough to remember, what it would then find is it would say I will run in a straight from 12 down to 3 and then 3, straight line from 3 down to 6, in other words not going through the middle anymore. You would get a diamond that would connect back to 12 again. And I think that -- I have to -- I don't remember my geometry well, but I think that would be a shorter distance to do it that way. I think that's shorter than going in and out, but I need to check that to be sure. But that's what it would do if you did not do right angle routing.

Q. Okay. By the way, on right angle routing, you can only do it if you have a grid in the background.

A. (Dr. Mercer) Yes.

Q. And I take it is it that a north-south grid that is used unless you use that steering mechanism you

referred to?

A. (Dr. Mercer) It is -- there is -- I actually hesitated on this point this morning, because I had to stop and think. We have in the United States a right angle grid system called V&H coordinates. It's V&H stand for vertical and horizontal that -- we needed something like this, this is from probably at least 50 years ago, to describe the distance between two wire centers for the purpose of billing. And every telecommunications entity in the U.S. specifies their switch locations and other kinds of equipment relative to V&H coordinates.

And oddly enough, that does not run north, east, you know, east, west, and north, south, because smarter people than I at Bell Labs said that you -- remember this is really a curved surface. I mean even in the United States you've got some curvature to the earth, and you want to flatten it out in the most accurate way you can, and they flattened it out in a way that the equations are incredible, they're really cool, but they're pretty messy, and it's tipped. The one axis does not run east, it runs at an angle. It runs, unless you're drawing the wrong way, as you would look at it, if I were going there here to New York City, that axis is actually running down below New York City even if New

York City were directly east of you.

But TNS only has -- it works in latitudes and longitudes, it works in spherical dimensions. And I think, and I can certainly check this for this discussion if we needed to, but I think it probably uses a true north-south and east-west, because we're talking about much smaller distances. We don't have to get the whole U.S. right for them to do what they're doing. They're only trying to get it right within a cluster, so I believe they probably use a right angle coordinate system that really locally has a north-south and an east-west to it.

Q. But in any event, the grid that is used is constant throughout the application of the model unless there's some deliberate attempt to reconfigure things for more efficient reasons?

A. (Dr. Mercer) Yes.

Q. Okay. Yesterday I thought I was making a joke about assuming the world was round, I was trying to pick the most extreme example that I was certain every model would agree with, but apparently not always.

All right, but in any event -- well, strike that.

If you want to be more accurate than not, isn't it more ideal to measure shorter distances than

longer ones? In the example that was given yesterday, if you filled in all of the numbers or all of the minutes, you would get a picture of something round, and if you only have the four points, you get a picture of a diamond. And isn't that a product of the -- of measuring smaller distances from one node to another or more, having more nodes?

A. (Dr. Mercer) The closer you get, if you believe that direct, that direct routing is sufficient, the closer together the points are, the better. Because now if I have a curved road and I only had one point down here and another one up there, then the straight line between them is not going to follow the road very well. So whereas if I have points every 10 feet or, you know, some ridiculous ideal, then all of those little straight lines aren't getting very far away from the road.

Q. And so the closer your nodes are, the lower your factor needs to be. For example, your factor was 1.4, but if you had the HIP of the HAI model exactly but you were measuring smaller distances, your factor would logically go down, would it not?

A. (Dr. Mercer) Maybe not. It's a great question. If I picture that in most places streets are laid out in neighborhoods and right angles, or even in

arcs I think I'm going to come up with the same thing, you always ultimately get that question of whether you go directly between two points or whether you conservatively do right angle.

Because I think that even on a small scale, what happens, imagine again my curved road with, okay, I have put a whole lot of points close together and I'm connecting them all by straight lines, I'm still getting what -- the tradeoff there is yes, any one arc is not very far off the road, but I have a lot more arcs, I mean a lot more straight line approximation. When I add it up, you still end up to some extent with the issue of have I introduced enough inaccuracy that since I'm not representing the road curvature, I should be putting in some extra, and I should be putting a factor in there. So I think that even going a little short segment, short segment, short segment, if I draw that picture in terms of right angles, right angles, I'm still ultimately either putting in enough cable to kind of go up and over or not.

And I mean what we heard, you -- for instance yesterday we heard Verizon say that on some of their feeder routes they're I think they said on the average 2,048 feet apart, and then recognizing the straight line can then deviate from the road in 2,048 feet, they

applied a factor of 1.15. We would apply this right angle, which on the average is adding 27%. That difference between 1.27 and 1.15 over a 2,800 foot distance becomes 325 feet difference, so there is I think still a significant difference there as to whether you do assume kind of right angle routing to provide enough extra cable on the average or whether you assume right angle routing with an adjustment factor. I mean if I were advising Verizon, I would probably say at a minimum you should use a bigger factor.

But the real point I'm trying to demonstrate is even with a factor, you are not ultimately replicating the roads, and the closer you put the points together, every little arc there looks pretty good, but you still got to -- you're adding up more and more arc, and therefore the deviation is still significant.

Q. Well, but that seems to be a product of doing right angles if you either, I don't know if this is calculus or geometry, but if you draw a fluid line around the whole clock, that is the exact distance around the circumstance of the clock, and that's the most efficient thing to do, isn't it?

A. (Dr. Mercer) Yeah, if you -- yeah, now instead if I'm just at 12, 3, 6, and 9. If I'm at like first I'm at all the numerals and then I get even closer

together than that, yeah. What it is in geometric terms, it's like you're drawing straight lines to represent arcs.

Q. Right.

A. (Dr. Mercer) And in the extreme, you're right, in the extreme calculus would say that if I get the points vanishingly small apart, in other words really get them together, then ultimately as I'm adding up all of the straight lines I would, you know, I would more and more closely estimate the true distance around that.

Q. And if you had right angles between all those tiny, tiny, tiny lines, it would go down to practically nothing, right?

A. (Dr. Mercer) That's correct.

Q. So I don't think you would have as much inefficiency in those right angles if you had many, many points verging on a smooth line as you would if you had just the hours on the clock.

A. (Dr. Mercer) I think mathematically that's right. The arcs, I mean the straight lines might get there a little faster than right angles, but basically both of them ultimately you're getting very close to the right estimate. And I mean it's good to play this theoretical exercise, because pretty soon you have to

say, well, what would you do in the real world, and I probably got a little far ahead talking about 2,080 feet or whatever. But in the ideal where you could really take lots and lots and lots of points so you had, you know, a really excellent grid of the roads, you could -- you could very closely replicate, you know, just -- you're almost like doing the engineering job if you're doing it with a lot of data.

Q. Yes, but if we now go back to just the zipper say where you actually do know if you do the location of the house and its location to the street, a real street, and form a zipper, not a theoretical zipper, well, it's a little bit of a theoretical zipper I guess, but it would be based on the known location of real streets and the known locations of real houses, perhaps, I will ask you this one, even the known location of which side of the house the telephone wire, let's say the electric wire currently goes in to. You assume -- is it fair to assume that in most instances the electric wire and the telephone wire come in at the same side of the house?

A. (Dr. Mercer) No.

A. (Mr. Fassett) In some instances yes, in some no. I mean it just depends on the homeowner, a lot of times when the home was built, when facilities were actually placed, if -- typically if there's joint work

done where the homeowner is or developer has placed the trenches to the houses, then yeah, they would be close by just because of the grounding, nature of grounding the telephone plant with the telephone and the cable.

Q. Or the relationship of the house to the nearest telephone or electric pole?

A. (Mr. Fassett) Yes, and in new developments you will try to place, as an engineer, you will try to place your pedestals at the joint locations with -- because of the utility easements with the power and for bonding and all of those sorts of things that have to take place.

Q. Would you --

A. (Mr. Fassett) So you will start from the same point, so if you do that typically you would go to the same point.

Q. Well, is it typical, or would you say it's much more likely than not that the electric wire comes in on the same side as the telephone wire?

A. (Mr. Fassett) I would say typically they probably come in at the same location myself, just in looking at what happens out there a lot.

Q. I asked you, do you think it's much more likely than not that the electric wire and the telephone wire come in on the same side of the house?

A. (Mr. Fassett) Yes, I would say so.
Q. Okay.
A. (Dr. Mercer) I guess the reason I started to answer to the contrary is in our neighborhood for some reason, I mean it's a 15 year old -- we have like a 15 or 18 year old neighborhood, and they didn't do that. Our electric, cable, and telephone come across the back of your, no, wait a minute, telephone cable come across the back yard and electric goes in the side and gas comes in the front, but who knows, yeah, okay.
Q. I think this might be the last question. You, Dr. Mercer, I think were answering a question about assuming significant amounts of the current telecommunications configurations I believe, and you said if you assume too much of it, you capture the failings or the inefficiencies of the current system, and that's not consistent with TELRIC. Am I correct?
A. (Dr. Mercer) Yeah, I think you said it better than I said it actually, and I said this in response to a question from Dr. Gabel.
Q. Right. And I wanted to ask, if you don't assume enough of current configurations, and I will even allow throwing in some of the telecommunications configurations in addition to houses and lakes and electric poles, if you don't assume enough, you will

lose value that is in the current system. And this is the problem of we don't start from a fresh green field. We really do have set up in the real world existing facilities. And is it -- is that the same -- is that embedded, or is it kind of like the house, that it is not ever going to make sense to assume there's a whole new set of poles there or that the poles would really be more efficient on, you know, the other side of the road for example when they're on the first side of the road. Isn't this a balancing test, that if you get so theoretical as to assume that we are building over a long period of time a whole new system, that that really is never what would happen and that TELRIC doesn't need to go that far?

A. (Dr. Mercer) Yeah, I mean I have to -- I think you hit it -- you can hit a happy medium, which is that customer locations are what -- are really inviolate. I mean, you know, earlier versions of HAI for instance did not start from customer, real customer locations. It started from census block groups. The refinement that said you did start from real customer locations was very important. Beyond that, given that you know where the customers are and you're figuring out how much connectivity is required in neighborhoods to get between those houses, to me that's the, you know,

that's enough of a compromise given the complexity of going and redesigning. That's -- I mean that to me is the compromise between doing nothing, the green field you were talking about, and reengineering the local network as part of the exercise which would be, you know, which would be impossible, and you would have to pick your point I think in between that.

Q. But do you agree, you have picked one point or the HAI model picks one point, but do you agree that you could pick some point a little bit more along the way of the reengineering, but not going to the whole nine yards? Oh, excuse me, I think I meant it the other way. A little more toward assuming some existing configurations, something a little bit more than central offices or some other equipment that I have a hard time naming without assuming that all that is ever happening is a replacement of, you know, existing switches for example.

A. (Dr. Mercer) You can, and I think that -- I think the delicate balance is that I think the further you use the existing network as representing the "real world", which we heard several times yesterday, the more you also introduce the potential for the inefficiencies about the way that real world was laid out. And nobody I believe could ever write the equation that would tell

you where the right point on that is.

Q. But just when you said you also introduce the existing inefficiencies, you also introduce the existing efficiencies of things that happen to be there, don't you? Isn't it a double edged sword, that the more of the existing configuration, it's both inefficient but it's also there, which means it's there to -- it has value to be captured. And so when you lose the existing system, you might be imagining a more efficient one, but you also might be imagining a duplicative, an unnecessarily redundant or duplicative one given that there already are in place various equipment or locations that could be used just as well as something 60 feet away.

A. (Dr. Mercer) Yeah, and it is possible it goes like that. Again, I think the question is, are you approximate -- can you approximate closely enough the situation by laying out a, quote, proxy model or hypothetical network the way HAI does. And what I think we have, you know, the comparisons that Mr. Dippon drew that Mr. -- that Dr. Gabel has asked us to redraw says yeah, I believe when all is said and done you get -- you get a good representation of the network on the average that's good enough for cost modeling.

I would never pretend that HAI or VzLoop

could be used to actually engineer the network. Because then you've got to go out and walk the roads and figure out whether you're on the left or the right side of the road, things like that. But I think what the demonstrations are when you compare the results of the model is that you produce, you know, cable that if anything is conservatively high, and we know why it's conservatively high, and that's as far as you really need to go with cost models.

Q. Yes, when we're dealing with cost models. I couldn't help thinking when I looked at Exhibit 611 of trick or treating. I used to plot out the most efficient way to get through the neighborhood, and I found myself wondering, well, which would I use, HAI or VzCost.

A. (Mr. Fassett) Go for the one with the most candy.

Q. Yeah, first pick the right neighborhood.

CHAIRWOMAN SHOWALTER: Thank you, I have no further questions.

JUDGE MACE: Commissioner Hemstad.

E X A M I N A T I O N

BY COMMISSIONER HEMSTAD:

Q. Well, I think most of the questions I might

have asked in some form or other have been asked. Under the TELRIC approach, I interpret your testimony, well, first to say that it comes closer to meeting the TELRIC ideal than does the VzCost approach. And I guess I would translate the two different approaches into saying that might be putting words in your mouth to say that yours is more efficient, but Verizon would argue that theirs is more practically efficient. Is that a fair characterization?

A. (Dr. Mercer) Well, we may not be more efficient. You mean in the sense of the network itself?

Q. Right.

A. (Dr. Mercer) Because of this conservatism we have built in with the right angle routing because of the past criticisms about you're not getting around lakes and obstacles, what we seem to be seeing is that we're actually producing more route distance, a safer amount more. And that could be adjusted in the model, by the way. I mean you can turn off this strand distance calculation and come out very close I think to the numbers. So I'm not sure it's not more efficient at least in the sense of saying it's hyperefficient notwithstanding some claims to the contrary.

More practical, it's interesting, I mean I guess what you're saying is because it uses real

terminal locations and like that's where -- that's more like the real world. I would have to almost give the same answer I gave before. I guess it depends a lot on how much you worry about TELRIC saying be very careful not to replicate an embedded network that has too much investment in it.

And I don't know the theoretical way to say this is the -- this is the right point, but in some sense my way to describe the difference in the model says that HAI tries to say given the customer locations, let's lay out an efficient network to serve them, again being conservatively efficient, but efficient. And VzLoop is saying let's also take actually not the customer locations as they have said. And as we have said, they are not working off customer locations, they're working off terminal locations. So the difference is that they're starting from the network as it exists at least as far as those locations, so that's the difference I guess I draw.

Q. If you were unconstrained by the FCC's conceptualization of TELRIC, would your model be essentially what it is in any event, or would it be different as you're trying to model the network, model an efficient network?

A. (Dr. Mercer) Yeah, I would -- there may be a

-- this may not be useful so I won't go on, but I may start, if I were unconstrained, start from a completely different viewpoint, which would be to say let me work from the top down, take the company's flow of expenses and investments and go out and examine whether those are efficiently made and not build a network from the bottom up. And again, I would be concerned in doing that that I would be -- I'm starting off at least very much in the camp that I'm starting with the embedded network, and have I cut out enough when I go down that route. So I, having never done this, I'm not sure that would work.

But if I were completely unrestrained, I might start asking could I work this from the top down instead of what we call the bottom up creation. And the Verizon loop is a bottom up model as well, it's building a network to serve, you know, to serve demand. What -- but I almost have to ask for a clarification, what constraint would you relax when you say if I didn't have the FCC constraint, does that mean like not to build the most efficient network?

Q. I'm not sure what the limitations I put on my own question, but a lot of the continuing discussions and debate about the TELRIC concept itself. I suppose the translation, is there a better or different way to do it. Where I was getting to with the preliminary

question is to what degree does this Commission have discretion to make its own choices here, and I suppose in doing that we're implicitly making our own definitions of what TELRIC means?

That was a question.

A. (Dr. Mercer) Okay. There have certainly just -- just practical -- in practical terms, many commissions have done TELRIC's in different ways, so there are -- so one answer is yes, you must have some -- there is no one answer obviously, or else some model would have always won, and that has not been the case, so there is discretion.

Would the FCC ever, you know, I don't know what the right term is, but censor or undo what a commission has done is beyond my realm. I don't know of that happening yet, but I don't know. And from that point, like the legal sense, could, you know, are you constrained, I don't know.

So I really sort of only get back to the kind of the engineering or technical construct. And, you know, all I know from the ten years that we have been building HAI is we set about to build what we understood actually, you know, the model started two years before the Act, we didn't have TELRIC at the time. We did have TSLRIC, which has most of the same principles, forward

looking efficient. And we spent a lot of time with the economists in the early days saying, what does that, you know, what does that mean, and we tried to build a model that does that. And we reconstructed -- I mean the first version of the model we really had the green field that the -- we were talking about before. We didn't even assume existing switch locations. And the, as we all now know, the FCC ruled that that was too efficient, that was going too far, it left kind of no -- there wasn't enough of an anchor anymore to know where you were when you started saying I'm going to put a wire center somewhere that's not in where it is today.

But anyhow, we built the HAI model to try to inculcate first TSLRIC, and then once TELRIC was defined to do TELRIC, and knowing how much the Commission's principles talked about not using embedded cost, not assuming the network was efficient but building a forward looking network, it makes me skeptical in general on engineering principles. Again, I'm not the law person, I'm not trying to speak to the law, but I'm just saying from the engineering point of view, it makes me skeptical that you can start from an existing network and still do okay. And that's about as far as I know. And, you know, I don't know what else to add to that.

Q. I think you made the comment here both the

HAI model and the VzCost model are bottom up approaches. Ultimately what strikes me is the remarkable difference in ultimate outcomes. You're at $8.50, and the VzCost model is what, $33 or thereabouts if my memory is correct. Those are wildly different outputs. Mr. Spinks in his testimony said he would try to get the inputs to be equivalent so he could better see how the models themselves made differences. Do you attribute any significant impact of that very significant difference in output because of differences in inputs or simply the internal workings of the model itself or both?

A. (Dr. Mercer) I think that a very large fraction of that difference is due to inputs, and the reason I say that is in a number of jurisdictions, most recently in California in the SBC case, obviously it was not the same model as Verizon has put forward, changing I believe about a dozen inputs, but they were the front running inputs, we were able to demonstrate either that HAI produced a higher number than the SBC model, or done the other way, if we put HAI inputs into the SBC model, we could bring it down to the same rate. So there are a handful or, a big handful, but a handful of critical inputs that can cause you to swap positions. I mean they can bring the two models together, and, you know,

there are the big runners like cost of capital and structure sharing, and then your major expenses come in there along the way, expense ratios, and your big amounts of network components like cable costs. So you can do it with -- I mean you can do it completely with inputs.

The question is that, okay, I can make the average loop length come out the same, on a more granular level does that mean the model didn't matter, and it may not. When I get the overall loop cost to be the same, I may still have differences across wire zones, wire center zones and things like that. And so the feeling always has been it's still worth getting the model right as well. But knowing in several jurisdictions that we have been able to make the models overlap, the answer clearly the inputs make a huge difference. And said the other way around, if you took either of these models and put the same -- no, I'm saying this the wrong way. If you could somehow figure out the calculational differences between the two models and get rid of those somehow but kept the same different inputs, they would still be a large fraction and maybe even more in theory apart than they are now.

So I think the inputs, the answer to your question in the simplest terms, the inputs or model

platform, it's much more inputs than it is model platform.

Q. Do you have any opinion as to whether HAI or the, well, anyway or the most recent model, the $8.50 as the loop cost applied will encourage or discourage the facility based competition?

A. (Dr. Mercer) $8.50 is a loop rate compared to, I'm caught a little short, for some reason I can't keep the current number in mind, but I believe it's $17.

Q. Thereabouts, yes.

A. (Dr. Mercer) It has to make a difference. I mean it's in the direction. I could not speak to whether that would cause AT&T or MCI or somebody to enter, but it certainly has not appeared just judging by the amount of competition today 17 is not doing it. 8 and a half certainly looks like it's got to help, because it's, you know, I would say a $9 difference, but I don't know if that is enough to trigger AT&T to be in the market or --

Q. That would certainly incent them over the current cost to enter the market, but would it discourage them from building out facilities based competition?

A. (Dr. Mercer) You know, there's both, I don't know, but there's both sides to that story, and it came

out yesterday, and I was glad to hear it come out. Far too often in my mind the ILEC's have said, well, if you set the UNE rate too low, it discourages facilities competition, because you can get the -- too much of a bargain. But the other half of that story says, if they're set too high, then you can -- then you encourage uneconomic entry of facilities based competitors.

And I have a thing, there's going to be an article in magazines soon that says I believe that given the expense of these infrastructures we're building, we better somehow collectively be real careful about forcing a lot of facilities competition that wasn't necessary if the networks had been open. When all is said and done, customers aren't buying infrastructure, they're buying services like Internet access or the ability to download video or whatever. And if the price -- if there is sort of this mentality of one service, one infrastructure, you know, if you want to offer service, you have to have your own infrastructure.

That's not an economic statement, but to me that seems very inefficient, so I think it's not going to help you come to the answer better. I think -- but I think you've got to still find that balance. Too cheap is bad because then nobody ever -- everybody gets careless and says we won't enter. Too expensive is bad

because now you may get multiple infrastructures and wasteful facilities that should not have happened because there should have been better access to the infrastructure that had been built. And somewhere the right answer is, I guess the economist would say it's the right signal to the marketplace.

COMMISSIONER HEMSTAD: Thank you, that's all I have.

JUDGE MACE: Commissioner Oshie.

E X A M I N A T I O N

BY COMMISSIONER OSHIE:

Q. I just have one question for Dr. Mercer. In your testimony when you're referring to the strand normalization factor, you use a term greater than unit.

A. (Dr. Mercer) Yes.

Q. Can I just ask you to explain that, because I really, I mean I have the, you know, kind of a common sense idea of what you meant, but I want to make sure that I have captured it.

A. (Dr. Mercer) Okay. Greater than unit means that the model has calculated greater than unit, might as well stick to the example this morning, has calculated 1,600 feet of distribution plant being needed, but TNS strand distance says 2,000 feet is

needed. And the way the strand distribution normalization works is you divide the TNS strand distance by the distribution route distance, so you're dividing 2,000 by 1,600, and that ratio is greater than 1. And the implication of that is that the model will now have its investments adjusted to create more investment than it would have had if you didn't do that normalization. So greater than unit means any time when the strand distance provided by TNS is greater than the distribution distance the model first calculated before it looked at that strand distance to figure out what to do.

COMMISSIONER OSHIE: Okay, thank you.

JUDGE MACE: Mr. Huther.

MR. HUTHER: Yes, thank you, I do have a few follow-up questions for Mr. Fassett.

C R O S S - E X A M I N A T I O N

BY MR. HUTHER:

Q. Do you recall being asked a question by Dr. Gabel with respect to plowing in particular, I believe that you indicated that contractors gave you prices that assisted you in the development of your plowing input assumptions.

A. (Mr. Fassett) Yes, I believe so, that that

was one of his questions.

Q. How many contractors gave you price quotes?

A. (Mr. Fassett) In as far as the Fassett documents, that's what we're referring to?

Q. Yes.

A. (Mr. Fassett) There were numerous, I can't tell you the exact number, but there were a substantial amount.

Q. I'm sorry?

A. (Mr. Fassett) A substantial number, and I will use a number let's say of probably eight to ten national contractors, and then there were some local contractors that I also got inputs from.

Q. And when you say local contractors, you're referring to contractors licensed to operate in the state of Washington?

A. (Mr. Fassett) Well, in Washington or other states, not just specific to Washington. I'm talking about local contractors might have been local contractors that operate in New York, may have operated in Nebraska, but in that region.

Q. How many of these contractors were actually, that you surveyed, were actually licensed to provide service in the state of Washington?

A. (Mr. Fassett) I don't know an exact number,

but I know the major national contractors, the Hinkles and the McCoys and the Bernham and Simms and all the national contractors I'm well -- very confident that they would be licensed to operate in this state, and they were part of it. I mean there was numerous contractors.

Q. And is it fair to say that the price quotes that you received were during the period 1997 or so?

A. (Mr. Fassett) Yes, that was the time when I actually undertook the major part of the survey, yes.

Q. And with respect to plowing prices, have you undertaken to contact any contractors authorized to provide service in Washington state for purposes of updating the numbers that you developed in 1997?

A. (Mr. Fassett) No, I have not, but I have looked at, you know, proprietary contracts in various dockets, and that tells me that the numbers that we're using are still within the range of reasonableness.

Q. And because those contracts are proprietary, they have not been made available to the parties or to the Commission in this case to evaluate them, correct?

A. (Mr. Fassett) Well, I think I have even looked at the Verizon -- in this case the only one I have actually looked at is the Verizon contract I believe.

Q. Okay.

A. (Mr. Fassett) I don't recall any other specific contracts that I looked at for the state of Washington.

Q. All right. So throughout your reply testimony, which is designated Exhibit 956T, you make several references to proprietary engineering guidelines or in some instances proprietary contracts that you have received in other dockets.

A. (Mr. Fassett) Yes, I do.

Q. Am I to understand from your testimony just a moment ago that when you use those terms you are referring exclusively to contracts or engineering practices provided to you by Verizon Northwest or one of its affiliated entities?

A. (Mr. Fassett) No. In my testimony what I am stating is that I have looked at those contracts in Utah and in various dockets that I have been in including in this docket I have looked at Verizon's engineering guidelines and various proprietary documents that have been provided here in addition to what I have looked at in other dockets in other states.

Q. And those proprietary contracts that you received in other states is it your testimony has informed your judgment and validated your input values

that you have testified to here?

A. (Mr. Fassett) Yes, they're -- I mean what I have looked at is still within the range of reasonableness.

Q. All right. And then back --

A. (Mr. Fassett) Within what we have in the Hatfield model, yes.

Q. I'm sorry, Mr. Fassett, I didn't mean to interrupt you.

And so then back to my initial question, to the extent that you have relied on these proprietary contracts from other proceedings, you have not been able to make them available to the Commission or to Verizon in this case to review and evaluate, correct?

A. (Mr. Fassett) That's correct.

Q. You also were asked a question by Dr. Gabel concerning sharing. Do you recall that discussion?

A. (Mr. Fassett) Basically yes, I think so.

Q. Structure sharing.

A. (Mr. Fassett) Structure sharing.

Q. And I believe it was your testimony that back in 1997 or 1998 you visually inspected some of the landscape in Washington, and in doing so it confirmed the values that you and assumptions that you were -- that you have testified to here today and are assumed in

5.3, correct?

A. (Mr. Fassett) Yes, and also as I related in my testimony, during that docket I had the opportunity to look at actual joint agreements that GTE at that time had and U S West had.

Q. Okay.

A. (Mr. Fassett) So it's been a mixed bag of different validations.

Q. Now as you're driving around the state of Washington or walking the streets, you're not able to determine the extent to which buried plant is being shared, correct?

A. (Mr. Fassett) Generally the answer would be no, but there are locations where you will see. Like if you go into a development, you're going to see the transformer, you're going to see the cable, you're going to see the cable pedestal that belongs to the cable TV, you're going to see the telephone, and you're going to know -- being in the business, you know that those are in a joint trench. You're going to see other applications where the cable may come down a pole and so will the telephone facilities and go into a trench, but you can't physically see what's in the trench, no. But after, you know, being in this business for a long time, you understand what would be typically in there.

Q. And the same applies to conduit, correct, you can't see what's in the conduit as you're just driving the streets or walking the streets and looking around at the outside plant?

A. (Mr. Fassett) No, and the important thing with conduit sharing is to remember we're talking about the trench, we're not talking about the individual four inch conduit when we talk about sharing, we're talking about sharing the underground structure, and that's the trench. So there was -- there's -- I want to be very clear that the Commission understands that that's what that really entails. We're not -- we're not doing that little four inch conduit is not being shared, it's the structure, the trench that's providing the placement for that trench, for that conduit, excuse me.

Q. You also used the term in response to a question from Dr. Gabel lateral cable; do you recall that?

A. (Mr. Fassett) Yes, I do.

Q. Could you define lateral cable?

A. (Mr. Fassett) Well, the term lateral cable in what I was discussing was the fact that you had a cable, backbone cable if you will, maybe it happened to be in conduit, and then you had a I called it a lateral cable, a sideline cable that may have went over to a building,

and I referred to that as a lateral cable.

Q. How much lateral cable is being modeled by HM 5.3 in Washington?

A. (Mr. Fassett) It would be part of the -- either the -- typically it would be part of the distribution depending on the configuration, so there's no way of knowing what that amount is. It's all part of providing facilities to that location.

Q. In other words you can't break it out?

A. (Mr. Fassett) No, because like I testified, it would be part of the aerial account or part -- if it happened to be going to a buried structure it would be part of the buried account. Accountingwise it would be accounted for as aerial -- it's not accounted as a lateral cable, it's accounted either aerial, buried, or underground.

Q. Does HM 5.3 model lateral cable that comes up from buried or underground plant and then up the side of a pole and then over to a building?

A. (Mr. Fassett) It doesn't model that. The cable, again, the classification of that cable that you have just described is an aerial cable, so that would be part, in the real world, would be part of considered of the aerial cable plant.

Q. In HM 5.3 is backbone cable carried over

aerial structure, that is pole lines?

A. (Mr. Fassett) It could be.

Q. There was also some discussion I believe at page 12 of Exhibit 956T, your reply, yes, Exhibit 956T beginning on line 10 of page 12.

A. (Mr. Fassett) Okay.

JUDGE MACE: What's the page number again, counsel?

MR. HUTHER: Page 12, Your Honor.

JUDGE MACE: Go ahead.

BY MR. HUTHER:

Q. You responded to some questions I believe from Dr. Gabel regarding your testimony beginning on line 10. It says:

Planning parameters permit from three to five DA's to be considered as a CSA or carrier serving area.

Do you see that?

A. (Mr. Fassett) Yes.

Q. In that instance where you had three to five DA's in a CSA, the SAI's would not necessarily be collocated with the RT in that construct, would it;

A. (Mr. Fassett) Typically they would not, they could be in some instances. It would vary, but typically you would have an SA for a DA provided the DA

was a legitimate size and it met the -- what you needed to do and provided service efficiently.

Q. And it would be the case that feeder would be built from the RT to each of the three to five, whatever the number is, SAI's associated with the RT?

A. (Mr. Fassett) Yes, if you -- if you had a situation maybe where there was one RT and you had three, let's just use the example of three DA's coming together, say there was one on one side of the street and maybe two on the other side that happened to be -- typically you would just feed across to that one and you would feed into the other one. We're not talking a substantial amount of -- normally you're not going to take three or five DA's that are very spread out and do that kind of a construct.

Q. And in the circumstance where you have three to five DA's per RT when the RT and the SAI are not collocated, you would have smaller backbone cables, correct?

A. (Mr. Fassett) Yes, typically.

CHAIRWOMAN SHOWALTER: Can we interrupt for a second, can we be off the record for a second.

(Recess taken.)

JUDGE MACE: Mr. Huther, you were following up on Bench questions, do you still have more questions?

MR. HUTHER: Just a few.

JUDGE MACE: Go ahead.

MR. HUTHER: Thank you, Your Honor.

BY MR. HUTHER:

Q. Mr. Fassett, do you have what has been marked as Exhibit 873?

A. (Mr. Fassett) Yes, I do.

Q. Mr. Fassett, Exhibit 873 is your pre-filed direct testimony filed on behalf of General Communication, Inc., GCI, in that Alaska proceeding we spoke about this afternoon.

A. (Mr. Fassett) Yes, it is.

Q. And it's dated August 29th of 2003?

A. (Mr. Fassett) That's correct.

Q. On page 1 of that testimony, you refer to your experience at NYNEX as an outside plant engineer and manager; is that correct?

A. (Mr. Fassett) Yes.

Q. And then on page 2 of that testimony, you reference a couple of projects that you were responsible for when you were at NYNEX?

A. (Mr. Fassett) Yes.

Q. And one of them was the planning, design, and construction of a $10.7 Million 117 mile interoffice SONET project.

A. (Mr. Fassett) That's correct.
Q. And then the second bullet refers to the design and deployment of numerous fiberfed DLC systems within 69 central offices. Do you see that?
A. (Mr. Fassett) Yes, I do.
Q. How much plowing did you do, plowing of buried cable did you do with respect to those two projects?
A. (Mr. Fassett) On the first project, the 117 mile project.
Q. Yes.
A. (Mr. Fassett) We did substantial plowing on that particular contract, particular project. It went basically from Glens Falls, New York, which is above Albany, all the way up, and we did a piece that went over to Lake Placid and then back with another piece over to Plattsburgh and linked down. There was some trenching because when I initially got involved in the project they had started one little segment of it prior, and the time of the year they couldn't plow, they had to trench because of some frozen areas, but primarily it was basically all plowed, or we attempted to plow in most every area.
Q. And what about with respect to that second project, the description of which begins on line 5 of

page 2 of your testimony?

A. (Mr. Fassett) That was numerous projects, whole -- there was projects that we may have plowed 50%, 60%, there were probably some projects where we didn't do any plowing just because of where it was, but that was numerous projects for feeder and distribution facilities.

Q. And these projects that you just described were in or around the Albany area; is that right?

A. (Mr. Fassett) No, they varied, because my area that I was responsible for was basically the 518 area exchange, so some of those projects would have been in -- down in the Catskill Mountains, and some of them were up on the Canadian border, so we're talking a distance of, you know, 200, 300 miles in some cases. So some of the rehab projects were in the Albany area specifically at that one point when I was in Albany working.

Q. And with respect to these projects that you just described or any other similar type of projects when you were at NYNEX, how often did you plow 12 separate cables into 1 trench in a single plowing operation?

A. (Mr. Fassett) We didn't, okay. We had plowed I want to say 3 cables, I remember we plowed, distinctly

plowed 3 cables on the 117 mile project in some phases of that. In other phases we would have plowed 2 cables. In my testimony that I refer to the 12 fiber or the 12 cables being plowed, that's what spider plows are capable -- actually capable of plowing more than that at one given time. I know on the New York state throughway, that was a separate project that I wasn't personally involved with, but they were plowing 7 interducts primarily on that whole interstate route.

MR. HUTHER: I have nothing further, thank you, Mr. Fassett.

MR. FASSETT: Thank you.

JUDGE MACE: Mr. Kopta.

MR. KOPTA: Thank you, Your Honor.

R E D I R E C T E X A M I N A T I O N

BY MR. KOPTA:

Q. Dr. Mercer, I just have a few questions for you. First, in response to some questioning from Mr. Huther this morning, do you recall a discussion of what or who had access to certain TNS proprietary data?

A. (Dr. Mercer) Yes.

Q. And I believe that you said in response that the only person of whom you were aware was Mr. Dippon; is that correct?

A. (Dr. Mercer) Yes, that's correct.

Q. And what information was that that you were specifically had in mind when you were discussing with Mr. Huther?

A. (Dr. Mercer) I think at the time or thought at the time we were talking about the source code, questions about that.

Q. And are you aware of anyone at AT&T that has the source code for the TNS processor?

A. (Dr. Mercer) No, I'm not.

Q. You also had a discussion with Mr. Huther about the number of lines that are served per SAI; do you recall that discussion?

A. (Dr. Mercer) Yes.

Q. How many, what's the number of lines served per SAI or comparable figure in the HM 5.3 model?

A. (Dr. Mercer) Well, the -- while it's true that we can run up to as large as a 6,400 line SAI, what's striking is that the vast majority of SAI's in fact are much smaller, something like 78%, and I have actually a number here, but something like 78% of them, 74% of them are SAI's that are smaller than 1,000 lines in size. So it strikes me sometimes that the whole discussion of these monster SAI's that we hear about like it's really sort of a small net, because the large

fraction of SAI's in fact are quite small.

Q. And I believe you had a discussion with both Mr. Huther and Dr. Gabel about the exclusion of DS0 fiber loops from the elements that you were costing in this proceeding; is that correct?

A. (Dr. Mercer) Yes.

Q. Do those DS fiber loops includes loops that are served at least in part over fibers such as digital loop carrier systems?

A. (Dr. Mercer) Yeah, I tried to say that this morning, but let me be very clear about that. Any kind of narrow band loop, POTS, plain old telephone service, POTS or a DS0 or a DS1 that's delivered to the customer on copper may have either copper feeder or fiber feeder, and the model models which is right for each cluster and does it accordingly. And if I have a cluster that's being served on fiber feeder and I have DS1's in that cluster, they're going to have their own kind of line card in the remote terminal, and they're going to be served over that fiber feeder.

So I was certainly not saying that we're only modeling DS1 on copper all the way to the central office. What I was saying is that when Verizon advertises a service as DS0 over fiber, they're not just saying it's sometimes served on fiber feeder, they're

saying it's delivered to the customer on fiber, and that's why we gave it different treatment than a DS0. That's ordinarily in the model where you might have a mix of two different kinds of feeder.

Q. And do you recall a discussion with Dr. Gabel about Exhibit 611, which are some maps?

A. (Dr. Mercer) Yes.

Q. Were you involved in the preparation of those maps?

A. (Dr. Mercer) Yes, they were done under my supervision.

Q. And do those maps accurately reflect how the model models the distribution areas in Richmond Beach?

A. (Dr. Mercer) Yes, they do starting right off the bat with number 1 or number 2, those dots are the real customer locations that TNS has found. And going on into the later pictures, for instance in picture 3, the black lines are literally the cluster shapes that have been found by TNS, and then the downstream processing of rectangles and the like. In every case as I look at those pictures, that's the real representation of what's happened in Richmond Beach.

Q. And do those maps reflect the changes that you discussed earlier today to the model?

A. (Dr. Mercer) No, not when I get to slide

number 7, which is the post normalized. We have talked a lot today about strand normalization, that last picture that appears to really shrink several of those clusters, that's a result of normalization. I have a theoretical problem with even drawing this picture, as I believe I said at some point this morning, because the whole point of strand normalization is to represent where customers are really located and how much cable it takes to connect them. So to still draw a picture that has the same backbone and branch arrangement is kind of defying the logic of why we're doing strand normalization.

But be that as it may, with the new version of the model where the strand distances are calculated without subtracting a drop distance, they will either be this big or bigger, and there may be a considerably bigger picture if you're going to draw this picture, those lines will extend through considerably more of the clusters as a result of what we have done this morning.

Q. Do you recall a discussion with Chairwoman Showalter about what were particular aspects of an ideal cost model?

A. (Dr. Mercer) I do.

Q. And do you recall specifically discussing whether an ideal model would retain all of the existing

rights of way in the current network?

A. (Dr. Mercer) I remember the discussion of rights of way. I didn't believe that we were talking about retaining necessarily all the rights of way. My understanding of our discussion was if, you know, if the right model network, an efficient network runs along a street that has a right of way, would you run in it as opposed to not running in it, and I said -- and I agreed yes, you would.

I'm certainly not trying to say that the efficient network would necessarily use all of the same rights of way for -- because -- for two reasons. One is you may not run the network where it was run before, and (b,) you may be running off at a different angle, you might find it much more efficient to let's say go across country instead of following through some city street or something. These are all just hypotheticals, but.

My answer was conditioned on my picture that we were talking about a case where I did want to run where there was a right of way, and I would say you certainly would do that. But I do not mean to imply you would use all of the right of ways necessarily in an efficient model.

Q. And finally, do you recall a discussion with Commissioner Hemstad about the current statewide

averaged loop rate for Verizon?

A. (Dr. Mercer) Yes.

Q. Would you accept subject to check that the current rate is a little bit less than $24?

A. (Dr. Mercer) subject to check I will accept that, yes.

MR. KOPTA: Thank you, those are all my questions.

CHAIRWOMAN SHOWALTER: I have one follow-up question.

E X A M I N A T I O N

BY CHAIRWOMAN SHOWALTER:

Q. Of the information that you're providing in response to the Bench request directed by Dr. Gabel covering the information on the five zones, will that data show the median number of lines per SAI in each zone, or can it -- can we -- will we be able to derive that?

A. (Dr. Mercer) I did not understand that to be within the scope of the data request. If you are asking me to take that on as another Bench request, I certainly think we could produce that number if you want to see the median SAI, the median lines per SAI by five zones?

Q. Yes.

A. (Dr. Mercer) We have to be able to do that. I would assume we could do that. If you're asking for that, we'll do it.

JUDGE MACE: That will be Bench Request Number 19.

Q. And I assume when you show that, you will also be showing the median for the whole state?

A. (Dr. Mercer) I can, yeah.

Q. Thanks.

A. (Dr. Mercer) And just to clarify, you want the median, not the average? In other words, you kind of want the middle size or both or --

Q. I wanted the median, but let's have both the median and the average.

A. (Dr. Mercer) I guess I should stop asking questions before I get in trouble.

JUDGE MACE: All right, Mr. Huther, you had something else?

MR. HUTHER: I just had one follow-up question.

R E C R O S S - E X A M I N A T I O N

BY MR. HUTHER:

Q. Dr. Mercer, in response to Mr. Kopta's question you referenced I think you said when Verizon

advertises a DS0 or a DS1 all fiber service; do you remember words to that effect?

A. (Dr. Mercer) Yes.

Q. Does Verizon have a tariffed service for DS0 or DS1 on all fiber in Washington?

A. (Dr. Mercer) If it doesn't, then I don't know the meaning of that service definition as it was described as the -- if I'm -- if they are describing a customer line as being a DS0 on fiber, it certainly means more than just maybe having fiber in the feeder. So I don't know if they have a tariff or not, but the definition of that term would suggest.

MR. HUTHER: Okay, thank you, nothing further.

JUDGE MACE: All right, I want to deal with the Verizon cross exhibits and then excuse the witnesses. We then need to talk about response times for these various model changes that have been made and the briefing schedule.

So I understand from Mr. Huther that he is offering of the Verizon cross exhibits that have been marked what's marked 873, 878, 879, 883, 884, 885, 886, and 887 through 894 and then 899; is that correct?

MR. HUTHER: Your Honor, I believe it is, I'm joined at counsel table here by my colleague, Megan

Troy, who has been keeping better notes on these exhibits than I have, so I will defer to her.

MS. TROY: That's correct.

JUDGE MACE: Is there any objection to the admission of those proposed exhibits?

MR. KOPTA: No objection.

JUDGE MACE: I will admit them.

I understand that there are a couple of exhibits that were copied in a way that missed copying alternate pages and that Verizon will be supplying us with a corrected copy of those exhibits; is that correct?

MS. TROY: Yes, that's correct, that would be Exhibits 884, 886, and 887.

JUDGE MACE: Thank you.

All right, thank you very much, gentlemen, you're excused.

MR. HUTHER: Your Honor.

JUDGE MACE: Yes.

MR. HUTHER: One other I guess house, two other housekeeping matters, one pertaining to Dr. Mercer. During his testimony today regarding page 29 of his reply testimony, 861T, he discussed the analysis that appears to be still ongoing with respect to the 2.5% increase that resulted in a loop cost

increase, average loop cost increase of about 20 cents, and I don't mean to mischaracterize his testimony. What I took away from his testimony was that that actually may be changing, and what we would like to request either as a record request but preferably as a Bench request is the workpapers associated with the work that has been performed to make that analysis.

JUDGE MACE: Dr. Mercer.

DR. MERCER: Are you asking for a post -- let me ask that differently. Are you asking for that as it exists today or after we run the new model?

JUDGE MACE: After what?

DR. MERCER: After we run the new model.

MR. HUTHER: I would ask for both, because it seems that there -- you referenced some of this in your testimony. I understood your testimony this afternoon that that analysis was still ongoing and perhaps had caused you to change the conclusions that you had reached in your testimony here today, so I would want both the analysis that you performed up until this point and then once you make that change the workpapers associated with that effort.

DR. MERCER: Okay.

JUDGE MACE: And can you refer me to his testimony again that you're talking about?

MR. HUTHER: Yes, Your Honor, it is Exhibit 861T, and the page number is 29.

JUDGE MACE: Okay, thank you.

(Bench Request Number 20.)

MR. HUTHER: And then the last housekeeping matter actually pertains to the color photographs that we circulated at the end of the day yesterday. They were -- they pertained to Exhibit 454 of Mr. Richter's testimony, and they are replacement pages for the black and white copies that were contained within Exhibit WGR-3 entitled Thailand Distribution Terminal.

JUDGE MACE: Thank you, yes, I have already made that change on the list.

All right, let's turn then to response deadlines, and we have discussed Verizon providing a response to Dr. Selwyn's revision of Exhibit 655 that was his response to Bench Request Number 3, and that will be due June 11th.

With regard to the Verizon 7Ra, Verizon will do a sensitivity run by June 9th. By June 16th we will have AT&T's response to that sensitivity run, and then by June 18th Verizon will indicate whether it needs to make some additional response to that. Am I right on that?

MR. RICHARDSON: Yes, Your Honor.

JUDGE MACE: Mr. Richardson and I talked about that, and so I'm assuming that that meets Verizon's requirements.

MR. HUTHER: If he agreed to it, it surely does.

JUDGE MACE: Okay.

And then with regard to the Verizon response to HM 5.3a, I am advised that Mr. Dippon will take until June 18th to provide revised maps, although Mr. Murphy and Dr. Tardiff will provide their changes sooner than that. And then I was waiting from AT&T to find out when Dr. Mercer could indicate whether AT&T will need to respond to those changes, and I put down June 22nd, but I know you were going to discuss that with Dr. Mercer.

MR. KOPTA: Yes, I guess it would depend on -- we could certainly provide a substantive response within a week, and I would think that we probably would be able to determine whether there's a need for that or would request the opportunity to do that within two business days, so I think since the 18th is a Friday, then Tuesday the 22nd would be fine.

JUDGE MACE: All right.

Then the other thing that I wanted to address is the briefing schedule.

MS. SMITH: Your Honor.

JUDGE MACE: Sorry, I recognize that Staff has a need perhaps to analyze some of this information too. Go ahead, Ms. Smith.

MS. SMITH: Thank you, Your Honor. The Commission Staff would like the opportunity to provide something to the Commission in writing as to how any of the changes in the revisions to the HAI model might affect Staff's proposed rates in this case, and it also may have some impact on Staff's answer to Bench Request Number 8, so we wanted to alert you to that. And certainly if there is no impact to the Bench request we will get that to you in the time frame that we're supposed to, but.

JUDGE MACE: So by June 22nd?

MS. SMITH: Yes, Your Honor.

JUDGE MACE: Thank you.

MR. HUTHER: Your Honor.

MR. RICHARDSON: Could I just clarify on that. Would Staff's response then be, to 7Ra be June 16th to correspond with AT&T's; is that your contemplation?

JUDGE MACE: AT&T's response is June 22nd.

MR. KOPTA: I believe Mr. Richardson is talking about the Verizon model.

JUDGE MACE: Oh, sorry.

MR. SMITH: You're talking about the HAI model, aren't you?

MR. RICHARDSON: I apologize, I'm confused about revisions.

JUDGE MACE: All right, briefing schedule.

MR. HUTHER: One last thing, Your Honor. I know earlier I mentioned that Mr. Dippon would require at least two weeks in order to prepare the maps and that I thought that many of the calculations in Mr. Murphy or Dr. Tardiff's testimony could be completed sooner, I think I also mentioned that there may be the case that their testimony needs to be amended by virtue of what is contained in the maps, and so I would request two weeks for all of these witnesses to file their testimony as opposed to what I understood you to say a moment ago that Mr. Dippon's would come in two weeks from today and Mr. Murphy and Dr. Tardiff's would come in sooner than that.

JUDGE MACE: Well, I was reflecting that you indicated to me that Tardiff and Murphy could be done sooner, but I was assuming that June 18th was the deadline for all of them.

MR. HUTHER: Oh, very good.

JUDGE MACE: And if I didn't make that clear, I'm sorry.

MR. HUTHER: No, perhaps I misunderstood, thank you.

JUDGE MACE: So June 18th.

All right, the briefing schedule. My understanding is the parties are seeking an extension of the briefing schedule from the initial briefs from July 1st to is it July 15th and the reply briefs from July 22nd to August 12th. And my understanding of the reason for that is that Verizon is involved in a case in California, the similar or analogous case to this case in California, and that the same team is working on it and that Verizon was asking for the additional time so that they could conduct their work down in California and then file their brief here. And I am advised that Staff and AT&T agree with that. We have in the Commission several scheduling constraints.

CHAIRWOMAN SHOWALTER: I would like to address that question.

JUDGE MACE: Yes, of course.

CHAIRWOMAN SHOWALTER: First, in light of the additional information that needs to come in, is that still the briefing schedule that you want?

MR. HUTHER: What I guess has been agreed to are the dates that have just been addressed. I think that's the bare minimum that we could do. I mean yes

it's true that we are -- counsel and witnesses are also involved in this California case, but that's only part of it. It is definitely going to be affected by the testimony that won't be coming in now until the 18th, and so yeah, that is the bare minimum that we would need.

CHAIRWOMAN SHOWALTER: All right, I just wanted to make sure that's still the date you're asking for.

JUDGE MACE: So was it the 15th? I'm sorry, I didn't mark it down.

MR. RICHARDSON: Yes.

CHAIRWOMAN SHOWALTER: What I want parties to be aware of is by extending the briefing schedule two weeks, you are going to extend our order by quite a bit more than that, and it just has to do with people's schedule. And so you should not think that our order is going to get extended by just two weeks, it's going to be, you know, something on the order of two more months or so. So before -- so does everyone still want and/or agree to the briefing schedule?

MR. KOPTA: Well, obviously, you know, we would like to have a Commission order sooner rather than later. As far as I know, there are no constraints on the amount of time that you can take to issue an order.

I know that you try to do so expeditiously, and we certainly appreciate that. But at the same time, we want to give you the best product that we can to help you in making that decision, so given that there is a substantial amount of additional information, responses to Bench requests and replies to Bench requests, and if that's the result, then I guess that's what we'll have to live with.

CHAIRWOMAN SHOWALTER: Well, we will do our best, but it just so happens that it causes increments of time to be, not a proportional amount of time, to get the order.

MR. KOPTA: Well, thank you for letting us know that.

JUDGE MACE: Thank you.

One final thing I did want to address was a briefing outline, and I would like to have the parties coordinate and supply to me as soon as they can a suggested briefing outline. I like to see that before you go ahead and write your briefs.

MR. KOPTA: Absolutely, certainly that's been what we have done in past cost proceedings, and the parties will work together to come up with a joint proposed outline.

JUDGE MACE: All right. And when do you

think you would be able to have that?

MR. KOPTA: End of next week.

MR. HUTHER: That should be no problem.

JUDGE MACE: All right, thank you.

Is there anything else?

All right, then the record is closed.

(Hearing adjourned at 5:30 p.m.)