BEFORE THE WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION

In the Matter of the Continued Costing and Pricing of Unbundled Network Elements and Transport and Termination.	))))	Docket No. UT-003013 Volume XVIII Pages 1938 to 2099

A hearing in the above matter was held on March 27, 2001, at 9:30 a.m., at 1300 South Evergreen Park Drive Southwest, Room 206, Olympia, Washington, before Administrative Law Judge LAWRENCE BERG and Chairwoman MARILYN SHOWALTER and Commissioner RICHARD HEMSTAD and DR. DAVID GABEL.

The parties were present as follows:

COVAD COMMUNICATIONS COMPANY, by BROOKS E. HARLOW, Attorney at Law, Miller Nash, LLP, 601 Union Street, Suite 4400, Seattle, Washington 98101.

THE WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION, by GREGORY J. TRAUTMAN and MARY TENNYSON, Assistant Attorneys General, 1400 South Evergreen Park Drive Southwest, Post Office Box 40128, Olympia, Washington, 98504-0128.

QWEST CORPORATION, by LISA ANDERL, Attorney at Law, 1600 Seventh Avenue, Suite 3206, Seattle, Washington 98191.

VERIZON NORTHWEST, INC., by JENNIFER L. MCCLELLAN and MEREDITH B. MILES, Attorneys at Law, Hunton and Williams, 951 East Byrd Street, Richmond, Virginia 23219.

Joan E. Kinn, CCR, RPR
Court Reporter

RHYTHMS LINKS, INC. AND TRACER, by ARTHUR A. BUTLER, Attorney at Law, Ater Wynne, LLP, 601 Union Street, Suite 5450, Seattle, Washington 98101.

ELECTRIC LIGHTWAVE INC.; ADVANCED TELECOM GROUP, INC.; AT&T COMMUNICATIONS OF THE PACIFIC NORTHWEST, INC.; MCLEOD USA TELECOMMUNICATIONS SERVICES INC.; FOCAL COMMUNICATIONS CORPORATION OF WASHINGTON; AND XO WASHINGTON, INC.; by MARY E. STEELE, Attorney at Law, Davis, Wright, Tremaine, LLP, 1501 Fourth Avenue, Suite 2600, Seattle, Washington 98101.

WORLDCOM, INC., by ANN HOPFENBECK, Attorney at Law, 707 - 17th Street, Suite 3600, Denver, Colorado 80202.

INDEX OF EXAMINATION

INDEX OF EXHIBITS

EXHIBIT:	MARKED:	ADMITTED:
TERESA K. MILLION		
1022	2043	2043
C-1039		1963
1040, C1040		1963
RICHARD J. BUCKLEY, JUNIOR		
T-1050	2044	2045
1051, C-1051	2044	2090
ROBERT J. KENNEDY		
T-1060	2098	
1061	2098	
T-1062	2099	
E-1062	2099	
1063	2099	
1064	2099	

P R O C E E D I N G S

JUDGE BERG: This is a continuation of hearings in Docket Number UT-003013. Today's date is March 27, 2001. Today's session, we will resume cross-examination of Qwest witness Ms. Teresa Million. We have had some off the record discussions regarding the numbering of exhibits and order of witnesses, but we have nothing further to put on the record at this point in time.

We will be off the record.

(Discussion off the record.)

JUDGE BERG: Ms. Million, I will remind you that you remain subject to the affirmation/oath that you took yesterday.

THE WITNESS: Yes, thank you.

JUDGE BERG: All right, Mr. Harlow, when we left off, you were going to check your notes and see if you had any follow-up questions. Do you have any further questions at this point in time?

MR. HARLOW: No, Your Honor, thank you.

JUDGE BERG: Ms. Anderl, I understand that there was a clarifying question you wanted to present to Ms. Million before we go any further.

MS. ANDERL: Well, yes, more in the nature of a correction.

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

BY MS. ANDERL:

Q. Ms. Million, with regards to the questions and answers in connection with the unbundled dark fiber cost study that you and Mr. Harlow had yesterday, do you have any corrections that you need to make to your testimony after you have had a chance to review the matter further?

A. Yes, I do.

Q. Go ahead.

A. Discovered last night and in conversations this morning that the methodology that I discussed yesterday about the 12 kilofoot crossover for the unbundled dark fiber in the loop was incorrect. When we originally discussed how we were going to cost this product out, that was the intention. We developed methodologies around using this 12 kilofoot crossover and trying to mirror essentially the unbundled dark fiber in the loop, and that was the intention.

And in discussions with Mr. Buckley last night and then this morning with some of our cost analysts back in Denver, we found out that the cost analyst who ran that particular model disregarded those instructions and unilaterally decided to use a different

methodology to determine the cost for unbundled dark fiber in the loop. And then he subsequently retired and left the company, and so I didn't have a chance to follow up with him after he developed this. I was under the impression all the way along that the costs that we were developing was based on that understanding, and then the people that took over the cost study after he left didn't realize that I didn't know that the methodology had changed.

I do have to say that the reason that he changed the methodology was made pretty clear to me this morning. The methodology that we had originally thought would be appropriate resulted in significantly higher costs for unbundled dark fiber in the loop, and the analyst believed that the more appropriate way to do that was to reflect dark fiber the way that fiber was being used for other products such as DS3s and DS1s and so forth.

And so that whole discussion about 12 kilofoot crossover and that being the method was absolutely incorrect on my part.

E X A M I N A T I O N

BY CHAIRWOMAN SHOWALTER:

Q. Then the numbers that the study has actually

produced is the alternate methodology that the analyst used?
A. Yes, it is.
Q. And the company, your company is standing by the results of those --
A. Yes.
Q. That study and that methodology?
A. Yes, they are. It reflects fiber in the entire loop from the wire center out. It does not assume copper in the first 12 kilofeet. And what we found out when we ran it was that the other method resulted in a higher cost, and the, like I said, the analyst did not believe that that was appropriate, and so he changed the method, but he didn't let me know.
Q. So the current numbers assume on a going forward basis that fiber would be used for the entire length?
A. What it does is it says that for dark fiber, because you can access it, and this I said yesterday, because you can access it anywhere that it exists, anywhere that's technically feasible within the loop, he changed the assumption to reflect that you would find fiber anywhere in the loop, and so therefore that was the appropriate way to price it.
JUDGE BERG: Mr. Harlow, do you have any

follow-up questions based upon Ms. Million's correction?
MR. HARLOW: I want to know the name of that analyst and so we've got an analyst apparently who picks the lowest cost method.
JUDGE BERG: I presume he's retired since he isn't available as an expert witness.
MR. HARLOW: Let's hope it wasn't a forced retirement.
No, no questions, Your Honor.
JUDGE BERG: All right, thank you.
MS. ANDERL: Thank you, Your Honor, for allowing us to do that.
JUDGE BERG: I appreciate it.
Mr. Butler.

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

BY MR. BUTLER:

Q. Good morning, I just have a few questions with respect to some of your testimony, clarifying questions with respect to your testimony in Exhibit 1009, specifically if you could turn to page 30, and if you could also get out Exhibit 1019, please.

A. And, I'm sorry, 1019?

Q. 1019.

MS. ANDERL: Which, Ms. Million, is your

TKM-25.
Q. Do you have those?
A. Yes, I do.
Q. In Exhibit 1009 at page 30, you're responding to a point made by Mr. Weiss, and you're discussing a situation where OC3 might be used in specifically a scenario that you're postulating where it might be possible to aggregate the demand from a number of entities or customer locations?
A. Yes.
Q. The architecture that you're referring to there, if you could refer us to Exhibit 1019, is that architecture number 3 on that list that you're talking about?
A. Yes, it is, because that was the architecture that Mr. Weiss was using in his example.
Q. When you use the term OC3 in your testimony on that page, are you referring to the OC3 equipment that's identified in architecture 3; is that what you're talking about?
A. Yes, I am.
Q. So when you say -- you use the term OC3, you're referring to one set of equipment; is that correct? Let me back up.
A. Okay.

Q. Looking at the architecture on page two I guess it is of Exhibit 1019, there is central office or hub equipment.

A. Yes.

Q. And there is premises equipment. I assume that means end user customer premises equipment?

A. Correct.

Q. And except for a few small differences, it appears that that equipment is identical; is that correct?

A. Yes.

Q. So when you're talking about OC3 in Exhibit 1009 at page 30, you're referring to essentially one set of that equipment?

A. Yes, I am. In discussing what we have costed, you would be talking about one set of that equipment. And what I'm trying to clarify in my testimony on page 30 of Exhibit T-1009 is that if you were to try to aggregate demand across multiple locations, as it appears that Mr. Weiss is doing with the demand numbers that he's coming up with, you would have -- you would have the equipment at the central office location and fibers going to an end user location, and then you would have, in a ring type of situation, you would also have that same premises or end

user location equipment at the next end user location and at the next end user location and at the next end user location. And so you can't just stick with equipment at one central office and one end user location and assume that you can aggregate without increasing your costs dramatically, because you have to have this OC3 equipment deployed at each of the end user locations, each capable of 84, a capacity of 84 DS1s, but maybe only being utilized for 28 at each of three locations.

Q. Let me try to restate at least what I understood that you just said, and correct me if I'm wrong. If you were to set up an arrangement to aggregate the demand from a number of end user locations, it's your testimony that the only way in which you could do that would be to place one set of this OC3 equipment at each end user customer location; is that correct?

A. That's correct.

Q. And so when -- and you would have one set at the central office; is that correct?

A. Yes.

Q. Not three sets, but one set?

A. Right, you would have one set at the central office with -- that might be able to serve, for example,

84 DS1s.
Q. Right.
A. But if you were going to aggregate demand across three locations, you would have three more -- you would actually have three sets of premises equipment then, and each of those locations would only be able to contribute say a maximum of 28 DS1s at each of those locations to aggregate back to 84 at the central office. In other words, the central office equipment can't handle more than 84, so if you're going to aggregate at multiple locations with all of that equipment, you've got capacity for 84 out at each of the end user locations, but you're only using if you're splitting it equally maybe 28 at each of the three locations.
Q. So on line 12 when you say that the limitation results in the use of a total of four OC3s, what you're talking about there is four sets of this equipment, one in the CO --
A. Right.
Q. -- one at each of the customer locations, not four OC3 circuits?
A. Well, you actually have -- what you've got then is no --
Q. I mean like circuit four complete sets of --
A. No, you've got the central office equipment

and then something at each of three premises. And then you've got fiber between each of those, because you've got, in order to construct the ring, you've got four fibers then going to the OC3 at first premises, and in a ring scenario you might then have four more fibers going to the next end user location, or you might actually be going from the central office out to that end user location depending on how you built that.

Q. But you're not running fiber from each customer premise to the central office with another set of the central office equipment?

A. No.

Q. That's not what you're saying?

A. No.

Q. Okay.

A. What I'm saying is in total you have one central office plus three end user locations.

MR. BUTLER: That's fine, that's all my questions, thank you.

JUDGE BERG: All right, I will say we certainly appreciate on the Bench the lively exchange, but I would also just remind witnesses and counsel that it makes it very difficult for the reporter to accurately record the conversation when people are talking over each other.

Commission Staff.
MR. TRAUTMAN: Yes, thank you, Your Honor.

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

BY MR. TRAUTMAN:

Q. Good morning, Ms. Million.
A. Good morning.
Q. I first have a few questions regarding Exhibit C-1021 that was admitted yesterday.
A. Okay.
Q. And that's a multipage exhibit. On the front it has a list of 15 states.
A. Yes.
Q. Do you have that?
A. Yes, I do have that.
Q. And turning to pages six through nine, these pages have the different architectures that Qwest used in its study and weightings that were assigned to each architecture; is that correct?
A. Yes, it does.
Q. And is it correct that yesterday you indicated that the weightings were provided by subject matter experts?
A. Yes.
Q. What bases did the subject matter experts use

to assign the weightings?
A. Their experience with the way that DS1s are deployed in the network and the way that we will be deploying DS1s and DS3s in the future.
Q. Did the subject matter experts consider the architecture types that are already deployed in Washington?
A. The subject matter experts, I don't know that they specifically targeted what's deployed in Washington. They targeted the architectures that are deployed or are being deployed by Qwest throughout the region.
Q. Why did they not consider the types of architecture already deployed in Washington?
A. I guess my answer to that would be that in a forward looking model, you're going to model the architectures that you're using or you're expecting to use going forward, and so that wouldn't necessarily just revolve around architectures that you're using in one state over another. It would be a mix of everything that you're utilizing throughout the network.
Q. If you could turn to page 11 of that same exhibit, which is the last page.
A. (Complies.)
Q. Line 27 says in column N and column M, it

says no warehousing; do you see that?
A. Yes, I do.
Q. What does that mean?
A. It means that this is a TIF that was developed assuming that you didn't need to warehouse the equipment, that it was going to be transported directly to the job site. And so the factor that would normally be developed for warehousing is not included in this calculation.
Q. Where would the TIFs that are located under the no warehousing columns, where are those found or where are they developed in your testimony?
A. I don't develop them specifically in my testimony. In some responses to a number of data requests regarding the TIF, the description of warehousing and no warehousing is included. Those were Data Request Number 5 from the Staff and the supplements 1, 2, and 3. In that data is a complete description of the development of the TIFs and includes a showing of the TIF with no warehousing included. It also includes the TIF with power and without power included.
Q. If you could turn to Exhibit C-1013, that's your TKM-19C.
A. (Complies.)
Q. And on --

A. I have it.
Q. And on page two of that exhibit, you indicate that Qwest has always presented its material investments on a fully loaded basis using a TIF, a T-I-F?
A. Yes.
Q. To arrive at the amount; is that correct?
A. Yes.
Q. And you cite, for example, Exhibit C-115 from Docket 960369?
A. Yes.
Q. And turning to what's been marked as Exhibit C-1039, which is a portion of Exhibit C-115.
A. Yes, I have that.
Q. Turning to the last page of that exhibit, does that page show the loadings that are applied to the investments in the WINPC3 model?
A. Whoops, I'm looking at the wrong exhibit, I'm sorry.
Q. It's the exhibit that on the front says U S West Communications cost manual.
A. Yes, I had something attached behind it.
Q. Okay. And the page I'm looking at on the top says loaded investment subtotal.
A. Yes, this page shows the power factor and the sales tax factor and the Telco and construction factors

which are part of the TIF and show the loading of investments, yes.
Q. If the material costs that are loaded using the TIF factor are then run through the WINPC3 model to produce the monthly recurring cost, would some of the loading factors be applied twice?
A. No, they are not.
Q. If you could turn now to what was marked as Exhibit C-1004, and that was your TKM-10.
A. Yes, I have that.
Q. Do you have that?
A. Yes, I do.
Q. And I'm looking at I believe it's the 14th page of the exhibit. At the top it says WINPC3 ACF outputs, page 1 of 3, and underneath it there are -- there's a matrix with 24 lines.
JUDGE BERG: Mr. Trautman, would you give the Bench one more reference with how to have -- how to find that. I'm having trouble locating it.
MR. TRAUTMAN: I believe it's the 14th page of the exhibit. At the top of the page, it says WINPC3 ACF outputs and --
CHAIRWOMAN SHOWALTER: Are we talking about Exhibit C-1010?
MR. TRAUTMAN: No, it's C-1004.

CHAIRWOMAN SHOWALTER: I'm sorry.
MR. TRAUTMAN: It was her TKM-10.
CHAIRWOMAN SHOWALTER: I'm sorry.
MR. TRAUTMAN: Yeah, Exhibit C-1004.
JUDGE BERG: And, Mr. Trautman, is this on the confidential page, the page that starts with subheadings at line 40?
MR. TRAUTMAN: No.
JUDGE BERG: All right, turn back.
MS. ANDERL: Probably one page prior.
MR. TRAUTMAN: One page prior.
CHAIRWOMAN SHOWALTER: What's in the upper right-hand corner?
MR. TRAUTMAN: Page 1 of 3.
JUDGE BERG: Okay.
MR. TRAUTMAN: TKM-10, it says Docket Number UT-003013 Part B, and there should be 24 lines on the page.
MR. TRAUTMAN: Do you have that?
THE WITNESS: Is this --
MR. TRAUTMAN: That looks like it's the right page, line 12, it says total installed factors.
THE WITNESS: Yes.
MR. TRAUTMAN: Okay, and lines 13, 14 and 16 are the power, the sales tax, and the interest during

construction factors.
THE WITNESS: Correct.
CHAIRWOMAN SHOWALTER: Can I remind the parties this is why we have a rule that all exhibits be numbered consecutively. It's so we can find the page easily.
MS. ANDERL: Yes, Your Honor, we apologize. This was back in August, and I think --
CHAIRWOMAN SHOWALTER: We have had this rule longer than that.
MS. ANDERL: We're better now, but I do understand.
BY MR. TRAUTMAN:
Q. Those factors, 13, 14, and 16, those are part of the TIF; is that correct?
A. Yes, they are.
Q. Now are they being counted again?
A. No, they're not. This is simply a listing of release dates and an indication of what is included, but those would be a part of the TIF. They're developed separately as we have explained in the annual cost factors book, and so they each have their own release date, but they are calculated as a part of the TIF.
Q. So where would one look in your exhibits to determine if any loading factors or which loading

factors were applied by the WINPC3?
A. Well, the TIF factor gets applied in the cost model producing the investments, and so the investment that comes over from the cost model comes fully loaded. And then the WINPC3 simply applies the expenses associated with that investment to develop the direct cost and the monthly cost. And so if you go back to the work sheet that is shown as total product cost at the top.
Q. And where is that work sheet?
A. That is -- it's directly behind -- well, again, on mine, it's showing as page seven up in the right-hand corner. It's a page that looks like this, and it's a -- it says total product costs up at the top. That shows you that you take the investment -- again, you're starting in what's labeled as column B.
MS. ANDERL: Ms. Million, I think we need a better description of where that's located in the exhibit.
CHAIRWOMAN SHOWALTER: It's not just that we're having trouble up here, it's that the record if you read it, no one is going to know how to go to what page.
THE WITNESS: I apologize.
CHAIRWOMAN SHOWALTER: So what exhibit, and

then let's count the pages.
THE WITNESS: It's Exhibit C-1004, and I have it as my first page of C-1004, but it could be the second page in.
MS. ANDERL: Your Honor, may I approach the witness?
JUDGE BERG: Let's be off the record for a moment.
(Discussion off the record.)
A. So the question is, how do you tell what is applied. And again, as I was explaining, the investment number that you see up at the top of the page in the shaded area, for example, in column B, the column marked B, is the investment that comes over from the cost model with the TIF already applied. That's your total fully loaded investment.
And then the factors that get applied after that are all shown in the left-hand column of the page and are detailed with the factor amounts shown under column A titled factor value. So after you have applied the TIF that gives you the fully loaded investment, only these factors shown down the left-hand side of the page apply to that investment amount.
BY MR. TRAUTMAN:
Q. All right, thank you. If you could now turn

to what's been marked as Exhibit C-1040, and this was a response to Staff Data Request Number 6.
A. Yes.
Q. And is this response a recalculation of the dark fiber cost that substitutes Washington specific sheath mile weighting for the Qwest system wide weighting?
A. Yes, it is.
Q. And is it correct that in the 13th Supplemental Order that was entered in Part A of this docket that the Commission expressed a preference for using Washington specific data for determining costs? And I would refer particularly to Paragraph 258 of that 13th Order. I believe that I gave you a copy. It's on page 85.
A. Yes, it does say that.
Q. And would Qwest agree that the dark fiber costs that are shown in Exhibit C-1040 should be substituted for the costs that Qwest originally filed in this case?
A. Yes.
Q. And let me ask you about Exhibits C-1039 and C-1040, are those true and accurate to the best of your knowledge?
A. Yes, they are.

MR. TRAUTMAN: I would move for admission of Exhibits C-1039 and C-1040.
MS. ANDERL: No objection.
JUDGE BERG: All right, and indicate C-1039 1040, and C-1040 are admitted.
BY MR. TRAUTMAN:
Q. If you could now turn to your rebuttal testimony, which was T-1009.
MS. ANDERL: Do you have it?
THE WITNESS: Yes, I do have it.
BY MR. TRAUTMAN:
Q. Do you have that?
A. Yes, I do.
Q. And I'm on page 4, lines 13 and 14. And at that part of your testimony, you state that Qwest has complied or is complying with the Commission's previous directives, and in the footnote you cite Paragraph 474 of the 8th Supplemental Order?
A. Yes.
Q. In Docket UT-960369; do you see that?
A. Yes.
Q. And do you agree that the Commission in that order in that paragraph provided directives only for Qwest to revise its nonrecurring cost studies filing in that case?

A. Well, as I read this, it says:
We will require U S West to modify its other nonrecurring studies in a manner consistent with our findings as fully described above.
And we read that as something that should apply generally to nonrecurring studies as a result of their order.

Q. Okay. Let me ask you then did the Commission state that all future nonrecurring cost studies would be deemed proper if they incorporated these modifications?

A. No, it does not state that.

Q. And at your rebuttal testimony on page 5 on lines 10 through 13, you talk about the times and probabilities in the study; do you see that?

A. Yes.

Q. And you state that Qwest aligns the times and probability estimates in the study with those approved by the Commission for nonrecurring charges?

A. Yes.

Q. Could you provide me with some examples of how the company has aligned the times and probabilities with the previous Commission decision?

A. By using six minutes as our time for processing in the interconnect service center for each

of the products represented by the nonrecurring studies.
Q. Is the six minute figure for connection or for disconnection?
A. It's for all processing in the interconnection service center, I believe. I would point out, if I may, that the rest of that paragraph in the 8th Order says that:
> If the revised studies do not reflect the letter and spirit of this decision, we will make identical adjustments to other studies according to our findings. So our presumption was that the six minutes was the appropriate thing to do and reflected the Commission's desires with regard to nonrecurrings.

Q. If you could turn to Exhibit C-1010, and also there's a nonconfidential portion, and this was your TKM-16. The confidential part had, I believe, 415 pages. I'm just looking at the nonconfidential.
A. Yes.
Q. The executive summary of the 2000 nonrecurring cost study.
A. Yes.
Q. And turning to page eight at the top of the page, there is reference to time estimates and probabilities.

A. Yes.
Q. Is it correct here that Qwest states that --
JUDGE BERG: Excuse me, counsel.
MR. TRAUTMAN: Oh.
JUDGE BERG: I don't find the exhibit that you're referring to as -- well, excuse me, 1010, nonconfidential, okay. Pardon the interruption.
BY MR. TRAUTMAN:
Q. And is it correct that here Qwest states that these estimates for the time estimates and the probabilities are based on subject matter experts and not the Commission's directive?
A. This executive summary is the generic executive summary that applies for our nonrecurring studies for all of our states. We did not modify that to state in the executive summary that we had used the six minutes. Our normal process in preparing nonrecurring cost studies would be to use time estimates and probabilities provided by subject matter experts, and that's true for the remainder of the times that you find in these studies not related to the interconnect service center. The interconnect service center was modified to show the six minutes, but the original nonrecurring study that we filed before we realized that we hadn't made the six minute adjustment would have

reflected our time estimates that the company would have used.
Q. So the six minute adjustment was the only part that you took from the Commission directive, right, the remainder was based --
A. And the connect, disconnect, splitting those out as separate items.
Q. And then the remainder came from the subject matter experts?
A. Yes, that's true.
MR. TRAUTMAN: Thank you, that's all I have.
JUDGE BERG: Dr. Gabel, why don't you begin your questioning, and we will continue until the commissioners need to leave the Bench.

E X A M I N A T I O N

BY DR. GABEL:
Q. Good morning, Ms. Million.
A. Good morning.
Q. I would just like to begin by talking a little bit more about the six minute number which has been the focus of a lot of the cross-examination. Just in preparation for this proceeding, did you review the record from the last generic cost docket to see how the value of six minutes was arrived at by the Commission?

A. Yes, I am aware of how the six minutes was arrived at.

Q. Could you explain for the record your understanding of who initially proposed the six minute value?

A. I understand that that was a number that was put forth by a cost witness from U S West in a proceeding and that that number was adopted by the Commission.

Q. Okay. And did you review the testimony from when that U S West witness announced that this was the proper value; do you know what was the context of proposing this value of six minutes?

A. I don't recall specifically, but I do know that that was a number that was suggested by the cost witness.

Q. And do you recall if the cost witness said that this was the appropriate number for connections and disconnections, or was it --

A. I don't recall, I apologize.

JUDGE BERG: Ms. Anderl, we're going to have a Bench request, and let me take one second just to check our Bench request list from the prior proceeding to retain the proper numeration. I believe that was in the supplemental order from the Commission. I don't

have that number with me right now, but let's just start with the 100 series, and we will call this a Bench Request 101, and that would be for information or data regarding the origination and development of the six minute standard that's been referred to.

DR. GABEL: Including in the response, was the six minute value intended to represent the time associated with the origination of the order or both the origination and the termination?

THE WITNESS: All right.

MS. ANDERL: And, Your Honor, the normal due date on those unless we hear otherwise, ten days?

JUDGE BERG: That's right, that would be great, and we will confirm that actual date on a break.

MS. HOPFENBECK: Could I ask a question, do we have a number what Bench request number is that; I missed it?

JUDGE BERG: This will be Bench Request 101.

MS. HOPFENBECK: Thank you.

BY DR. GABEL:

Q. Ms. Million, I would like to ask you to turn to the Commission's 8th Supplemental Order in Docket UT-960369, specifically starting at page 87 running through page 94, the Commission's Section 12, nonrecurring costs.

A. Yes, I have that.
Q. Are you familiar with that portion of the Commission's order?
A. Yes, I have read through it.
Q. And you are aware that one issue that the Commission addressed during the proceeding is the treatment of evidence submitted by subject matter experts?
A. Yes, I'm aware of that.
Q. And you are aware that in that proceeding the Commission asked the parties to address how can the Commission validate the opinion of subject matter experts?
A. Yes, I am aware of that.
Q. And that Paragraph 454 of the Commission's order reads that:
U S West in response to this question suggests that validation of the nonrecurring cost numbers may not be possible;
Were you aware of that --
A. Yes.
Q. -- was U S West's position in the last proceeding?
A. Yes.

Q. And would it be an accurate characterization then in this proceeding the Commission has received opinions of subject matter experts from Qwest that differ from the subject matter expert opinion offered by Mr. Weiss?
A. That our estimates do not necessarily agree with Mr. Weiss's estimates, yes, that's true.
JUDGE BERG: Off the record.
(Discussion off the record.)
JUDGE BERG: We will take a half hour recess for the commissioners to take care of some necessary Commission business, and we will begin again at 11:00.
Off the record.
(Recess taken.)
JUDGE BERG: While we were off the record, there was some discussion regarding the numbering of Bench requests. I would just like the record to reflect that the Bench request that was previously issued this morning identified as 101 is changed to be Bench Request Number 21.
And with that, Dr. Gabel, please resume your questions for Ms. Million.
BY DR. GABEL:
Q. Ms. Million, before we took the break, we were talking about the portion of the 8th Supplemental

Order in UT-960369 that addresses nonrecurring costs, and I pointed out to you in Paragraph 454 that U S West suggests that a validation of these nonrecurring cost numbers may not be possible. Do you believe that it would be possible to validate these numbers by undertaking a time and motion study?

A. I suppose that there are a number of different ways that you could do validation, and a time and motion study would certainly be one of them.

Q. Did Qwest consider undertaking a time and motion study as a way of validating this assumption of its subject matter experts?

A. No, we did not for this proceeding, no.

Q. In any proceedings in --

A. Not that I'm aware of.

Q. Also on returning to the topic of the six minutes associated with the interconnection service center, did I understand correctly in your responses to questions from the parties yesterday that it's Qwest's position that six minutes may be too high of a number for using of the UNE combination but too low of a number for the placement of other types of orders?

A. Yes, I believe that would be a fair assessment of what I was indicating, that with regard to UNE-P six minutes is probably -- well, and let me

clarify. We're not using six minutes here for UNE -- the UNE-P or the UNE-C POTS, because we're using the old CTC numbers. But six minutes would be high somewhat today for that particular service as well as for CTC, whereas it's very, very low in comparison for everything else that's in here, DS1s and DS3s and all of the rest of the services that we are offering under the nonrecurring study.

Q. So is it your belief that we have a situation where maybe some numbers are too low, some numbers may be too high, and these two may average out or --

A. I haven't done a study to verify what the impact is, but knowing how high they are and how many services the six minutes applies to where that is something that we consider to be significantly understated as opposed to the few services where the six minutes may be on the high side, I would say that the balance tips definitely in favor of lower costs here overall for nonrecurrings than would probably be experienced if we went back to what we really believe are the appropriate times for the interconnect service center.

Q. Am I correct, Ms. Million, that in Phase A of this proceeding, you sponsored a demand forecast for OSS which would indicate what percentage of the orders would

be associated with resale or UNE combination or other UNEs?
A. Yes, I did sponsor that. I don't recall what those percentages might be right off the top of my head, but yeah. Yes, we did develop something that indicated what portions were for each different type of service.
Q. And that evidence is on the record from Phase A and would be possible to -- well, I will just leave it there.
A. Yes.
Q. Okay. I would like to turn to Exhibit 1001. That's your direct testimony filed on August 4th. Page 10, lines 5 through 12.
A. Yes.
Q. All right. First, here you discuss the UNE platform. By UNE platform, do you mean by that the loop plus the port, or is there more to the UNE platform than just those two elements?
A. I guess I would prefer that Ms. Brohl address specifically what's included, but the UNE platform to me is the same thing as a loop or dial tone service to an existing customer.
Q. Am I correct that it is Qwest's position that the price for the UNE platform is the sum of the components?

A. For the recurring costs, that's true.
Q. And would you agree that the UNE platform includes the port charge plus the loop charge?
A. Yes, I would.
Q. All right. And it is your view, Qwest's view, that the proper rate for the UNE platform would include the sum of those two rate elements?
A. Yes, it would.
Q. Are you familiar with the Commission's discussion in the prior generic cost docket with grooming and how that affects the cost of providing the unbundled loop?
A. I have read the prior information, but I don't have that particular thing committed to memory.
Q. Do you recall there being discussion in the prior Commission's order where the RLCAP loop cost estimate was adjusted upward to reflect the cost of grooming out that loop?
A. Yes, I am aware of that.
Q. And would you concur that if a CLEC was to offer the platform that the cost of the grooming would not be incurred by Qwest, because the CLEC would be ordering both the port and the loop, and therefore there would not be a need for grooming?
A. I really haven't thought that through. I

think I would have to get back to you on that.
JUDGE BERG: As a Bench Request 22, Dr. Gabel, would you go ahead and restate the point.
DR. GABEL: For Qwest to address how its UNE platform price addresses the manner in which the loop price was established in UT-960369 specifically for the RLCAP portion where an adjustment was made for grooming.
MS. ANDERL: And if I may just ask for some clarification, are you talking about the Commission ruling where when the loop and the port are ordered together, the loop price is reduced?
DR. GABEL: Yes.
MS. ANDERL: And so is the question simply when we're selling UNE-P, will we be charging the lower component of the loop price to reflect that?
DR. GABEL: Yes.
MS. ANDERL: We can answer that.
DR. GABEL: Okay.
MS. ANDERL: And I think it's yes at this point. And I guess the only thing I haven't thought through and that maybe we need to work on for you is how is that de-averaged.
JUDGE BERG: All right, let's modify the Bench Request 22 then for a confirmation. We will accept that yes as a preliminary yes, and you can go

ahead and provide a confirmation. And if it is yes, possibly you can also provide some position as to how that would be addressed in a de-averaged environment.

MS. ANDERL: Thank you, Your Honor, we will attempt to do that on the record so that the answer is provided during the hearings.

JUDGE BERG: All right.

MS. ANDERL: Mr. Reynolds is developing the costs even as we speak. I think I will wait until we have some time to confer, and then we will confirm our response.

BY DR. GABEL:

Q. Now I would like to ask you to turn to page 14 of that same document. At line 11 you discuss inside wiring?

A. Yes, I do.

Q. And am I correct that Qwest has now sponsored a cost study for inside wiring?

A. We have sponsored a cost for building cable.

Q. And you sponsor that study?

A. Yes, I do.

Q. And would you concur that in Phase I, the company's RLCAP cost study included the cost of inside wiring for high-rise buildings, and that would be in what I believe RLCAP called group 1 type customers?

A. Yes, it does, that would be DG1 in RLCAP model.
Q. And could you explain what's the relationship between your new inside wiring cost study that you have sponsored in this proceeding with the building wiring costs that were identified in the RLCAP study that was considered in the last proceeding?
A. The costs that are a part of the building cable study include the costs for the building terminal and an estimation of the building cable that would have been included in DG1.
Q. And the input values that were used in the studies, would they be the same or different costs, or were different inputs used in the two studies?
A. I haven't made a direct comparison of the two studies. I can tell you that it was based on the same DG1 inputs or information. I don't know that the vintages were exactly the same between the original study and the current study, but certainly the information around DG1 would have been the same.
DR. GABEL: As a third request from the Bench, could you make a comparison between the RLCAP DG1 inputs that were submitted in the last proceeding with the inputs used in the inside wiring study that was submitted in this proceeding?

THE WITNESS: Yes, we could do that.
JUDGE BERG: And that will be Bench Request 23.
BY DR. GABEL:
Q. On this same exhibit turning to page 15, you have a discussion about your dark fiber cost study and the assumption that only copper would be used in the first 12 kilofeet of the central office?
A. Yes.
Q. Okay.
A. And that's the piece of testimony that I corrected this morning.
Q. Okay. Now I understand from your response that the cost analyst that took the study made different assumptions that the cost analyst felt to be more reflective of the way in which Qwest actually provides dark fiber?
A. If I could answer that this way. I think what he did was make assumptions that were more reflective of the way fiber is found in the network, and he believed that utilizing the information that related to DS3s, provisioning of the DS3 service, was more appropriate to reflect fiber in the loop than using this 12 kilofoot crossover methodology.
Q. So when you refer to DS3, did the analyst

look at the DS1 and DS3? Was there a DS1 and DS3 loop study submitted in the last proceeding by Qwest?
A. No, those were submitted in this proceeding.
Q. Okay.
A. And the DS1 includes the eight architectures that include some copper, whereas DS3 is strictly based on fiber.
Q. Okay. I want to also ask you about the fiber transport, dark fiber, the dark fiber transport studies submitted in this proceeding. Am I correct that in UT-960369 that Qwest submitted a DS1 switch transport study and a DS3 switch transport study?
A. I'm sorry, I'm not familiar with the switch transport that was provided previously.
Q. I believe if you were to review the record, you would see that in Exhibit C-115 from that last docket, tab 8 and tab 10 had such studies. And my question was, did you make any comparison between the fiber transport costs that were included in the DS1 and DS3 switch transport studies in the last proceeding with the fiber transport costs that you're reporting in this proceeding?
A. No, I did not make such a comparison, but I can tell you that the cost analyst that performed those studies in the last proceeding is the same cost analyst

that models and performs those studies currently.
MS. ANDERL: Dr. Gabel, excuse me for interrupting. You referred to that as DS1 and DS3 switch transport. Is that also direct trunk transport as we have sometimes referred to it?
DR. GABEL: It could be. That's the title on the tab. It says tab 8, DS1 switch transport.
MS. ANDERL: Because we, of course, have the distinction. I think the prior U S West distinction between the two types of transport were tandem switched transport and direct trunk transport, and I guess since that's our cost model, we can go back and check which that is.
DR. GABEL: Well, again as a Bench request since interoffice transport was previously considered by the Commission, I would just like you to undertake a comparison about if you could identify any significant difference in assumptions between the dark fiber transport study that you have filed in this proceeding with the transport studies that were submitted in UT-960369.
JUDGE BERG: That would be Bench Request 24.
THE WITNESS: Yes we can do that.
BY DR. GABEL:
Q. Staying on the topic of cost studies, are you

familiar with what's known as the FCC's UNE Remand Order which was released December 23rd, 1999, this is FCC 99-413?

A. Yes, I am familiar with that.

Q. And is it your understanding that the FCC addressed in that order the provision of advanced telecommunications services and U S West's obligations under Section 251 for providing advanced telecommunications services?

A. Yes, that's my understanding.

Q. Okay. And does that order address, for example, or in some part the pricing of the -- or does it address U S West's obligation to provide interconnection to its packet switching or frame relay services?

A. I do recall that there's an -- there is a provision about packet switching that relates to, as I recall, it relates to remote location of DSLAMs, and there are certain provisions under which we're required to provide packet switching.

Q. Okay. And when you provide packet switching under Section 251C, does Section 251C require you to provide packet switching at a cost based rate to interconnecting firms?

A. I believe that there are circumstances that

are outlined in here that would allow for cost based rates for packet switching, yes.
Q. And in this proceeding, you haven't submitted a cost study for packet switching?
A. No, we have not.
Q. And could you explain why?
A. That's a product that's still under development. There are ongoing discussions, it's my understanding, both in the workshops that we're conducting for Section 271 and at the FCC about remote collocation and the issues that are attendant with that. And so we're just now starting to get some definition around what that product is. And I do believe that the costs for that are under development, but I don't know that we have cost studies prepared at this point.
Q. Now I would like to ask you a few follow up questions regarding some of the exhibits that you were asked about yesterday. My first question applies to confidential Exhibit 1024, page 23.
A. I have that.
Q. Am I correct that this study was completed in 1998 and was forward looking through 1999?
A. Yes, that's what's reflected here.
Q. Okay.
DR. GABEL: And turning to page 24, is there

any objection by counsel if I read into the record the second sentence that appears at the top of the page?
MS. ANDERL: No objection.
BY DR. GABEL:
Q. So the second sentence states that these times are based on the projected savings with partial order creation by IMA and increased experience level in the ISC; are you familiar --
A. Yes.
Q. So when these time estimates were developed in 1998 and 1999, they reflected -- by increased experience level, is that synonymous with as people become more experienced, there is some learning by doing gains, and they become more productive in their work?
A. No, actually, I believe that that was referring to our increased experience at handling orders from the CLECs in the IMA environment.
Q. And as you become more experienced, does that have any impact on productivity?
A. I would believe that the expectation is that you become more effective, more efficient.
Q. And would that affect therefore the times used or the times recorded that -- since this was forward looking to 1999 and we're looking at adopting rates in 2001 that will be forward looking, would it be

reasonable to assume that there's going to be some productivity gains associated with having more experience in carrying out these tasks?

A. Yes, I believe as we get to that point. But at this point in time, we don't have everything in place. We're still working on releases for IMA, and I think we've got a release coming in April, as I recall. And so while we have started to readdress our flow through because we have the ability now to quantify better what the flow through percentages are going to look like or probabilities are going to look like, we don't have any further experience at taking orders at volume and what the effect of that is going to be. So I guess my response is that we have not re-looked at that at this point, but that certainly is something that we're intending to do going forward.

Q. Now in that same document, may I ask you to turn to page 182. Do you recall being asked about this page yesterday?

A. Yes, I do.

Q. There is an acronym on this page, IAC, could you tell me what that acronym stands for? It says IAC project manager.

A. I'm sorry, at the moment, I am drawing a blank as to what those letters stand for. I'm sure one

of our network witnesses could enlighten us.
Q. So I should direct that question to?
A. Mr. Hubbard or Mr. Overton.
Q. Okay.
A. I can't think of what it is.
Q. May I ask you to turn to Exhibit 1027.
A. (Complies.)
Q. You may not need to look at the document for this question.
A. All right.
Q. Do you recall yesterday Ms. Steele asking you about the development of the TIF factors?
A. Yes.
Q. And did I understand correctly that the TIF factors used in your studies are based upon 1997 data?
A. Not entirely, but there is 1997 data in there, yes.
Q. Okay. And did I understand you to state that Qwest has recently developed a newer set of TIF numbers based upon --
A. Year end 1999 data.
Q. Yes, and have you made a comparison between the '97 and '99 data?
A. Actually, I have. I have too much paper up here. And what we did actually was we went back to the

last three TIFs for account 257C, which is one of the most common accounts and actually I believe is the TIF that's at issue here, the 2.11 number that Mr. Weiss mentions. And that number was lower in our 1995 TIF by just a small amount and higher in the 1999 version. And it was less than an 8% change, as I recall, up or down across any of those years for that particular TIF. I apologize, I do have the actual numbers here.

DR. GABEL: Well, why don't, as a Bench request, if you could provide that comparison. Since the numbers are proprietary, it would just be nicer to have the written listing providing the comparison.

MS. ANDERL: And, Dr. Gabel, is that for all of the TIFs?

DR. GABEL: Yes, please.

JUDGE BERG: That will be Bench Request 25.

BY DR. GABEL:

Q. Do you recall yesterday being asked about your product management cost factors that appear in Exhibit C-1030?

A. Yes, I recall that.

Q. And did I understand you correctly to say that these are generic descriptions, and some of the expenses may not be incurred by the wholesale UNE?

A. Yes, that's correct.

Q. And do you also recall being asked about the confidential Exhibit 1031 where you were asked to compare the product management cost factors for residential service versus wholesale services?

A. Yes.

Q. That would be a comparison between group 1 and group 3.

A. Yes, I recall that.

Q. And did I understand you correctly that you responded that when making that comparison, one needs to keep in mind that different investment bases were used to create those two factors?

A. I would like to clarify that to say that different investment -- those factors apply to different investment bases, because TELRIC which applies for wholesale and TSLRIC which applies for retail are not the same methodology. They're very similar methodologies, but they're not the same, and so the investment that the factors apply to is different.

Q. Okay. But in constructing those ratios, what would have been the numerator for group 1, which was residence, versus what's in group 3 and then the same question for the denominator?

A. I'm sorry, I'm going to have to --

Q. That was Exhibit 1031.

A. And could you repeat that question?
Q. I'm trying to understand why the ratio that shows up on page two of this confidential attachment, why the product management expense factor would be higher for group 3 interconnection than it would be for group 1, which is residence?
A. These are the retail factors associated with TSLRIC, and so I don't -- I don't know specifically, but if you will look at the product management expense for all of the different things shown there from group 1 to group 7, they vary across each of these different groups based on product management expenses that apply to each of those groups. But these are all retail factors.
Q. Well, as I understood your responses yesterday, you were saying when Exhibit C-1030 was considered that the Commission needed to keep in mind that certain activities that are included under the description for product management expense factors wouldn't apply to interconnection, that they're more retail related activities?
A. No, I was -- I'm sorry, I was distinguishing between wholesale and retail, which I thought was what the subject of the discussion was. And this interconnection -- interconnect carrier features PAL that's listed here as group 3 is part of retail, and

retail product management expenses vary as well, as you can see on this page, from product group to product group. So you have differences in that product management factor within retail, and then you have differences in the way that you would look at that between retail and wholesale as well.

Q. But did I correctly understand yesterday that if we were to look at your wholesale cost studies that were submitted in this proceeding, that we would see a factor for product management expense that was higher for unbundled network elements than it is for group 1 residence?

A. That's quite possible.

Q. Okay. I'm trying to recall the exhibit number where that comparison was made yesterday.

MS. HOPFENBECK: Can I help?

DR. GABEL: Yes.

MS. HOPFENBECK: That questioning was comparing Exhibit C-1010, which is the NRC cost study attached to Ms. Million's testimony, with the retail factors that you have been referring to, Dr. Gabel.

(Discussion on the Bench.)

JUDGE BERG: We will be adjourned, back at 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 BERG: Ms. Anderl, I understand that Qwest may have a response to Bench Request 22.

MS. ANDERL: Yes, Your Honor, we do. As we understand the question, it was to ask us to address the pricing of the unbundled loop portion of the UNE-P when it's purchased in conjunction with a switch port, and specifically the 55 cent reduction that the Commission ordered in I believe it was the 17th Supplemental Order in the 960369 docket.

And our position on that is that we will charge the unbundled loop rate for each de-averaged zone less 55 cents in each zone. And, in fact, we have tariffs filed with the Commission effective January 20, 2001, and I will give you the cite to that in just a minute, that shows that the unbundled loop rate is the de-averaged rate when purchased separately and is the de-averaged rate less 55 cents in each zone when it's purchased in conjunction with the port. And that cite is Qwest tariff WNU 42, Section 3, Sheet 8, it is the first revised sheet number 8.

JUDGE BERG: All right, thank you very much

for getting back to us so quick on that.
At this point in time, Dr. Gabel will resume questions for Ms. Million.
BY DR. GABEL:
Q. Ms. Million, before the break we were discussing product management expense factors, and just to focus on this better, I would like to ask you to look at two documents simultaneously. The first would be confidential Exhibit 1031.
A. Yes, I have that.
Q. It's on the second page, which shows the product management expense for group 1 residence, and then simultaneously if you could look at confidential Exhibit 1010, page 20 of 415.
A. I have that as well.
Q. Would you concur that the product management expense factor for the UNE combination existing POTS, first line, which appears on page 20 of confidential Exhibit 1010, is greater than the value shown for group 1 residence on page two of confidential Exhibit 1031?
A. Yes, that's true.
Q. All right. Would you explain why the factor is higher for the UNE rate cost development relative to the residence cost development?
A. And, I'm sorry, I can't explain that

specifically. I don't know how that residence factor was developed. I'm not familiar with our retail factors and how they're developed and in comparison to our wholesale.

DR. GABEL: All right, then as a Bench request, could you investigate -- could you provide an explanation of why that factor for the UNE combination POTS is greater than the factor for the residence?

THE WITNESS: Well, now do you just want that with regard to the residence, because residence and UNE POTS is not a one for one relationship by any means. UNE POTS covers business as well. It seems as though we would be --

DR. GABEL: Or if you want to include group 2 also, is that --

THE WITNESS: Yes.

DR. GABEL: But the same situation exists where the factor for the UNE is greater than it is for the business.

THE WITNESS: Yes, I understand that.

DR. GABEL: Yes, so yes, please do include group 2.

THE WITNESS: Okay.

MS. ANDERL: Is that Number 26, Your Honor?

JUDGE BERG: That is Bench Request Number 26.

And, Ms. Anderl, I know that as these Bench requests start to mount up, the April 10 response date may need some adjustment, and I think on one of the breaks we can begin talking about a schedule if more or less time is necessary.

MS. ANDERL: Thank you, Your Honor. At this point, we don't anticipate any difficulty as long as people aren't taking vacations.

JUDGE BERG: All right, thank you.

MS. ANDERL: Who we need to consult with to prepare the response.

JUDGE BERG: Understood.

MS. HOPFENBECK: Can I interject a question at this point, Your Honor?

JUDGE BERG: Yes, Ms. Hopfenbeck.

MS. HOPFENBECK: I guess one question I have is that with responses to Bench requests such as the one that Dr. Gabel has just raised, there's a possibility that the answer to that Bench request might lead to a need for additional cross-examination or additional questions with respect to the answer given, and I don't know how to address that, but I think there's that's a potential problem with certain of these Bench requests.

JUDGE BERG: Well, I know that if the Bench feels it's necessary to do follow-up questions, we will

issue follow-up Bench requests, but otherwise it seems this is just part of each party preparing for cross-examination of witnesses based upon the evidence. If at some later time there is some request for special action by the Commission, we will take it in accordance with procedural rules. But at this point in time, I don't feel it's a problem to be addressed.
BY DR. GABEL:
Q. I would like to follow up on another area that you were asked about by Ms. Hopfenbeck yesterday, and that is the loading factor for power. Do you recall that discussion?
A. Yes, I do.
Q. Okay. And did I understand correctly that Ms. Hopfenbeck was asking you about how in the development of that factor you took into account collocation?
A. Yes, I believe that's what she was asking essentially.
Q. Okay. And did I understand your testimony yesterday to be that in developing these factors, you're just relating investments associated with Qwest's own operations with the power required for those operations?
A. That's close. What it is is that we're developing a power factor that relates specifically to a

piece of equipment, and we're -- what we're trying to determine is what is the amount of power that would be required in support of that piece of equipment. And so you're not taking into effect then the entire universe of power when you develop that. And the collocation items that Ms. Hopfenbeck was referring to are in the entire universe, but they're not specific to, for example, 257C or 357C, the particular pieces of equipment that we're looking at.

Q. Do you agree that in each of your wire centers, you would have a backup diesel power generator in case there is a power failure?

A. Yes, we would.

Q. And would you have also a set of batteries that would provide backup power in case there is also a failure with a diesel generator?

A. Yes.

Q. And would the diesel generator as well as the batteries be used to provide power to all equipment in the central office or only the equipment that Qwest effectively runs as opposed to the equipment that the CLECs have placed in their collocation space?

A. To be specific about how the power works in support of collocation, I'm afraid you need to refer that maybe to Mr. Hubbard or -- I mean there is power

that supports a variety of things in the central office. How that all fits together, I'm not certain.

Q. Well, let me just ask you to accept as a hypothetical that there is a generator in a wire center that is used to serve both you as a backup for your needs as well as a backup for a CLEC in case they need that backup power. How in developing a power factor for your cost studies did you take into account the investments made by the CLECs that are located in your wire centers?

A. Well, what we did in developing the TIF was take into account only the power needed specifically to operate the piece of equipment that's represented by the material investment that we're trying to affect by the TIF, and so that's -- that's not going to encompass -- I'm --

Q. Just maybe if I -- I'm having a hard time, when I was listening to the dialogue between you and Ms. Hopfenbeck, I had a hard time envisioning how you would decide for that power generator how much of it was needed for your 257C circuit investment or your 377 digital switching investment as opposed to the portion of the generator that was needed to support collocation. And so that's what I'm asking you to provide me, some detail on how that was done.

A. Well, and I guess in order to provide you detail, I would have to go back and dig into our detail about that. But again, my understanding is that we're not talking about generator power and large power in the large sense. We're talking specifically for hard wire and plug ins and whatever power is needed for those. And it's identified based on the FRC as associated with that equipment, and that's the understanding that I have. If there's something more in terms of detail that's needed, I would have to go back and look at that.

DR. GABEL: All right, would you please investigate that issue. And so the concern here is that in developing the TIF factor, which is a ratio of your material needs and also what's purchased or investment made for power to support those materials, in developing that ratio, how did you take into account collocation?

JUDGE BERG: And that will be Bench Request 27.

BY DR. GABEL:

Q. The last general area is actually a rather broad area, and that is in this docket you have submitted a few cost studies for dark fiber in both the interoffice loop and, I'm sorry, interoffice facilities and the loop, and what I just wanted to have a sense of was how when these studies were created you took into

account different things that the Commission considered in UT-960369. So, for example, you have testified, I believe, that in developing these cost studies you used a cost of money which was adopted by the Commission?
A. Yes, that's correct.
Q. And depreciation rates would be the depreciation rates that the Commission adopted in the last generic cost docket?
A. Yes, that's correct as well.
Q. And I just want to ask about a few other areas. Fill rates, are the fill rates, are they similar to what the Commission adopted in the last proceeding, or did you not --
A. Yes, no, we -- can I say that again.
Yes, we did take into effect the fill factors that had been discussed here in Washington previously.
Q. And sharing, sharing of structural investment between an ILEC and maybe an electric company, a cable company, or other CLECs?
A. Yes, those things should have been taken into effect by virtue of the source of the investment dollars for those cost studies, which would have had those appropriate sharing percentages in them.
Q. And what was the source for the investment dollars?

A. We had the NAC model was used. I'm trying to remember, it was the NAC model, I believe, that was used in the DS1 and DS3 studies.

Q. And the NAC model was set up so that it would develop the same investment levels that were developed by RLCAP in Phase I?

A. It would have used the same sort of percentages that we, for example, the sharing percentages that we used in Phase I.

Q. That you used or that the Commission adopted?

A. I'm sorry, that the Commission adopted, yes.

Q. All right. And lastly, the placement cost. In Phase I there was some debate about, well, what does it cost to install new distribution plant. The placement costs that you used in this proceeding, were they reflective of what the Commission adopted in Phase I?

A. Yes, I believe so.

DR. GABEL: Thank you, I have no further questions.

JUDGE BERG: Madam Chair.

E X A M I N A T I O N

BY CHAIRWOMAN SHOWALTER:

Q. I just have one question. If you could turn

to Exhibit C-1010, page 89 of 415.
A. Yes.
Q. Do you have that?
A. Yes, I do.
Q. You were questioned a little bit about the column B, the minutes required for these different tasks, and I know there was a reference to the support for these amounts on page 122.
A. Yes.
Q. Are you the witness who can explain what actually goes into these functions, or is that another witness?
A. That would be one of our engineering witnesses, Jeff Hubbard.
CHAIRWOMAN SHOWALTER: Okay, thank you, no further questions.
JUDGE BERG: Redirect, Ms. Anderl.
MS. ANDERL: Your Honor, sometimes it streamlines it if we see if the questions from the Bench prompted any further cross, but whatever your preference is.
JUDGE BERG: All right, I'm glad to give that process a try. I couldn't recall clearly how we did it in Part A, but there will also be an opportunity to recross after redirect.

Anybody?

MS. HOPFENBECK: I just have a couple of questions related to the development of the power factor.

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

BY MS. HOPFENBECK:

Q. In the explanation of the development of the power factor that's set forth in confidential Exhibit 1027, it reads that:

The purpose of this study is to develop a factor to estimate the investment in power plant required for central office equipment.

Is that your understanding; will you accept that as read from the -- you don't need to get that out if you accept that that's --

A. Okay, yes, I would accept that that's the generic description in here.

Q. Okay. The generation equipment that Dr. Gabel was referring to, you would agree that that backup generation that he was talking about is the type of equipment that is necessary for central office equipment; isn't that right?

A. For central office equipment generally, yes.

Q. And is it your testimony that that equipment is in or out of the calculation of the power factor that's being used in this case?
A. I'm going to have to go back to our detail.
Q. You don't know?
A. Yes, I don't.
Q. And you expect that that clarification will be included in your response to the Bench request?
A. Yes, it will.
MS. HOPFENBECK: Thank you, that's all I have.
JUDGE BERG: Ms. Steele.
MS. STEELE: Ms. Anderl has actually planted a question with me that she would like me to ask.

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

BY MS. STEELE:

Q. Ms. Million, in your rebuttal testimony you do not address the issue of the nonrecurring charges that would apply when tariffed special access or private line circuits are converted to unbundled elements. Does Qwest have a proposal now that it is willing to offer on those charges?
A. What we have proposed in another state is that the same charge that we develop for CTC private

line apply to what we are referring to as UNE-C DS0/DS1/ --

MS. ANDERL: DS3.

A. -- DS3. I can't tell you the whole title off the top of my head, but that's essentially the same element as what we call EEL-C, I believe.

Q. And are those charges set forth anywhere in your testimony or the testimony of anyone else in this proceeding?

A. Not for this proceeding, no. I do believe that there are private line charges that exist for CTC in Washington.

JUDGE BERG: Ms. Steele, if you're going to ask some more questions, would you pull the microphone closer.

MS. STEELE: That's all I have.

JUDGE BERG: All right.

MR. TRAUTMAN: Your Honor.

JUDGE BERG: Yes, sir.

MR. TRAUTMAN: We do have one follow up.

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

BY MR. TRAUTMAN:

Q. Ms. Million, you indicated that the company used fill factors consistent with the Commission's

decision in Docket 960369?
A. I believe so.
Q. And in that decision, the Commission rejected the use of actual fill; is that right?
MS. ANDERL: Your Honor, before this witness is asked to characterize what the Commission did in that, I would remind Mr. Trautman that that docket did have 32 supplemental orders, and it would perhaps be helpful if he were to direct the witness to a specific reference that he is asking her about.
Q. Well, do you know whether that was contained in a supplemental order?
A. I don't know without taking a look at the order. I don't have them committed to memory. I do know that -- I mean is there a specific product that you're asking about?
Q. Well, let me ask you in this proceeding, are Qwest's utilization rates for DS1 based on actual utilization?
A. They are based -- they -- the underlying information that we use to develop what those utilization factors would be is actual information. But, for example, we currently have 28, on average, 28 out of 84 DS1s utilized, and our fill factor assumes 33 out of 84 or a higher percentage. So it's an adjustment

that we made to reflect an increased demand, I believe.
MR. TRAUTMAN: All right, thank you.
MS. HOPFENBECK: Your Honor, I actually have some follow up based on Ms. Steele's questions since there is now direct testimony in the record as to a rate element that we have never heard before, and I have some cross-examination on that proposal.
JUDGE BERG: All right, go ahead, Ms. Hopfenbeck.

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

BY MS. HOPFENBECK:

Q. Ms. Million, it's fair to say that the customer transfer charge that is currently part of Qwest's tariffs for private line was established in docket 960369?

A. Yes.

Q. Okay. And that the nonrecurring charge, well, the CTC that was developed in that docket was based on Qwest's assumptions of flow through probabilities that are different from the assumptions that it has today I would expect; is that right?

A. Yes, that's correct.

Q. And so the assumptions for the percent of orders that would flow through for private line that

were used in that docket are lower than the assumption that Qwest has today for the number of orders that would flow through; is that right?
A. Actually, that's not necessarily true. The -- and I would have to look in --
Q. But you don't know as you're sitting here today how those assumptions --
A. May or may not have changed. There are some changes in the assumptions generally. Whether those assumption changes specifically relate to private line or not, I would have to go back to the detail, and actually the detail in another state where we have -- where we have updated those flow throughs. And off the top of my head, I don't believe that we have changed the flow through percentages that we have expected for private line in CTC.
Q. Let me ask you this. Would you expect that the activities that will be undertaken by those persons that work in the interconnect service center will be substantially the same to convert a special access line to an EEL as they will to convert a -- in terms of -- it's just -- I'm talking just about the ISC activities, as to convert UNE-P, I mean a residential basic service customer to UNE-P?
A. I don't know that without going back to the

detail, I'm sorry.
MS. HOPFENBECK: That's all I have.
JUDGE BERG: All right, I will ask counsel to hold any other questions they have until after redirect.
Ms. Anderl.
MS. ANDERL: Thank you, Your Honor. And that proposal that Ms. Million made was simply an accommodation to the parties or it was one party who had complained because this rate element did not exist. If the parties are unhappy with it, we can certainly withdraw it and wait development of a rate element on that issue until a later time. However, it was simply in the form of a compromise that we were willing to accept that, and I'm sorry for the convoluted way it was presented, but that is all we meant by that.
JUDGE BERG: All right, thank you.

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

BY MS. ANDERL:

Q. Ms. Million, you were asked yesterday by Ms. Steele about the fact that Qwest's cost study includes assumptions based on Qwest's practices; do you recall that?

A. Yes, I do.

Q. She then asked you if there were other

companies with more efficient practices whether those would be reflected in Qwest's cost studies; do you also recall that?
A. Yes.
Q. Have you read the testimony filed by the joint CLECs in this docket?
A. Yes, I have.
Q. Does any of that testimony describe more efficient practices that are currently employed by other parties in comparison to Qwest?
A. No, it does not.
Q. Are you independently aware of any more efficient practices as Ms. Steele suggested might exist employed by other telecommunications carriers which are not reflected in Qwest's cost studies?
A. No, I am not.
Q. Ms. Steele also asked you about a CLEC order submission and asked you about the use of the various types of order entry methods; do you remember that?
A. Yes, I do.
Q. Can you please explain the different types of interfaces?
A. Yes, currently there are three basic methods that we have talked about for ordering. One is a fax submission. The other two are mechanized submissions

through an IMA what we refer to as a gateway. And Rene Albersheim would certainly be more equipped to describe these things in detail, but basically the IMA gateway is the entrance into the systems, and then that can either take the form of a graphical user interface or GUI or an electronic data interchange or EDI order, and both of those are mechanized orders.

Q. Thank you. Do these different types of interfaces or methods of submitting orders have an impact on the nonrecurring cost studies as you have described and presented them?

A. As far as what we have done here in Washington because of the six minute assumption for the interconnect service center, we're not taking any other access by those mechanized systems into account. We had believed when we submitted this, these cost studies, that the six minutes addressed the flow through generated by those mechanized entries. And the interconnect service center is really the only place in the studies that would be impacted by access through the OSS. Any other mechanization that's reflected in the studies is a result of mechanization of our systems and the underlying processes that we do both for ourselves and for the CLECs versus anything that is impacted because the CLECs have mechanized access to those

systems.
Q. There are other distinctions or there are distinctions made in some of the nonrecurring cost studies that designate mechanized versus manual. Do those relate, those designations of mechanized versus manual, relate to the method of submitting the order or to something else?
A. No, it's definitely not the method of submitting the order. And what you're talking about are mechanization probabilities that appear in some of the design categories, and, oh, off the top of my head I can't think of other activities. But those types of probabilities again are, oh, plant line assignment, those types of mechanization rates again are related to our systems and whether or not our processes are mechanized or not mechanized rather than some form of access by the CLECs.
Q. Thank you. Now you talked about reducing the time in the interconnect service center to six minutes pursuant to the Commission order, and you also in discussions with various counsel and the Bench indicated that in other studies or if the studies were done in Qwest's preferred way, there would be different time estimates depending on what the activities were detailed for the interconnect service center and what product

was; is that right?
A. Yes, that's correct.
Q. And when Qwest originally submitted its nonrecurring cost study with your direct testimony in August, and that direct -- that nonrecurring cost study was marked as Exhibit C-102, did that cost study indicate the actual times in the interconnect service center that Qwest anticipated it would incur as opposed to the six minutes?
A. Yes, it did.
Q. Ms. Hopfenbeck and Dr. Gabel asked you about product management expense. I would like to refer you to a Commission order in 960369, that is the 25th Supplemental Order. After the questions from Ms. Hopfenbeck in connection with the product management expense, did you have a chance to go back to the 25th Supplemental Order and review that order to see whether or not this is an issue that the Commission has addressed previously?
A. Yes, I did.
Q. And what did you discover?
A. That at page 22 of that order, Paragraphs 125 and 126, the Commission discusses its decision with regard to those administrative, product management, and business fee expenses and approved the use of those

expenses as loaders in our TELRIC studies. And what I guess I would like to say with regard to that is that our methods for developing those particular factors has not changed. The factors that we're presenting here are consistent with the factors that were reviewed and decided in this order.

Q. Thank you. Mr. Harlow asked you some questions about that order as well in connection with how Qwest proposes to assess the loop conditioning charge; do you remember that?

A. Yes, I do.

Q. And subsequent to those questions, did you have an opportunity to go back to the 17th Supplemental Order and determine whether or not the Commission had addressed the methodology for how the $304 was to be applied?

A. Yes, I did.

Q. What did you find?

A. In that order at page 63, Paragraph 238, the Commission specifies the use of the $304.12 for 25 pairs and then goes on to say that:

> If 4 pairs require the unloading, the cost should be recovered from all 4 pairs in such a manner that the total charge equals $304.12.

And so I would say that that addresses very specifically Mr. Harlow's question.

Q. And is that language then the reason why Qwest determined not to file any additional testimony on that issue?

A. Yes, it is.

Q. Mr. Harlow also asked you some questions about the subloop, and what I wanted to ask you for purposes of clarification is, can you please explain what was the basis for the feeder and distribution investment that you used to calculate the percentages for the feeder and distribution portions of the subloop?

A. When we calculated the feeder and distribution portions of the subloop, what we did was begin with the unbundled loop rate, if you will, that was established in the prior docket. In other words, we used that as a starting point and developed our investments to reflect based on our model what would have gotten us to that loop rate. And then we divided those investments between feeder and distribution based on that calculation to develop those percentages.

Q. Okay, thank you. Mr. Butler had a brief discussion with you about the use of OC3s and facilities at customer premises in order to provision DS1s; do you remember that?

A. Yes.
Q. And in the situation that you discussed with him where there are OC3 facilities in the central office capable of provisioning 84 DS1s, and there are also OC3 facilities at each of the three customer premises taking 28 DS1s each, I think that started out as a question, but let me just end it there and say do you have that situation in mind?
A. Yes, I do.
Q. And is that an accurate description of the scenario that you discussed with Mr. Butler?
A. Yes, it is.
Q. In that situation, the facilities in the central office would, well, okay, and let's assume that there are, in fact, 84 DS1s being provisioned out of the central office, 28 each to each of the three customer locations.
A. Yes, I have that in mind.
Q. In that circumstance, what would be the fill on the central office equipment, the actual fill?
A. It would be 100%.
Q. And what would be the actual fill at each of the customer premises on the customer premises equipment?
A. It would be 33% at each location.

Q. And what would be the fill on, well, there are four fiber optic cables between the central office and each customer location?
A. Yes, that's correct.
Q. And what would be the fill on those fiber optic cables or those four fibers?
A. That would also be 33% to each location.
Q. Mr. Trautman asked you some questions about your preparation of a Washington specific cost study for unbundled dark fiber; do you recall that?
A. Yes.
Q. And did you, in fact, agree as to that study to accept Staff's recommendation and use Washington specific, the Washington specific cost calculation?
A. Yes, I did.
Q. Are there other instances in Qwest's cost studies where you have used regional data where, in fact, a Washington specific data if used would produce a much higher cost than the average?
A. Yes.
Q. Can you think of an example?
A. Yes, I can. If you were to talk about the nonrecurring rate for field verification for manholes per manhole, one of the things that we do in that study is we assume a 14 state region wide average for the time

that it takes to prepare the manhole for the field inspection. And if you were to look at Washington specific -- and when we talk about preparing the manhole, there are a number of minutes that are associated with that activity that are -- that relate to pumping the water out of a manhole when you open it up, establishing that there is not any poisonous gas in the hole, those kinds of things. When you do that activity in Seattle, my discussion with one of the field engineers who used to do those inspections here in the Seattle or in the Seattle area, he indicated to me that nearly 100% of the time in Seattle when you open a manhole, you are pumping water out of it, because essentially you encounter a lake every time that you go down into one of those, whereas --

COMMISSIONER HEMSTAD: Not at the present time.

CHAIRWOMAN SHOWALTER: Also not on Capitol Hill, I don't think.

MS. HOPFENBECK: Just a pond.

A. Well, we would all agree that there's a considerable amount of rain generally speaking in Seattle compared to some of our other states perhaps in general. And in Colorado, on the other hand, it is very rare for you to discover water when you open up a

manhole, and yet in developing that time estimate, we have averaged in for this particular element the Colorado time that it takes to set up that hole, which drives down the cost for Washington considerably over what it would be if we had actually assessed what that particular estimate is for Washington specifically.

MS. ANDERL: Thank you, Your Honor, that concludes my redirect.

JUDGE BERG: All right, we will conduct recross in the same order as original cross beginning with Ms. Steele.

MS. STEELE: Good afternoon, Ms. Million.

CHAIRWOMAN SHOWALTER: You need the microphone.

MS. STEELE: I'm sorry.

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

BY MS. STEELE:

Q. Have you ever been to Eastern Washington?

A. Yes, I have.

Q. It's just as dry there as it is in Colorado; isn't that correct?

A. Yes, I understand that to be the case.

Q. I want to talk with you just a little bit about the mechanization -- excuse me, I have difficulty

concentrating when people are talking in my ear.
You talked about the fact that the only -- when we're talking about mechanization of the systems used in the nonrecurring charges that the only place we look at the interface between the CLECs and Qwest would be in the interconnect service center; is that correct?
A. Yes, that's correct.
Q. And that when we look at mechanization in the other aspects of the cost studies, for example, design or plant line assignment, that would be based on Qwest's legacy systems; is that correct?
A. That would be based on the mechanization that we experience currently, yes.
Q. So, in fact, that is based on Qwest's current experience in its legacy systems; isn't that right?
A. Yes, I believe so.
Q. Now some of those systems are more than a decade old; isn't that correct?
A. I'm sure some of those systems are even older than a decade old.
MS. STEELE: That's all I have, thank you.
JUDGE BERG: Ms. Hopfenbeck.

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

BY MS. HOPFENBECK:

Q. Ms. Million, in response to Ms. Anderl's question, you said that last night you had checked the 25th Supplemental Order's discussion regarding the inclusion of administrative product management and business fees in U S West cost studies. Do you recall that testimony?

A. Yes.

Q. You would agree with me that the 25th Supplemental Order was an order that was issued by this Commission in response to Qwest's compliance filing in 960369; isn't that right?

A. Yes.

Q. And the paragraphs that you reviewed at Paragraphs 123 through 126 in that order that address inclusion of those expenses in Qwest's cost studies do not in any way approve the particular level of product management expense, I mean the particular level of the factor being used in this proceeding, do they?

A. If you're asking me do they approve a specific factor, no, they do not. They merely approve the fact that we are able to use those, and they indicate that those factors were reviewed. And it's my understanding, not being a part of that docket, that those factors were reviewed fairly extensively by the Commission in making that decision. And again, it's my

statement that the methodologies to develop those factors have not changed, and the current factors are consistent with the ones that they would have reviewed here.

Q. Isn't it true that all this Commission decision really says is that we have confirmed that the RLCAP that was filed in 960369 by Qwest did include product management, administrative, and business fees as part of the direct cost, correct?

A. Yes.

Q. And therefore they were proper loadings in the compliance filings; is that right?

A. Yes.

Q. And you haven't pointed us to any paragraphs in any prior order in 960369 that discussed the particular subject matter that you and I have discussed in this proceeding or that you discussed with Dr. Gabel?

A. No, I haven't.

Q. Thanks. Now I may have misunderstood this testimony, so I will try to clarify it first and see if I really have cross. I thought -- Ms. Anderl asked you about the designations in confidential Exhibit 1010. She referenced you to specific designations of manual on the one hand and mechanized on the other.

A. Yes.

Q. And I thought that I heard you answer that when the designation manual was used it was not referring to activities in the interconnect service center; did I understand that right?
A. I'm not sure how to address that question.
Q. Well, maybe I will just go at it directly just to make sure the record is clear on this. It is true that for each of the UNEs for which you have developed nonrecurring cost, you have developed a separate nonrecurring cost for mechanized and another one for manual; is that right?
A. No, actually, that's not correct. We have, for the UNE platform, we have developed a mechanized rate and a manual rate.
Q. Right, then let's talk about that one.
A. Okay.
Q. Now with respect to the manual rate, that particular rate assumes that there is no flow through at the interconnect service center at all; is that right?
A. Yes, that's correct.
Q. Okay. And if you look at the development of the NRC for mechanized with -- mechanized for the platform, that's where you make an assumption that a certain percentage of orders will flow through; is that right?

A. That's true for the UNE-C product.
Q. Okay, thanks. Oh, I guess I will just -- and then the result of that assumption is that with mechanized, since there is an assumption that a certain percentage of orders will flow through, the cost associated with the activities at the interconnect service center is lower for mechanized than it is for manual?
A. Yes, that would be true.
MS. HOPFENBECK: Thanks.
JUDGE BERG: Mr. Harlow.
MR. HARLOW: Thank you, Your Honor.

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

BY MR. HARLOW:
Q. Ms. Million, on redirect you referred to the 25th Supplemental Order in Docket UT-960369.
A. Yes.
Q. Do you still have a copy of that order with you?
A. Yes, I do.
Q. Can I ask you to turn, please, to page 119.
MS. ANDERL: Paragraph?
Q. Paragraph 528.
A. Oh.

CHAIRWOMAN SHOWALTER: The 25th?
MS. ANDERL: That order does not have that many pages.
MR. HARLOW: Excuse me, I meant the 17th Supplemental Order.
MS. ANDERL: In fact, the witness does not have an entire copy of that order at the witness stand. I can provide her with one.
MR. HARLOW: Thank you.
CHAIRWOMAN SHOWALTER: What was your page?
MR. HARLOW: It's page 119 of the 17th Supplemental Order, Paragraph 528.
BY MR. HARLOW:
Q. Do you have that paragraph in front of you, Ms. Million?
A. Yes, I do.
Q. And do you see where it states in the first sentence:
Pending the Commission's decision in Phase III on the most appropriate methods for generating loop conditioning cost recovery revenues, U S West's price for load coil removal on 25 pair binder group shall be $304.12.
A. Yes.

Q. And do you recall that subsequently Phase III was scaled back and that certain Phase III issues were deferred to this particular Docket, 003013?
A. Yes.
MR. HARLOW: That's all the questions I have, Your Honor.
MR. BUTLER: Excuse me, Your Honor.
JUDGE BERG: Yes, Mr. Butler, thank you very much. You will be next on the list.

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

BY MR. BUTLER:
Q. Ms. Million, in your discussion with Ms. Anderl on redirect, you had reference to the scenario that we were discussing earlier about the OC3 architecture?
A. Yes.
Q. Whether with three customers being served with OC3 equipment and one set of OC3 equipment in the central office?
A. Yes.
Q. And did you have in mind in that scenario that we were talking about a SONET ring where all three customers were located on the ring with the central office, imagining the circle --

A. Yes.
Q. -- with a --
A. Yes.
Q. And not a central office with three independent spokes going out to the customer location?
A. Yeah, actually, either scenario would net you similar results, because you would have OC3 equipment in the central office and OC3 equipment at each of the three locations with fiber going between -- either the fiber goes from the central office to the end user customer like a spoke, or it goes to the first customer and from the first customer to the second customer and from the second customer to the third customer, but you end up with equipment at each location and fiber in between.
Q. In the circumstance of the ring architecture where all three customers are on the ring with the central office, the fiber fill utilization in that scenario would be 100% between all those customer locations; is that correct?
A. Not necessarily.
Q. Is it your testimony that if it's not 100% that it would be 33%?
A. No, because you would be -- you would have -- you would have capacity of four fibers, which has the

ability to carry 84 DS1 signals over it running between the two pieces of OC3 equipment, and you wouldn't be utilizing that fiber capacity to its --

Q. And on the ring scenario, wouldn't you be having a fill factor or a fill of 100% on the ring?

A. On the ring factor, I'm not sure I understand what --

Q. On the ring, if you've got the ring architecture, wouldn't your fill utilization be 100%?

A. No, because you -- it -- not when you're talking about the OC3 equipment and the fibers that are running between, because you have -- you have capacity at the central office that's being utilized 100%, but you've got capacity on the fiber going to each of those OC3s at the customer location, and none of that capacity is full.

Q. And they're all -- all three customer locations are on the same ring.

A. Right, because --

Q. Your testimony is, do I understand correctly that it's your testimony that the fiber fill is not 100% in that scenario but that it's 33%?

A. From one location to the next, that's true.

Q. Okay.

A. Ultimately --

Q. That's fine.
A. Okay.
MS. ANDERL: Well, Ms. Million should be allowed to finish her explanation.
JUDGE BERG: I agree.
A. Ultimately across all three locations, you have 84 DS1s then being utilized back at the central office. But again, the point of that discussion in the testimony originally was that Mr. Weiss was assuming that you could have OC3 equipment at two locations, the central office and the end user customer, and that you were going to get this -- somehow get this 84 DS1 demand between those two locations and be allowed or be able somehow then to get to 85% fill.
And our illustration is that first of all, with an assumption of 2., and I apologize, I can't remember if it's 2.4 or 2.7, but anyway less than 3 DS1s per location for the state of Washington, you're going to have to aggregate those DS1s to hit 84 DS1s at the central office. And to do that, you're going to have to add additional investment, and his criticism of our fill factors didn't take that into effect at all.
BY MR. BUTLER:
Q. Again, the scenario we were discussing is we have one OC3 in a ring configuration serving three

customers, correct?
A. Yes.
Q. Not three OC3s.
A. But that ring configuration requires OC3 equipment at each of those three locations plus fibers in between each, and it's four fibers in between each one --
Q. Four fibers in a ring?
A. Four fibers between each location with the ability to serve 84 lines or 84 DS1s.
JUDGE BERG: Commission Staff.
Dr. Gabel.

E X A M I N A T I O N

BY DR. GABEL:
Q. Ms. Million, I also need a little clarification on what's meant by the mechanized and manual nonrecurring charge. Could you explain again, let's just start with the UNE combination existing POTS, first line, when would a CLEC pay the mechanized rate versus the manual rate?
A. They would pay the mechanized rate when the order is submitted in a mechanized fashion and a manual rate when the order comes in manually generally by fax.
Q. So the manual rate is associated with fax, a

faxed order, and the mechanized rate is associated with IMA?

A. With regard to UNE-C or UNE platform, that's true.

Q. And then secondly, if I could just ask you to turn to C-1010.

A. Yes.

Q. All right, page one, and we won't use the numbers, but we have on the very first line a total direct cost.

A. I'm sorry, yes.

Q. Okay. Now if I then ask you to turn to page 12 of 415, or better yet, page 13 of 415, there's a different number that appears there for direct costs.

A. Yes.

Q. And why are those numbers different?

A. Because the way that the cost study is set up, it uses -- it develops the directly assigned costs, and then it uses these directly attributed factors and the common factors that are presented there to develop that TELRIC and then the -- on the following page on page 14, the TELRIC plus common.

However, we don't use those directly attributed factors or those common factors in Washington. What we use is reflected on page 1 of 414,

which is the 19.62% and the 4.05% for those. So even though the study is set up to develop those costs on that basis, we convert that, then we just simply take the directly -- the total direct cost and utilize the Commission prescribed factors.

DR. GABEL: All right, thank you.

JUDGE BERG: Any additional questions, Madam Chair?

E X A M I N A T I O N

BY CHAIRWOMAN SHOWALTER:

Q. Well, I don't know if it's a good idea to wade until Mr. Butler's questions, but I was just trying to understand your answer there. I think I understood that if the setup was on a ring, then there would still have to be four pieces of equipment, of OC3 equipment.

A. Yes, that's correct, and then --

Q. And there needs to be fiber in running in a ring?

A. Correct.

Q. And are there four fibers all running in a ring?

A. Yes.

Q. And each one carries 28?

A. In this scenario, in the scenario where each

of the three end users has 28 DS1s?
Q. Right.
A. Yes, you're running capacity for 28 DS1s at each of those locations, and the capacity for the four fibers is 84 DS1s.
Q. All right. And then is each of those fibers that carries 28 DS1s a complete ring, running in a complete ring, or is it just on a ring? This is where I'm having trouble with the engineering.
A. Well, I guess what I believe Mr. Butler is describing is you have the OC3 equipment at the central office, and then you've got fiber running to location number one with OC3 equipment, and then you have fiber running to location number two with OC3 equipment and fiber running to location number three with OC3 equipment.
Q. Now as you describe it, that's not a ring, it's a line of some kind.
A. Well --
Q. Does it actually form a complete ring somewhere?
A. It can.
Q. All right.
A. It can, but then you would have additional fiber running back to the -- back to the central office,

which you don't -- you don't need to do, because your traffic runs both directions over that.
Q. Okay. So then the question is what was the fill factor on those lines, I think. Am I right on that?
A. Yes.
Q. And he seemed to be implying the fill factor on one of those lines that carries 23 DS1s is 100%. I'm not sure he was inferring that or implying that, but that's what I was taking from it. And you were saying, no, not really, it's only a portion of the time.
A. Yes.
Q. That it is, because then what, it's not used in the next leg? I'm having a hard time seeing why the line that goes to a particular OC3 isn't occupied for its full length because nothing else can get on it because it's filled up with 28 DS1s.
A. But it has capacity for 84 DS1s.
Q. Oh, that's right, okay.
A. For each one of those legs, the capacity exists for 84 DS1s, and there's only -- it's only being used by 28.
Q. All right. Then why isn't there just one line running in a ring that picks up 28 DS1s and then later picks up another 28 and later picks up another 28

and comes back to the central office? I realize this may not be an engineering feat at all. I'm thinking more or less logically and abstractly.
A. Well, and I'm sorry, you're sort of getting out of -- you're getting beyond my ability to explain this or describe it.
Q. Okay.
A. All I know is that it requires four fibers to provision OC3 equipment to provision DS1s.
Q. In a ring model?
A. In any scenario.
Q. Okay. So that as long as you have to have four fibers, you say then obviously each one of them can carry 84 lines, could, I mean so the fill factor therefore is 33%; is that right?
A. Each set of four fibers could handle using OC3 equipment 84 DS1s.
Q. Okay, well --
MS. ANDERL: And Chairwoman Showalter, I think we will have other witnesses such as either Mr. Buckley or Mr. Hubbard who can explain the architecture a little better. I think it's engineering necessity that there be four fibers because of the way the fiber optic signals are transported. I don't think you can just back it down to one. But that's not my

testimony. Let's let somebody who knows tell you.
THE WITNESS: Yes, thank you, it's not mine either.
CHAIRWOMAN SHOWALTER: All right, this is a bunch of lawyers talking to each other, that's the problem.
COMMISSIONER HEMSTAD: That's why they're never witnesses.
THE WITNESS: Well, some of us are.
JUDGE BERG: All right, and with that, then we come back to the beginning.
MR. BUTLER: I will just ask one.

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

BY MR. BUTLER:

Q. In that ring configuration we're talking about with the three customers that are each taking 28 DS1s; I think that was the scenario.

A. Yes.

Q. Could you add a fourth on that ring, say between customer two and three?

A. With more OC3 equipment, sure.

Q. You could?

A. And then each of those customers would have less than 28.

Q. No.
A. In total, you couldn't have --
Q. No, the scenario is that each of the three has 28; could you add a fourth?
A. No.
Q. Okay.
A. You have capacity for 84 in total over that system.

E X A M I N A T I O N

BY CHAIRWOMAN SHOWALTER:
Q. But I think you were implying the constraint is the OC3 equipment at the central office?
A. Yes, that's true.
Q. In that situation?
A. Yes.
CHAIRWOMAN SHOWALTER: Okay, well, I will await further explanation, and maybe just signal maybe a drawing or illustrative drawing might help.
MS. ANDERL: We will make sure that it becomes more clear by the end of the week.
JUDGE BERG: Before we go to redirect, Dr. Gabel has a question on the same scenario.

E X A M I N A T I O N

BY DR. GABEL:

Q. Just as a follow up to the question from the Chairwoman, in the scenario you described, would the fill to the first customer be 100%, because you have three customers, each with 28 DS1s, sharing that same fiber, and then on the second link, you have only two customers, and therefore the fill would be 66%, and on the last link --

A. (Shaking head.)

Q. No?

A. No, no, because your fill at the central office is 100%, but the capacity that you have between the central office and that first set of OC3 equipment is 84 DS1s. You're only utilizing 28 DS1s over that facility, and then you are utilizing 28 at the next location and 28 at the next location.

Q. No, but in order to get to --

A. And you have capacity for 84 between each of those locations.

Q. Isn't it true that in order to reach the third customer, you have to pass through the first customer, in which case wouldn't it follow that in that first link you're using 100% of the capacity?

A. You're not using 100% of the capacity to that

link, because you have only got 28 DS1s running there. You've picked up another 28 out -- I need to have somebody that is an engineer explain this.

DR. GABEL: All right.

JUDGE BERG: Thank you.

CHAIRWOMAN SHOWALTER: I think we should wait for the engineers.

JUDGE BERG: Ms. Anderl, any other redirect?

MS. ANDERL: Just one.

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

BY MS. ANDERL:

Q. Ms. Million, could you please turn back to the 25th Supplemental Order.

A. Yes.

Q. And read the one sentence, Paragraph 126.

A. (Reading.)

Therefore, we approve the use of the administrative, product management, and business fee expense loaders in U S West TELRIC studies.

Q. Thank you.

MS. ANDERL: And, Your Honor, I just had one other thing that is not redirect of Ms. Million but relates to some questions that Dr. Gabel directed her

way, and that is Dr. Gabel's reference to Paragraph 454, 8th Supplemental Order, Paragraph 454, another one sentence paragraph, it makes a statement and cites U S West's brief on page 90 there. And frankly, having drafted that brief, it didn't sound exactly right when I reread that paragraph, and I double checked U S West's brief, and I feel that in fairness, that entire page 90 ought to be somehow included as a part of this record in order that the appropriate context around that question be present, and I have had copies made of that, and however you feel it's appropriate to handle that.

JUDGE BERG: Is that something you can just argue in your brief, Ms. Anderl? Because I mean the order itself, while copies have been distributed and commissioners have copies here on the Bench, are not exhibits.

MS. ANDERL: Well, I don't believe that the briefs in 960369 are a part of the record in 003013, and so that was my concern. Obviously we have all learned that we're free to cite to any Commission final orders without them being formally made a part of the record, however, the briefs, I think, do have a different status.

JUDGE BERG: I think the Commission's position would be to whatever extent the Commission's

orders incorporates any other materials, those other materials would be --
CHAIRWOMAN SHOWALTER: Well, but the order only included a paragraph of the brief and so we -- if it has been taken out of context for purposes of these questions, which is the argument, we haven't got the broader context. And the order only cited a little bit of the context. So it would help me to know what the rest of the context is if it's relevant.
JUDGE BERG: Sure, and all I'm trying to address is that this is something that the parties can just bring up in their briefs. I don't know that --
CHAIRWOMAN SHOWALTER: Yeah, but that's weeks from now. I don't see a problem with showing us what the context is, because the witness has been asked questions based on one paragraph.
COMMISSIONER HEMSTAD: Well, the only issue is whether it would simply be distributed or be made an exhibit, and I think Ms. Anderl is asking it to be made an exhibit.
MS. ANDERL: Yes, I am.
COMMISSIONER HEMSTAD: It would seem to me it would be appropriate.
CHAIRWOMAN SHOWALTER: I agree.
MS. ANDERL: How many for the Bench, four?

JUDGE BERG: Five, please.
MS. ANDERL: Okay.
JUDGE BERG: And then my only other concern is whether there's anything here that may be taken out of context. What we will do is we will mark this as an exhibit, and if parties, other parties, feel there are any other materials or any other portions of the brief that are necessary in order to provide a full and complete context, they can notify me as follow up in the next week or so before the close of this hearing. But for now, this will be marked as Exhibit Number --
MS. ANDERL: 1022, which would be the next one after Ms. Million would be my suggestion. It's still an open number.
JUDGE BERG: One second, please.
Yes, Exhibit 1022 would be the excerpt page 90 of U S West's brief referred to at Paragraph 454 of the Commission's 8th Supplemental Order in Docket Number UT-960369, et al.
MS. ANDERL: Two other points for clarification, Your Honor.
MR. HARLOW: Excuse me, Your Honor, maybe we can define it from the order itself, but it would be helpful to us in identifying this brief since it just says brief, and I'm sure Qwest filed a number of briefs

in that docket, to get the date of that.
MS. ANDERL: That's what I was going to do.
MR. HARLOW: All right, thank you.
MS. ANDERL: I was just thinking that --
MR. HARLOW: Sorry for my impatience.
MS. ANDERL: September 12th, 1997. And the only other thing that I would add is just to remind the parties that in that brief, we were following an agreed upon outline and were, in fact, responding to some specific questions from the Bench or Bench proposals for the outline, and this particular page is in response to the question, can the LEC NRC studies be validated. That discussion starts on this page 90, Exhibit 1022. It goes on to page 91, but I would point out that the sentence -- the new paragraph that starts at line 23 on that page, finally there may be a temptation, is the beginning of the quote that appears at Paragraph 454 of the 8th Supplemental Order, and then the 8th Supplemental Order's quote does include the balance of that section of the brief. So I think between the two pieces, we have a full record.
CHAIRWOMAN SHOWALTER: That's true, but it really might be easier to have both pages for this exhibit.
MS. ANDERL: Sure, we would be happy to

provide the second page.
JUDGE BERG: All right, so then we will characterize Exhibit Number 1022 as excerpted pages 90 and 91 of the same U S West brief dated 9-12-97. And I understand that this is being offered for admission into the record; is that correct, Ms. Anderl?
MS. ANDERL: Yes, Your Honor, we offer that.
JUDGE BERG: Hearing no objections, it's so admitted.
Any additional redirect, Ms. Anderl?
MS. ANDERL: No.
JUDGE BERG: Any further cross-examination?
All right, thank you very much for your testimony here the last two days, Ms. Million.
THE WITNESS: Thank you, Your Honor.
JUDGE BERG: We will be breaking at 3:45, so I think it would benefit us all if we continue going at this time.
Mr. Buckley, would you please come on up.
We will be off the record momentarily.
(Brief recess.)

(The following exhibits were identified in conjunction with the testimony of RICHARD J. BUCKLEY, JUNIOR.)

Exhibit T-1050 is Rebuttal Testimony of Dick Buckley (RJB-1T). Exhibit 1051 and C-1051 is USWEST resp. to WUTC DR No. 1 (UT-960369, et al.)

Whereupon,

RICHARD J. BUCKLEY, JUNIOR,

having been first duly sworn, was called as a witness herein and was examined and testified as follows.

JUDGE BERG: Thank you.

Ms. Anderl.

MS. ANDERL: Thank you, Your Honor.

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

BY MS. ANDERL:

Q. Good afternoon, Mr. Buckley.

A. Good afternoon.

Q. Would you please state your name and your business address for the record.

A. My name is Richard J. Buckley, Junior. My business address is 1801 California Street, Room 2040, Denver, Colorado 80202.

Q. And, Mr. Buckley, did you cause to be prepared or did you prepare yourself some rebuttal testimony that's now been marked as Exhibit T-1050 in this docket?

A. Yes, I did.
Q. And is that testimony true and correct to the best of your knowledge?
A. Yes, it is.
Q. Do you have any changes or corrections that you need to make to that?
A. No, I do not.
MS. ANDERL: Your Honor, we would offer Exhibit T-1050 for admission into the record.
JUDGE BERG: So admitted.
MS. ANDERL: And Mr. Buckley is available for cross-examination.
JUDGE BERG: Ms. Steele.

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

BY MS. STEELE:
Q. Good afternoon, Mr. Buckley.
A. Good afternoon.
Q. We have met before, I believe.
A. Yes, we have.
CHAIRWOMAN SHOWALTER: Is that an understatement?
MS. STEELE: Actually, we haven't spent that much time together, considering.
BY MS. STEELE:

Q. Some issues were deferred to you by Ms. Million, and that's what I want to concentrate on today. I want to look at the way the loop MOD is used in the developing the costs, the prices at issue in this proceeding.

A. Okay.

Q. And you would be the right witness to talk to about that; is that correct?

A. Yes, I would.

Q. And yesterday we were looking at this Exhibit 1021-C, and I would like to look at that again to help us focus the discussion, and I particularly want to focus on pages 10 and 11 of that document.

A. I have that in front of me.

Q. And there are investments generated here or there are investments captured on these documents for the loop, and I'm looking starting at 1C in line 5 and then going all the way out to 862C; do you see those?

A. Are you on page 11?

Q. I'm starting at page 10 and moving on to page 11, and you will see that it's actually a spreadsheet that continues on from 10 to 11.

A. Can you give me a cell location?

Q. I am starting on page 10, and I am looking at cell G5 where it says 1C.

A. Okay, I have that.
Q. And that then continues on through cell R5, 862C.
A. Okay.
Q. And those are all labeled loop; is that right?
A. Yes.
Q. And those are costs for the actual loop structure itself; is that correct?
A. Yes, it is.
Q. That's the investment for putting fiber or copper into the ground between two locations; is that right?
A. Yes, it is.
Q. Now those numbers come not from this NAC model but from another model all together, the loop MOD; is that correct?
A. Yes.
Q. Now loop MOD is a replacement that Qwest has put together. It replaces the RLCAP model that was used in the prior cost proceedings; is that right?
A. Yes, actually, this is from a utility that is for the NAC model that does loop investment development. The loop MOD itself did not develop this, but there is a connection between that and a utility called a Loop MOD

Special, and that was filed with the CD here. That utility is designed to give the investments that are used for the NAC model. But once again, it is loop related investments.

Q. How many generations is that Loop MOD Special that's used here, how many generations is that removed from RLCAP?

A. The RLCAP model that was used in the earlier general cost docket was RLCAP 3.5. Subsequent to that was RLCAP 4.0, and then Loop MOD 1, Loop MOD 1.1, and Loop MOD 2. This Special is associated with Loop MOD 2.

Q. Now in Loop MOD Special when the investments are generated, is the demand that is considered in developing that investment the demand only for DS1s?

A. No, the loop investment uses the same unbundled loop line counts for generating the cable size end or the weightings between various designs, so it's looking at the universe of unbundled loops.

Q. And, in fact, when RLCAP was filed in the prior proceeding, it was also looking at the universe of unbundled loops; is that correct?

A. Yes.

Q. And the Hatfield model was also looking at the universe of unbundled loops; is that correct?

A. Slightly different. The Hatfield model

looked at line counts from ARMIS, and ARMIS, the special access lines, the high capacity circuits were counted on a DSO basis.

Q. And that was adjusted in the course of the proceeding by the Commission; is that correct?

A. Yes.

Q. And the reason that we look at the universe of loops is that the biggest part of the expense is not the facility cost itself but the cost of installing the facility; is that right?

A. It's a major part of the cost of the facility.

Q. So there are economies of scale involved in, for example, if I have a demand for 100 pair on a DSO level and 50 pair on a DS1 level, it's cheaper to install all of that demand at once than to install it separately; is that correct?

A. That's correct.

MS. STEELE: That's all I have for you, thank you.

JUDGE BERG: Ms. Hopfenbeck.

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

BY MS. HOPFENBECK:

Q. Mr. Buckley, nice to see you, good afternoon.

A. Good afternoon.
Q. Yesterday I was asking some questions to Ms. Million related to her testimony rebutting WorldCom witness Paul Bobeczko, and I was going to ask her some questions regarding the changes in cost modeling since UT-960369, and she deferred those questions to you. You are prepared to discuss some of the changes that Qwest has made to the model, well, U S West now Qwest has made to its models for developing loop investments since RLCAP 3.5; is that true?
A. That's true.
Q. Would you agree with me that one of the significant changes that Qwest has made in its cost models since RLCAP 3.5 was filed in 960369 is in the distribution designs used for density groups 1, 4, and 5?
A. There were changes made there. One of the changes was to bring all models up to what's considered a serving area concept design. Several of the models, density group 1 and density group 5 in particular, were less than two pairs per site, and so adjustments were made to bring them into that design criteria. There was also some adjustments I think with density group 4 and density group 5 to reflect information we had on levels of density, seeing these represent average densities for

a range, to put them in line with the average densities we were seeing for those ranges.

Q. It is also true that the kilo matrixes that have been used in U S West models now Qwest models over the years have been revised?

A. Yes, there was once again some additional information that allowed us to update the kilo matrixes.

Q. And Qwest has revised loop lengths in the models since RLCAP 3.5 was first filed; is that right?

A. Yes, they have been updated, length files, length information.

Q. Would you agree that overall the changes that have been made in going from RLCAP to Loop MOD 2.0 result or reflect -- let me start over.

Would you agree that RLCAP 3.5 and Loop MOD 2.0 reflect a different assumption on account of the changes that have been made as to customer dispersion in Qwest's network?

A. There's updated information.

Q. And as a result of updating that information and making the revisions to the density groups that we have discussed earlier, the fact is that the assumption about the plant that's built is that some of it's longer, some of it's shorter, it's in different places, customers are assumed to be disbursed in a different way

now than they were in RLCAP 3.5; is that right?
A. There's updated information that reflects changes in growth patterns, those sorts of things. So yes, the distribution of customers would be different from the earlier data.
Q. Would you also agree that among the changes that have been made is that U S West has changed the mix of placement activities associated with installing loop plants since RLCAP?
A. The whole structure has changed. We had a structure that was unique among the different UNE loop models, and so what we've got now is just a mix of placement activities by the two different feeder designs and the five different distribution density groups or designs, and that more closely mirrors what you would see out of some of the other models such as HAI.
Q. I assume that Qwest has made the revisions to RLCAP 3.5 and continued to make revisions in order to better reflect Qwest's view of what an estimate of total element long run incremental costs would be; is that fair?
A. It's the same objective that any modeler has is that as you get new information or as the structures, the types of products that are requested change, you would update the model to better reflect the latest

data.
Q. Now in answer to Ms. Steele's, some of her questions, you stated that in this case the input to the NAC model that has been filed here is what's called Loop MOD Special; is that right?
A. Right.
Q. And Loop MOD Special is based on Loop MOD 2.0; is that right?
A. It uses -- not based on Loop MOD 2.0 as much as trying to maintain a linkage so that as you update information in Loop MOD 2 or if we issue 2.5 or something along those lines that you make sure that you use the same inputs and you're consistent between the two utilities or the two programs.
Q. But in developing the proposals, for example, recurring costs for DS1 and DS3s in this case, Qwest did not use its older RLCAP model as the basis for those, but rather the updated assumptions that are reflected in Loop MOD 2.0; is that right?
A. Yes, they used the data that is in Loop MOD 2. The designs in Loop MOD Special are different than the approach in Loop 2, and the reason for that is that if you were to look at the way HAI develops information, trying to gather data out of that and use it as an input to the NAC model, the structures are different enough

that it -- you wouldn't have the data you need for the NAC model.

And so what we did was use a feeder design similar to what was seen in RLCAP 3.5 from a later vintage but the same placement costs, the same contractor costs, the same cable investments, those sorts of things so that we're consistent with Loop MOD 2. So there's a slightly different structure, same data inputs as Loop 2.

Q. When you say same data inputs, I'm trying to make sure we're clear about what's changed from RLCAP and what's the same, and so let me just ask you. As I understand what you have just stated, Loop MOD Special reflects a feeder design that's more similar to what we saw in RLCAP than what we see now in Loop MOD 2.0; is that right?

A. Yes.

Q. The distribution design, however, is really based on Loop MOD 2.0 as opposed --

A. Yes, it is.

Q. Then with respect to inputs, among the inputs is the placement mix, for example, and that has changed since RLCAP 3.5, right?

A. Yes, it has.

Q. And then you referenced, well, you didn't

reference this, but I assume line counts reflect current line counts?
A. Yes, it's the same data that's used in Loop 2.
Q. What's the data Loop MOD 2.0?
A. I don't know the issue date off the top. It has been filed in several other states. It's been out for I would guess six months, something in that range. I would have to go back and check to find out the date of the first issue of Loop MOD 2.
MS. HOPFENBECK: No further questions, thank you.
JUDGE BERG: Mr. Butler.

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

BY MR. BUTLER:
Q. Good afternoon, Mr. Buckley.
A. Good afternoon.
Q. I'm going to ask you right off the bat here, are you the person that feels comfortable about answering the questions about the SONET ring, or should I defer that to Mr. Hubbard?
A. I've got a degree in finance, so I can give it a good shot. I have enough familiarity to probably answer your question. And if I don't satisfy your

needs, I'm sure Mr. Hubbard can answer the question.
Q. Okay. At the risk of getting redundant here, do you have in mind the scenario that we were discussing with a SONET fiber ring architecture where you have three customers on that ring, each using 28 DS1s, and you have the equipment in the central office to handle a total of 84?
A. Yes, I do.
Q. Now is it the case that in a fiber ring technology, you've got four fibers?
A. Yes.
Q. Essentially a primary send and receive, if you will, and a redundant send and receive?
A. You've got a transmit receive, and you've got a backup that's going to provide the redundancy, yes.
Q. So if there's a break at any point, that other traffic will switch over and go on the secondary ring?
A. Yes, and there's a variety of ways that that protection exists, but that's correct.
Q. So it can go both ways?
A. Yes.
Q. And the traffic, if you will, from say customers two and three goes through customer one and vice versa?

A. If you're dealing with a --
Q. One, two through three?
A. -- a true ring or a pure ring --
Q. A true ring?
A. Yes, you would have traffic that passes one location and continues on to a second and a third.
Q. And in that scenario, you could not add a fourth customer on that ring; is that correct?
A. You could add a fourth customer if you made adjustments either to the capacity of the equipment in the office or if those customers were not taking the maximum, the 84 DS1s with the existing central office equipment.
Q. But under the scenario that we were discussing, those, the first three customers, take up that maximum capacity, and we're not talking here about changing the capacity in the central office.
A. Yes, in that scenario, they do use all 84 DS1s.
Q. So in that case, wouldn't it be the situation that your fill on the fiber is 100%?
A. Well, there's a couple of different fills on the fiber plant. First there's what's referred to as sheath fill, and then there's also electronics fill. And in the case of the sheath fill, in our cost

analysis, we were utilizing the 65% fill that was ordered by the Commission. So within the sheath, it's assumed that 65% of the fibers are working or assigned.

Now within the four fibers that are assigned to that customer or those three customers, their utilization would vary depending on where they are within that ring. So if you're within the section that's between the central office and the first customer, there's 84 DS1s passing that location, and yes, you would have a high fill. As you got further out, you have dropped off DS1s, and now your utilization will fall as you get further through the ring.

Q. But the traffic could go the other direction; isn't that correct?

A. Yes, and then the utilization would change going either way.

Q. So in effect then you've got 100%?

A. In certain sections. You've got 66 in another section, 33 in another section.

Q. From an actual utilization, if I understood what you're saying, at any one time, you're actually utilizing 50%?

A. True, because you --

Q. Even though you've --

A. -- fibers --

Q. -- got 100% --
A. -- for backup.
Q. And when you're doing your cost studies, you're assuming that that actual 50% gets translated into 100% fill; isn't that correct?
A. When we're doing cost studies, we recognize that there are four fibers required to serve that system, so the four fibers are assigned to the DS1s that are derived from that system.
Q. If I can ask you to turn to page 9 of your testimony, which was Exhibit 1050, at lines 17 and 18; do you have that?
A. Yes, I do.
Q. You're talking about hDSL designs suited to locations where demand is unlikely to exceed three or four DS1s. Ms. Million testified that the SONET fiber MUX architecture would be employed any time you received or you were getting 11 DS1s or more at a location?
A. Okay.
Q. Do you recall that?
A. Yes.
Q. Can you tell me what architecture is used between those two?
A. I can not. I'm not testifying to the different DS1 architectures. What I'm testifying to is

the supporting facility for that. I would have to rely on Ms. Million's understanding of the weightings, or Mr. Hubbard probably could address that.

Q. Can you tell me what levels of utilization are required to justify the deployment of fiber designs as opposed to copper designs generally?

A. The copper designs that are included in the DS1 NAC model take into account the fact that they could use those designs for up to 12 DS1s, so they're -- the mounting that is included for a customer prem location has capacity of four DS1s. And the way that the model was designed, it allowed for utilizations to be calculated on incrementing that up to 12 total DS1s at the location. So I'm assuming that if you exceed that or if you exceed the 11 that Ms. Million mentioned that you would be justified in moving to some sort of fiber based higher capacity DS1 system.

Q. Is it fair to say then that it is Qwest's understanding at least that when you have fewer than 11 DS1s at any one location, the least cost and most efficient way of serving that is to employ a copper architect?

A. There are other factors such as distance that would have an impact on whether or not you would use a copper or a fiber based system. I know the copper

designs within the DS1 NAC model don't exceed a certain distance. The fiber designs can be at any distance, and that's based more on the level of demand, the amount of capacity required at the remote location.

Q. Did Qwest conduct any study of average DS3 loop lengths?

A. Not that I'm aware of.

Q. Did it conduct a study of the average DS1 loop lengths?

A. Not that I'm aware of.

Q. Did Qwest conduct any study of the number of DS3 customer locations and where they're located?

A. The only study I have seen was with regard to DS1s, so there may be a study about DS3 customer locations, but I have not seen it.

Q. It is a fact, is it not, that DS1 and DS3 services are generally business services, not residential services?

A. Typically if there's a higher probability of business customers, there's a potential that residence customers or work at home customers would utilize an aDSL or hDSL type services.

Q. A very low probability they would use DS3?

A. Very low probability that the average residence customer would demand a DS3.

MR. BUTLER: That's all I have for you, thank you.

THE WITNESS: Thank you.

JUDGE BERG: Mr. Harlow.

MR. HARLOW: Thank you, Your Honor.

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

BY MR. HARLOW:

Q. Good afternoon, Mr. Buckley.

A. Good afternoon.

Q. Do I understand correctly that you're one of Qwest's witnesses with regard to engineering and architecture for outside plant facilities?

A. I'm responsible for the loop model, so yes, I have responsibility for costing of outside plant facilities.

Q. Perhaps we could start out by explaining some of the terms we have been using. Can you explain what a remote terminal is?

A. A remote terminal would be electronics at a field location that would allow some sort of digital loop carrier or MUXing capability. And by that I mean that you could use either a copper facility or a fiber facility to send a higher byte rate or a higher capacity signal between two locations. Rather than your

stereotypical POTS 1FR type service, two copper pairs could be used to provide 24 of those. The remote terminal would be the electronics in the field that receives that signal and then deMUXes it to a DSO or POTS level.

Q. And could you explain what a feeder distribution interface or an FDI is?

A. An FDI also referred to as a serving area interface or a cross connect is a point at which you can access the feeder plant and make connections between it and the distribution plant.

COMMISSIONER HEMSTAD: Could you also explain what the verb MUXing is?

THE WITNESS: MUXing is --

MR. HARLOW: I took that one for granted, Commissioner, sorry.

THE WITNESS: MUXing is a shorthand term for multiplexing.

BY MR. HARLOW:

Q. And what that does is that takes a higher capacity circuit and breaks it out into lower capacity circuits.

A. Right, either direction. You can either multiplex it from a DS0 up to a DS1 or a DS3 and vice versa. You can demultiplex it from a higher byte rate

signal down to a lower byte rate signal.
Q. Now might a remote terminal be located at an FDI?
A. They are often located adjacent.
Q. Does every FDI have a remote terminal?
A. No.
Q. And in what circumstances would an FDI not need a remote terminal?
A. If you are serving that location with copper facilities, for instance in the various unbundled loop models, HAI or the BCPM, the synthesis model, or the Qwest loop model, there is a recognition that copper feeder and copper distribution will work within a certain distance of the central office. In that sort of a scenario, if I was 10 kilofeet from the office feeder distance, the feeder plant would terminate into an FDI. It would be copper from the central office all the way to the FDI and then would cross connect a distribution plant that's also copper and going to the end user location.
Q. So in the scenario of the FDI without a remote terminal, you simply have a pair of copper wires from the feeder side connecting to the pair on the distribution side?
A. That's true.

Q. And would that typically occur via a splice or some kind of a terminal?
A. The idea of the FDI or the SAI is to eliminate the need for splices. So what you do is you use jumpers or different small pieces of wiring that allow you to connect terminals that terminate the feeder plant in the distribution plant, and it gives you flexibility in connecting one pair to a variety of pairs.
Q. Would this be like a punch down block or something?
A. Could be.
Q. So this would be basically a way to connect wires?
A. Yes.
Q. And physically what is an FDI, what might an FDI look like?
A. It's the big green box in your neighborhood.
Q. Okay. Dimensions, is it as big as that desk or --
A. They can vary depending on the capacity of the FDI. It could be half the width of this desk and four or five feet tall.
Q. So maybe, oh, what, a cubic yard, cubic yard and a half?

A. I was a finance major, not a geometry major.
Q. So three by three by five feet high or something?
A. That sound reasonable.
Q. All right. And typically how many feeder loops are going to be coming into an FDI?
A. Once again, it varies. You can have anything from a 50 pair to a 2700 pair and that -- excuse me, that's the capacity of the box in total. What you would typically do is take one and a half pairs per end user location of feeder plant into the box and then three pairs per end user location out of the box. So you would have, for instance, in a 2700 pair box, you would have 900 feeder pairs in and 1800 feeder pairs out. And the way the box is constructed, it has feeder and distribution fields that you terminate the plant on.
Q. And would the box typically be sized for the amount of wire that was coming into the box?
A. That's the objective of the engineer is to size it for the demand on the customer side and the amount of feeder pairs that are required to serve them on the central office side.
Q. Now do you ever have a situation where you have an FDI box that has a copper feeder coming into it and I presume copper distribution going out of it where

you also have a remote terminal at that kind of a location?
A. At the same location --
Q. Yes.
A. -- or in the same box?
Q. At the same location.
A. Yes, that does exist.
Q. And why would that occur?
A. Because the feeder plant is being served with digital loop carrier systems, and then the digital loop carrier system will demultiplex that signal and connect it to a copper feeder facility that then connects to the FDI.
Q. Would you necessarily have all the feeder to that FDI being multiplexed, or might some of it be multiplexed and some it would simply be a pure copper loop?
A. I would imagine that you could have both. Typically if you -- and especially in a forward looking model, you're not going to assume that you would place copper facilities adjacent to a fiber facility to go to the same location. It would be more economical to use one solution or the other. So from a modeling standpoint, you would not model it that way. From an embedded plant perspective, that may exist.

Q. So let's say you got to that level where you needed three loops per customer, but you only had one and a half loops coming in through the feeder, you might need to multiplex to ensure that you had sufficient feeder capacity to serve the demand of all the customers on that FDI?

A. No, that's the reason for the sizing of one and a half pairs per site, because what we have seen is that the demand within that area is typically far less than one and a half pairs per site, and so that sizing of feeder plant will accommodate the demand throughout the distribution area. The reason for the three pairs per site on the distribution side is that as you get closer to the customer, the plant becomes far more dedicated to that location. The one and a half pairs in and three pairs out gives you the flexibility to take any of that additional 50% of the pairs on the feeder side and connect them to any second or third line to any location within the distribution area.

Q. Well, maybe I wasn't very artful in how I asked my question. What I'm trying to understand and help the Commission understand is why would you have circumstances where you've got embedded plant where you've got copper all the way from the central office to the customer and so your FDI is copper in, copper out,

why might you have a situation in the network today where some of that copper is MUXed and you have a remote terminal at that particular FDI; why does that occur?
A. You're asking from the embedded world?
Q. Yes.
A. That might be a better question for Mr. Hubbard. He's got a lot of outside plant experience. I mean I could give you some conjecture on it, but --
Q. Well, could it be that the feeder capacity is used up at that particular FDI?
A. In certain situations where there were copper facilities to a location, and subsequent to that plant being placed, the engineer realized there was more demand at that location than they had sized the cable for, and there was also demand back towards the office, they may have placed a digital loop carrier system, converted some of those POTS pairs to T1s, connected them to the digital loop carrier system.
And then one of the terms for the digital loop carrier system is pair gain, not only are they going to gain pairs at that location through using the T1, but they have also recovered those physical pairs back towards the office. So it may be a situation that they are now using some of those copper pairs that were

used to deliver POTS in the past further back towards the office to handle ingrowth between that location and the central office.

Q. Now assuming then that some of the customers served by that FDI are served -- their loops are actually served by the digital loop carrier. In today's world, if one of those customers decided that they wanted DSL service from Covad on a line sharing basis, is Covad able to provide that service over that kind of architecture?

A. My understanding right now is no, they're not. I know that there is a lot of work being done by vendors in trying to accommodate the fact that there are a lot of digital loop carrier systems in the networks throughout the United States. But once again, that would probably be an area that Mr. Hubbard could address better than I can. I know that for what we show in our -- on architectures and what we have been told are the currently deployed architectures for Qwest, those DLC's can not accommodate the DSL demand.

Q. Okay, just so we understand for the record, because we started talking about DLCs and we haven't defined them. DLC, of course, stands for digital loop carrier. And is that a type of the MUXing technology you referred to a few minutes ago?

A. Yes, DLC or digital loop carrier is kind of a generic term for any manufacturer's multiplexers that are used for providing electronics in the field that can then provide POTS service.
Q. And there are a lot of different technologies to accomplish that?
A. There's a variety of vendors, and there's a lot of technologies.
Q. Turning to the fiber side for just a minute, let's say that an FDI is served by fiber. In that case, would it be necessary to have a remote terminal?
A. An FDI can't be served by fiber. There may be a remote terminal that's served by fiber that then demultiplexed to copper electrical analog loops and connects then to an FDI, but the fiber would not go to the FDI. The fiber would go to the remote terminal for the digital loop carrier system.
Q. So as you're talking about an FDI is just purely a copper connection box?
A. It's a feeder distribution interface, not a multiplexing system.
Q. All right. And a typical fiberfed loop then, where would the remote terminal be located in relation to the FDI box?
A. It could be on the same concrete pad. You

would have a pad that would have the power pedestal, the digital loop carrier system, and the FDI. Or it could be -- it could serve multiple FDIs depending on how the density of the area lays out.

Q. How big would a remote terminal typically be in Qwest's existing --

A. Well, I'm -- there, once again, there are a variety of sizes. You will see some that are mounted on poles. But a Lucent 80 cabinet is probably six feet wide and about a foot and a half thick and probably about five feet tall. And I haven't looked at the architectures manual in a long time, so I couldn't tell you if that's absolutely correct.

Q. And how many -- what's the capacity and if you can -- well, what's the best way to describe the capacity of a remote like a Lucent 80?

A. The 80 cabinet is the cabinet, not the remote terminal, but the equipment that would fit in that cabinet could be 672 lines, 1344 lines, depending on how they equip that remote terminal.

Q. And if you put that kind of equipment in a Lucent 80 cabinet, would there be any room left over in the cabinet for other equipment?

A. That I don't know.

Q. Now you mentioned a power pedestal; what is

the function of a power pedestal?
MS. ANDERL: Your Honor, and I guess at this point I have to object, because I have been sitting here and I understand that Mr. Buckley can answer these questions and that it's interesting, but I don't know how it's really within the scope of Mr. Buckley's direct or what issue it is in the docket that we're really addressing.
MR. HARLOW: Well, the issue we're addressing is line sharing over fiberfed loops, which on the Commission's Third Supplemental Order was directed to be addressed in Part B of this docket. And we're really laying a foundation, and until the witness runs out of ability to answer, I think this is the most appropriate place to do it to ultimately get to the questions that were deferred by Ms. Million to Mr. Buckley as well as Mr. Hubbard. And I think it's really important to the Commission, my understanding as well as I think the Commission's understanding of the issues that we're going to address, to get some of the foundation laid for it in terms of understanding network architecture.
MS. ANDERL: Well, I think that's appropriate for Covad to do through their own witness, not necessarily Qwest's witness. Again, you know, substantively I hesitate to object, because it's obvious

that Mr. Buckley can answer the questions, and this is perhaps illuminating. But I felt as though I had to interpose an objection, because I really don't see it as this witness's testimony. I see it as something Covad should have done in some pre-filed testimony.

CHAIRWOMAN SHOWALTER: How is it within the scope of this witness's testimony?

MR. HARLOW: Well, we're a little bit sort of chasing ghosts here, because Ms. Million said, well, we didn't -- we've kind of got a chicken and egg problem. Ms. Million's testimony, as you recall, which I tried to inquire into and then was deferred to the engineering witnesses, was that Qwest did not develop costs for line sharing over fiber because the element had not been described. And what I'm trying to illustrate through cross is that Qwest could, in fact, have either described an element or developed a proxy for an element. And I think what we're facing here is a situation where Qwest hasn't attempted to cost line sharing over fiber simply because they don't want to, not because they can't.

And now we're faced with a situation where Qwest has announced, and it's one of the exhibits we haven't gotten to yet, Qwest has announced that it is providing service to retail customers, and I'm talking

about it's a megabyte DSL retail service, to customers served by remote terminals even though it hasn't made the elements necessary for the competitors to do the same available to the competitors, as Mr. Buckley just testified.

MS. ANDERL: Mr. --

MR. HARLOW: I need to finish.

If we're ever going to move this process forward, the Commission directed that this was to be addressed in this phase of this docket. If we're ever going to move this process forward and get the elements that competitors like Covad need to compete with Qwest on an equal footing, which means at the same time, not two years later, then we're going to have to allow leeway, particularly when the company has avoided the issue altogether as pointed out by Dr. Cabe in his testimony.

JUDGE BERG: I think the Bench is unanimous with letting this line of questioning go forward.

MR. HARLOW: Thank you, Your Honor.

JUDGE BERG: So the objection is overruled.

MR. HARLOW: I have to remember the line of questioning.

Ms. Court Reporter, do you have the previous question available?

JUDGE BERG: Let's go off the record just one moment.

(Discussion off the record.)

(Record read as requested.)

A. The power pedestal is designed to provide commercial power for electronics that are at that remote location.

BY MR. HARLOW:

Q. And how does it provide the power? Does it transform it and convert AC line power to DC?

A. I would have to defer that question to Mr. Hubbard.

Q. All right.

A. What I have associated with our study is the equipment that is necessary to provide that remote terminal.

And may I say that if we are going to continue with line sharing type questions that my testimony doesn't address it, and I have not been involved in the costing associated with line sharing, field connection points, and a variety of other things that you may want to address. So I may start deferring quite a few questions if this is the direction you want to go.

Q. Absolutely, if you need to defer to a witness

with more expertise.
A. That would be fine.
Q. We will do that, just please let me know.
But I take it that power, electrical power, is a requirement at a remote terminal?
A. Yes.
Q. And that's to operate the electronics?
A. That's my understanding.
Q. It would not be a requirement with an FDI?
A. An FDI is a physical connection between -- a passive connection between two pieces of copper.
Q. Are you familiar with the term next generation digital loop carrier or NGDLC?
A. I have seen that term, yes.
Q. And what is next generation digital loop carrier in your understanding?
A. Sometimes it's vendor hype as to the fact that our equipment is the very latest, greatest thing. Also it may just depend on the vintage of digital loop carrier systems that are being addressed in some sort of discussion. The loop model uses TR303 integrated digital loop carrier systems, and it also uses TR008 integrated digital loop carrier systems. The 303 may be what you're discussing with next generation digital loop carrier systems.

Q. And what are the capabilities of a TR303 system that distinguish it from a generic type of digital loop carrier?
A. A 303 has a variety of capabilities, but one difference is time slot interchanging.
Q. What does that accomplish?
A. It allows the system to essentially seize an open time slot so that you don't have to dedicate a path through the piece of equipment.
Q. Any other capabilities?
A. I would have to defer that to Mr. Hubbard.
Q. Are there any next generation digital loop carrier systems that allow or facilitate line sharing over a fiberfed --
A. Like I said earlier, there are vendors that are trying to produce products that will allow for DSL through digital loop carrier systems, but I have not read through any of the technical specs on any of those pieces of equipment.
Q. Do you know if Qwest is using any of those pieces of equipment in its network currently?
A. No, that I'm aware of.
Q. Do you know if Qwest plans to deploy any of those?
A. I'm sure if something comes along that is up

to the specs for the Qwest network and provides capabilities at a reasonable cost that there is an engineer out there somewhere who is trying to determine whether it's something that can be used in the Qwest network, but I am not aware of any plans for a specific piece of equipment.

Q. Are you aware if any other RBOCs use that type of equipment?

A. I have read some information on Project Pronto, but I don't know the specifics on what those companies are doing.

Q. Would Mr. Hubbard be more conversant with the Project Pronto and the type of equipment involved in that project?

A. I'm not certain. You could certainly ask him.

Q. What's your understanding of the capabilities of the equipment in Project Pronto?

MS. ANDERL: Well, again, I am going to object. At this point he's now asking this witness questions that are not only beyond the scope of his testimony but about companies other than Qwest. And I really do think that Mr. Harlow could have developed this information through his own witness had he chosen to do so.

MR. HARLOW: I really think that Qwest should have taken a look at the most forward looking technology in costing its feeder, and clearly there's a lot of DLC technology in its cost models. We tried to get at this through the costing witness. She deferred to Mr. Buckley and Mr. Hubbard.

THE WITNESS: May I respond to that?

JUDGE BERG: Hold on one second.

To that extent, Mr. Harlow, it sounds to me that what you're looking to establish is that there's an awareness of the technology on the part of Qwest, and your questions are starting to go into more of the detail of what Pronto is or isn't, and it sounds like you have already established the fact that there is awareness.

MR. HARLOW: What I am actually, I haven't written my post hearing brief yet because I don't have all the facts yet, but what I'm starting to suspect is that Qwest has not used forward looking technologies in its cost studies and that if Qwest assumed forward looking technologies that Qwest could have developed costs for line sharing over fiber contrary to the claim of Ms. Million that it was premature to develop those costs and those prices. We may be at a dead end with this witness anyway.

JUDGE BERG: I think we will let the questioning go, overrule the objection and let the questioning go forward a little further, but please just use your own best judgment as to when enough is enough and when you've gotten what you need to make the argument that you want to make.

MR. HARLOW: Certainly, Your Honor. How are we on time?

JUDGE BERG: We're going to finish with this witness today.

MR. HARLOW: Okay.

MS. ANDERL: Your Honor, if I might just interject, I understand that the objection has been overruled, I do believe however that Mr. Harlow has seriously misrepresented Ms. Million's testimony, which was that the cost studies are under development and we are working with the interested parties to appropriately define a product and develop the cost studies, not that Qwest either didn't want to or couldn't or refused to develop the study.

JUDGE BERG: I don't have a clear recollection myself, but your position is noted.

BY MR. HARLOW:

Q. I think my question was whether you had an understanding of the capabilities of the equipment being

deployed as part of Project Pronto?
A. I have an understanding of the capabilities of the equipment that Qwest is employing in their network, and that's what our cost model is designed to represent. I can't make any conjecture as to what BellSouth is doing or Southwestern Bell or Verizon is doing. I have to try to attempt to reflect the costs associated with the architectures that are being placed in the Qwest network.

If the network architectures personnel develop a new strategy that on a forward looking basis we are going to start deploying some other sort of digital loop carrier system, then our models will be adjusted to reflect that. But that does not exist at this time. And as has been noted earlier, there are people working on various types of solutions that are not set in stone yet. So I can't reflect those in a cost model and have any sort of confidence that I'm doing a TELRIC forward looking study.

Q. You mentioned earlier that your model uses TR303 and TR008?

A. Yes.

Q. Can you describe in kind of a high level the way lawyers can understand the difference in the capabilities of those two pieces of equipment?

A. They are both integrated digital loop carrier systems, which means that they connect to the switch at a DS1 level. They don't demultiplex at the central office back down to a DS0 level. One of them has the ability to share bandwidth. I shouldn't say share bandwidth, to select a path through a DI group, which is a group of DS1s, so there is a little bit more flexibility with the TR303. You can do some field, I'm trying to think of the proper term, provisioning that some of those capabilities, some of the software capabilities may not be available in TR008.

I think Mr. Hubbard could probably address the differences a little better than I can. The TR303 systems that we've got are larger systems, and the TR008 are smaller or lower capacity systems.

Q. Are you aware that last month Qwest announced that it would be providing megabyte DSL service to customers that are served by DLC systems?

A. No, I was not.

Q. Do you know that Qwest is or is planning to provide that service over digital loop carrier?

A. I would love if they would, because I'm on a digital loop carrier system.

Q. Would Mr. Hubbard --

A. But no, I'm not aware of that.

Q. Would Mr. Hubbard be the witness or maybe Ms. Brohl to ask those questions of?
A. They may be.
Q. Do you have any technical knowledge as to how you would provision a DSL service over Qwest's embedded DLC systems on a line sharing basis?
A. No, I don't.
Q. Do you have any knowledge as to the average number of lines, these would be on the distribution side, served by a Qwest FDI?
A. The number of distribution lines served by an FDI?
Q. The average number of -- let's say the average number of customer premises served by an average Qwest FDI.
A. No, I do not. What you're asking for is for every FDI, how many customer locations are served out of it?
Q. Yes.
A. Once again, it varies dramatically. I have not seen a study that said on average an FDI has X number of customer locations. So no, I'm not aware of that.
Q. Are remote terminals typically more frequently found in Qwest's network where you have

longer loops?
A. That has an impact on whether or not digital loop carrier systems are utilized. If you have longer loops, digital loop carrier systems allow you to -- a greater reach, and they also allow you to concentrate traffic over fewer pairs or fewer fibers.
Q. Can you generalize at all whether you would be more likely to find fiberfed loops and remote terminals in say downtown urban core areas versus residential areas or less densely populated areas?
A. I can't.
Q. Do you have any knowledge with regarding to your cost study assumptions as to whether or not the cost studies assume that the less dense areas, say zones 3, 4, and 5, are more likely to be served by fiber than the higher density zones 1 and 2?
A. No, because the zones in Washington are wire center zones, and the cost models, HAI, BCPM, loop MOD, make assumptions that within a certain distance, the customers will be served by physical copper pairs, and beyond a certain distance, they are going to be served by digital loop carrier systems. So any of those zones are going to have customers in close to the wire center and customers further away.
If you were talking distance zones, you could

say yes, beyond a certain distance customers are going to be served on digital loop carrier within the model. Within a certain distance, they're going to be served on copper. But like I said, in Washington, the zones are wire center zones.

Q. All right. Well, let's take the question then out of the zones and talk I guess areas. Are residential areas in Qwest's network more likely to be served by fiber feeder than are commercial areas?

A. It depends on where they are located relative to the serving wire center. There are serving wire centers that are oriented towards suburban areas, so the residential neighborhoods close to those wire centers would be served on copper. Conversely, you could have a large shopping center that's distant from that same wire center, and it could potentially be served on digital loop carrier systems.

Q. Are Qwest wire centers generally located near a central business district?

A. They're located near central business districts. They're also located near suburban areas and in rural areas.

Q. Do remote terminals typically serve one, or might they serve more than one FDI?

A. That varies. It depends on the area.

Q. What's the most likely scenario?
A. I couldn't tell you. I have not done a survey of that.
MR. HARLOW: Thank you, Mr. Buckley, that's all the questions I have.
JUDGE BERG: Mr. Trautman.
MR. TRAUTMAN: Yes, thank you, Your Honor.

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

BY MR. TRAUTMAN:
Q. Good afternoon, Mr. Buckley.
A. Good afternoon.
Q. Could you turn to what's been marked as Exhibit C-1051, and that was U S West Communications November 14th, 1999, response to Staff's Data Request Number 1 in Phase III of Docket UT-960369.
A. I have that.
Q. And that consists of a one page response, and then there's a disk attached?
A. Yes.
Q. Okay. And it appears that this response was prepared either by you or under your supervision; is that correct?
A. Yes, it was.
Q. And is it correct that the response shows the

number of feeder loops in kilofoot increments for each Qwest wire center in Washington?
A. There is a table there that shows working lines by distribution area location, and those are -- then it has a feeder distance associated with it.
Q. Would you agree subject to check that the data in that response in the disk would show that the average loop lengths are shorter in wire centers assigned to zones 1 and 2 than in wire centers that are assigned to zones 4 and 5?
A. I would have to check that, but subject to check, yes, I would agree.
Q. Is it correct that fiber loops were used in developing the loop cost estimates in Docket UT-960369 for the feeder plant?
A. There were a combination of technologies that were used for development of feeder plant, both copper based DLC, fiber based DLC, and then also pure physical copper feeder plant.
Q. Now with respect to the cost of a fiber as opposed to a copper looped facility from a central office to a customer location, would the only difference in the cost be the cost of the cabling?
A. Generally what you're speaking of is a trenching cost for copper versus fiber. The only

difference may be that you -- and you may be looking at deeper trenching with fiber than you would with copper, but typically the trenching cost should be very similar, and then the difference would be the facility itself.

Q. Now was any adjustment made to the cost of the DS1 loop copper facilities to reconcile the difference between the Qwest cost estimate in this proceeding and the cost of the UNE loop that was determined by the Commission in Docket UT-960369?

A. The copper portion of the loop that was provided to the NAC model was a truncated version of the unbundled loop lengths. We were only looking at a portion of that, so we did not take data directly from, for instance, RLCAP 3.5 for the NAC model. We were using an updated model, so there is information, and I would have to check exactly what, but there is information such as placement cost or material cost that are more current than what was used in July of '97. And once again, we're not looking at the universe of unbundled loops, we're looking at that shorter distance that's associated with copper plant that would be used by the NAC model.

Q. Now you're familiar with the NAC model, that's correct?

A. I have reviewed it, yes.

Q. In which worksheet could we find the reductions to structure investments that would reflect the Commission's structure sharing decision in Docket UT-960369?
A. In the NAC model?
Q. Yes.
A. I don't think the NAC model has anything that addresses structure or the sharing. The 4C or the 1C or the trench itself comes from the loop MOD or Loop Special.
Q. And where in the loop MOD?
A. The loop model has inputs for fill factors, additional lines, and the sharing percentages and the placement activities in the data input sheet.
MR. TRAUTMAN: I would like to move for admission of Exhibit C-1051.
MS. ANDERL: No objection.
JUDGE BERG: Exhibit 1051 and C-1051 are admitted.
MR. TRAUTMAN: And I have no further questions.
JUDGE BERG: Dr. Gabel.

E X A M I N A T I O N

BY DR. GABEL:

Q. Good afternoon.
A. Good afternoon, Dr. GABEL.
Q. I would like to just follow up that line of questioning. If I were to go to the loop MOD CD that Qwest filed in this docket, would I see an input that reflected the boring of buried cable? There was a decision on that issue in Paragraph 55 of the 8th Supplemental Order saying that the correct boring percentage to use was 5%.
A. What you would see would be a variety of boring percentages depending on the density group or the feeder. There's two feeder options, urban and rural. The NAC model run of loop MOD is different enough from the model that was used in UT-960369 in that the previous model had developed and undeveloped, also I think referred to as easy and difficult.
In applying the 8th Supplemental Order to the current model, and I need to distinguish there were -- there were runs previously that were used for de-averaging and for subloop de-averaging that were older models in which we went through and made adjustments to the fill factors for feeder plant, the percentage of additional lines, the sharing percentages, and also directional boring at 5%, and then the remainder was spread evenly or proportionally through

the other activities.

In the Order, it states that these adjustments should be made in the developed area within the model. Loop MOD does not have that structure anymore. So when we went in to make that adjustment, that part not being there, we made a run trying to map it into it, and we made a run where we didn't put it in there because it didn't exist. What we found was that the attempt to map it in there produced numbers that were higher for the copper and the fiber inputs to the NAC model, 1% to 3% higher than what came out of the structure that exists in the new loop model. Sharing percentages were difficult. There were I think no sharing percentages at that point in time. Now it's 20% across the board. Every single activity is reduced by 20%.

And so mapping that in actually produced a higher cost. We stayed conservative and said, we're going to go with the lower costs that it produces. We included the 65% utilization and the 25% additional line. The other items that mapped in there in fact, like I said, resulted in a higher cost. Very similar, but higher cost, and so we stayed with the lower cost when we made the run.

Q. I have a few questions about your rebuttal

testimony, page 6, line 15, this is Exhibit 1050.
A. Page 6, line 15.
Q. On page 6, line 15, you state it is unlikely that DS1s and DS3s are served out of the same remote terminal as basic exchange DS0s. Would you elaborate on why you believe that is the case.
A. Typically, and this may go back to a question that was asked earlier about the likelihood that DS3 demand is going to exist in a residential neighborhood, but a digital loop carrier system that is designed for residential neighborhoods will typically allow you to provide DS0 services out of it. Something like the FLM150, which is included in the DS3 NAC model, is designed to provide DS3 services, not DS0 services. And so where I would place a basic exchange or POTS type digital loop carrier system, I wouldn't use the same sort of electronics that I would use in the basement of a high-rise building.
For instance, the building I work in has an FLM150 in the basement. Fiber serves that location even though we're probably less than 12 kilofeet from a central office, and then it's distributed through the building to some data location. It's a different architecture. It's a different piece of equipment, a different technology, than would be used for basic

exchange locations.
Q. Okay. So just as another example, say this building may have a few DS1s running to it, an entire building would be served by DS1s, and then just half a block away there's a convenience store that may have DS0s. And it's your position that they would be served through a different remote terminal, and therefore you wouldn't have in the same remote terminal both the DS1s and the DS0s?
A. It's possible to extend DS1s out of a remote terminal. Now what you're talking about is putting other cards, other equipment in there. If you are within a certain distance, you may be using the copper services like we discussed, the hDSL services, and that would be located at the end user location rather than at some remote terminal. Or one of the other options that is shown in that DS1 NAC model is a light span, which is the large digital loop carrier system that we use in the loop model, but it has those cards that allow you to extend DS1s out. So there may be some situations where you get some crossover. As you get to higher byte rate services, the probability drops off.
Q. I would now like to ask you in the same exhibit to turn to page 8, line 5. Here you're discussing the Hatfield model; is that correct?

A. It appears more along the lines of just a hypothetical about whether or not a central, or excuse me, a remote terminal could be modified by pulling out a POTS card and placing a DS3 card in it. And that adjustment in conjunction with the unbundled loop investment that was developed during the general cost docket would have some sort of correlation to the resulting investment.

Q. Okay. If I could refer you to page 6, line 9, you say first the adjustment was made to the Hatfield model.

A. Right, during the cost docket, the three models that were involved, the Hatfield model was adjusted to take into account the way that the DS3 and DS1 circuits were addressed or were counted, so that adjustment was strictly to the Hatfield model.

Q. Okay. And so at line 5 of page 8 when you're talking about the DS3 bandwidth available at the remote terminal, you're talking about the bandwidth that was modeled by the Hatfield model?

A. What I'm saying there is that if you had demand for 672 lines, if the Hatfield model happened to have a DS3 demand at that location and counted it as DS0s and used a remote terminal, the remote terminal that would be modeled would include POTS cards and would

assign 1/672 of the common cost, the fiber cost, to each of the POTS circuits. So pulling out a POTS card and plugging the DS3 card in there would not address all of the bandwidth that would then go to that DS3 circuit. In essence, it would soak up all of the bandwidth to that remote location, and so would be responsible for the entire common, the cabinet, and the facility.

Q. Do you know, Mr. Buckley, if the Hatfield model included inputs for incremental investments that are required if the demand at a remote terminal exceeded 672 channels?

A. They had the ability to increment, and there were limitations depending on the size of the system. But they could increment by in essence adding another shelf. So there was the ability to say a 672 line remote could increment to 1344 and I think also increment up to 2016. The smaller systems could increment from 96 up to 192 at the same location, so they would add more common cards and more channel unit cards.

Q. But the concern that you're expressing on pages 6 to 8 still holds regardless if the model added those incremental shelf expenses?

A. Yes.

MR. TRAUTMAN: Thank you, I have no further

questions.
COMMISSIONER HEMSTAD: None.
JUDGE BERG: Any additional cross-examination or redirect?
Ms. Steele.

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

BY MS. STEELE:

Q. Just following up on a question from Dr. Gabel. I'm looking at page six of your testimony in discussing the adjustment made to the Hatfield model. Now the Qwest RLCAP used in that prior proceeding also modeled the structure required to serve DS1 and DS3 demand that was current at that time; is that correct?

A. We counted the DS0 type lines, because the objective was to model the unbundled loops. So we were not looking at -- our line counts did not include DS1s and DS3s. The same structure, the same sheath may contain DS1s and DS3s, and they would use -- for instance, if I was providing service to a remote terminal and using fiber and serving 672 lines, the four fibers would be shared by 672 different POTS customers. Within that same sheath, there could be four fibers that are serving one FLM150 that's providing three DS3s at another location. So a portion of that structure would

be assigned based on four fibers going to the DS3s and four fibers going to the POTS customers.

MS. STEELE: That's all I have, thanks.

JUDGE BERG: Ms. Anderl, any redirect?

MS. ANDERL: No, Your Honor.

JUDGE BERG: All right, thank you very much for being here and testifying, Mr. Buckley.

Let's be off the record for just a moment.

(Discussion off the record.)

JUDGE BERG: At this time, both Qwest witnesses Million and Buckley have completed testifying, and they may be excused from the remainder of the proceedings.

And I would also request that the reporter at this point in the transcript enter the exhibit numbers and descriptions from the exhibit list beginning with Exhibit T-1060 through 1064, that would cover Mr. Kennedy. Please enter those exhibit numbers and exhibit descriptions as if read in their entirety.

(The following exhibits were identified in conjunction with the testimony of ROBERT J. KENNEDY.)

Exhibit T-1060 is Supplemental Direct Testimony of Robert J. Kennedy (RFK-1T). Exhibit 1061 is Recurring Rates & Nonrecurring Charges (RFK-2).

Exhibit T-1062 is Direct Testimony of Perry W. Hooks, Jr. (PWH-T1). Exhibit E-1062 is Errata to Direct Testimony of Hooks (PWH-T1). Exhibit 1063 is Recurring Rates and Nonrecurring Charges (PWH-2). Exhibit 1064 is Recurring Rates Charges (RFK-3).

JUDGE BERG: At this point, our hearing today is adjourned. We will be off the record.

(Hearing adjourned at 4:25 p.m.)