Exhibit T-___ (TLS-6T) (Supplemental)
Docket No. UT-023003
Witness: Thomas L. Spinks

BEFORE THE WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION

In the Matter of the Review of Unbundled Loop and Switching Rates and Review of the Deaveraged Zone Rate Structure	)))))	DOCKET NO. UT-023003

SUPPLEMENTAL DIRECT TESTIMONY OF

THOMAS L. SPINKS

WASHINGTON UTILITIES AND
TRANSPORTATION COMMISSION STAFF

January 26, 2004

Q. Please state your name and business address.

A. My name is Thomas Spinks, my business address is 1300 South Evergreen Park Drive Southwest, P.O. Box 47250, Olympia, Washington 98504. My e-mail address is tspinks@wutc.wa.gov.

Q. By whom are you employed and in what capacity?

A. I am employed by the Washington Utilities and Transportation Commission as a Regulatory Consultant.

Q. What are your education and experience qualifications?

A. My qualifications are provided as Exhibit TLS-2.

Q. What is the purpose of your testimony?

A. I provide updated total element long run incremental cost (TELRIC) estimates for certain unbundled network element (UNE) rate elements and propose deaveraged zone loop costs consistent with the Commission's purpose for this docket. In opening this docket, the Commission intended to "review UNE rates that may be set too high or too low based on their direct costs." *Third Supplemental Order*, ¶ 11. I updated the cost estimates primarily by updating to

the current version of the generic cost model, using more current line counts and updated loop length studies. I combined these updates with input values previously determined by the Commission to produce the staff cost estimates that I present in this testimony.

Q. How is your testimony organized?

A. My testimony consists of three sections. First, I testify regarding cost proxy models and recommend that the Commission adopt cost estimates based on the current version of the HAI model. Second, I review prior Commission decisions regarding cost model inputs and discuss changes I made to certain inputs used by the Commission in prior proceedings. Finally, I present cost results including a proposal for deaveraging certain UNE costs into zones.

COST PROXY MODELS

Q. What are cost proxy models?

A. In the Eighth Supplemental Order in Docket UT-960369, the Commission described a cost model as follows:

> [A]n analytical model is a simplified representation of some aspects of the real world. Analysts use models to organize the complexity of the real world into some orderly form. Models are, by definition, simplifications or abstractions which omit some information. A model can be a very powerful analytical tool. It can act as a microscope or a telescope which may enable the analyst to focus in on the key aspects of a situation and thereby to solve problems that, in the absence of a model, would be hopelessly complex.

In the Matter of the Pricing Proceeding for Interconnection, Unbundled Elements, Transport and Termination, and Resale, Docket Nos. UT-960369 et al., Eighth Supplemental Order, ¶ 21 (April 16, 1998). (Generic Cost Order).

At a structural level, cost proxy models are sets of mathematical equations that utilize engineering and network design information to estimate required quantities of materials and labor necessary to provide the service or element of service under study. Once the model estimates the required quantities of materials and labor, it combines these quantities with the unit prices of the materials and labor to produce a total investment required for the service or element. Finally, the model applies cost factors to the total investment to develop monthly recurring charges for the service or element.

Q. What did the Commission decide regarding cost models in the generic cost proceeding, Docket Nos. UT-960369 et al?

A. In the Generic Cost Order, the Commission concluded that none of the current versions of the loop cost models submitted in the proceeding should be adopted for future proceedings. Generic Cost Order, ¶ 35. While the Commission found it could not adopt any of the models, it made plain its continued support for open models, specifically citing the Hatfield and BCPM models. *Id.*, ¶ 36.

Q. What did the Commission decide regarding cost models in the universal service proceeding, Docket No. UT-980311(a)?

A. In the Tenth Supplemental Order in Docket UT-980311(a) the Commission stated that it had considered both the BCPM 3.1 and HAI 5.0a models to be much better cost models than their predecessors. *In the Matter of Determining Costs for Universal* Service, Docket No. UT-980311(a), Tenth Supplemental Order, ¶ 36. However, the Commission concluded that both models were still flawed and neither provided accurate estimates of the costs of providing telecommunication services in Washington. *Id.*, ¶ 331. The Commission identified one area of particular concern—the failure of both models to pass the Minimum Spanning Tree (MST) test in the least dense zone. *Id.*, ¶¶ 124-42.

Q. Which cost model will Staff use to develop revised loop cost estimates?

A. Staff continues to believe that the HAI model best meets the Commission's criteria that cost models be transparent, rational, stable, consistent, and have an understandable approach. *See, e.g.*, *Washington Utils. & Transp. Comm'n v. US West Communications, Inc.*, Docket No. UT-950200, Ninth Supplemental Order at 80-86 (April 11, 1996); *Washington Utils. & Transp. Comm'n v. US West Communications, Inc.*, Docket Nos. UT-941464, et al., Fourth Supplemental Order Rejecting Tariff Filings and Ordering Refiling; Granting Complaints, In Part, at 88-91 (Oct. 31, 1995).

At the beginning of this docket, in early 2002, the current version of the model was HAI 5.2a. HAI 5.2a included several important modifications from the HAI 5.0a version that Staff had used in the universal service cost proceeding, which are discussed below. In March 2003, staff obtained a preliminary version of HAI 5.3 which was used to estimate costs in its filing of June 26, 2003 in this docket. In this supplemental direct testimony, Staff is using the HAI 5.3 that was submitted by AT&T/Worldcom witness Mark Bryant in his testimony dated June 26, 2003, Exhibit MTB-4. I provide initial UNE cost estimates for Verizon using this version of the HAI model. Staff expects that AT&T/MCI refiling will further update the model and include revised cluster data. Staff will review the

changes AT&T/MCI made to the model and update the cost estimates later in the proceeding, as appropriate.

Q. How did the HAI 5.2a address the Commission's concerns about the cost models used in prior proceedings?

A. The HAI model documentation describes the changes between the HAI 5.0 and the HAI 5.2(a) in section 2 of the documentation. One of the changes to the distribution module includes an option to ensure that the model produces enough distribution route distance to reach the corners of cluster rectangles where customers may be located. This change addresses the MST issue. In addition, Staff has modified the distribution module to adjust automatically distance-sensitive investments for differences between the average loop length produced by the model and the average loop lengths reported by each ILEC. The HAI model documentation also states that the switching module has been modified to incorporate host and remote wirecenters automatically, and to incorporate the investment values for Bell Operating Companies and ICO switches adopted by the FCC in the USF inputs order. Finally, the expense module has been revised to incorporate the effect of deferred taxes on cost,

which the Commission had found appropriate in the Tenth Supplemental Order in Docket UT-960369 et al., as well as Equal Life Group depreciation.

Q. What are the differences between the HAI 5.2a and HAI 5.3 models?

In addition to retaining the changes made in 5.2a that I previously discussed, the HAI 5.3 explicitly models high capacity loops in the network.

HAI COST MODEL INPUTS

Q. What issues have been identified with the HAI model inputs in past proceedings?

A. In Docket UT-960369 et al., where the parties presented the Hatfield Model 3.1, the Commission identified issues with the methods used by the Hatfield team to collect data from outside plant contractors, drop costs and lengths, the fiber/copper breakpoint, special access loops, customer location accuracy and resulting loop lengths, switching costs, and a number of other user-adjustable input choices. In Docket UT-980311(a), the universal service cost docket, the Commission identified input issues with the HAI 5.0a including structure mix,

structure sharing, failure to meet minimum spanning tree lengths, and switching investment levels.

Q. What changes did you make to the default inputs in the HAI 5.3?

A. I adopted the input choices that the Commission found appropriate in Dockets Nos. UT-960369 and UT-980311(a), with certain exceptions discussed below. Exhibit__(TLS-8) shows the differences between the HAI 5.3 default inputs and the inputs I used in developing the updated UNE costs for Qwest and Verizon in this docket.

Q. Please describe the changes you made to input values that varied from inputs used in prior Commission decisions.

A. In the Verizon run, I updated depreciation lives and salvage values to reflect lives and salvage values authorized by the Commission in Docket UT-992009. In this docket, I did not make input adjustments for Special Access lines that the Commission made in prior cases because HAI 5.3 now explicitly models high capacity services. I did not make input adjustments for switching costs that the Commission made in prior cases because the HAI uses more recent switch cost data from a FCC study. I did not adjust inputs for hard/soft rock placement

multipliers as the Commission had done in Docket UT-980311(a) because the HAI placement multipliers have been increased and cannot be input on a density zone basis. Finally, I did not make the same adjustments for cable costs that the Staff had proposed and the Commission had accepted in prior cases, because the HAI cable cost inputs reflect more current cable cost information.

Q. Did Staff make any adjustments to the cost of capital or depreciation rates as a result of the FCC's Triennial Review Order?

A. No adjustments to either input are included in the cost results presented later in this testimony. However, the cost results are reported for the statewide average loop rate assuming a one and two percent change in the cost of equity in order to understand the magnitude of cost change that would occur when the cost of equity is increased.

Q. Why didn't you make adjustments for cost of capital?

A. The FCC clarifies that two types of risk should be reflected in the cost of capital. First, the cost of capital should reflect the overall risks of a competitive market. In this type of market, all facility-based carriers would face the risk of losing customers to other facility-based carriers, and that risk should be reflected in the

TELRIC prices. *In the Matter of the Section 251 Unbundling Obligations of Incumbent Local Exchange Carriers, et al.*, CC Docket Nos. 01-338 *et al.*, Report and Order on Remand and Further Notice of Proposed Rulemaking, FCC 03-36, 18 FCC Rcd. 16,978, ¶ 680 (2003) ("TRO") Second, the FCC clarifies that the TELRIC cost of capital should reflect any unique risks associated with new services that might be provided over certain types of facilities. TRO, ¶ 683.) Verizon filed testimony earlier in this proceeding urging the Commission to use a cost of capital based on a broad study of competition in the nation-wide market and asks that the Commission apply the result in Washington State. In the context of determining the cost of capital for Washington TELRIC UNEs, Staff believes that Verizon needs to demonstrate the degree of competitive risk it faces in Washington before determining the cost of capital to be used for setting TELRIC rates in Washington. CLECs operating in Washington should not have to pay rates in Washington based on competitive risks that Verizon faces on the East Coast or in California. A second problem with implementing the FCC's decision concerns how the unique risks should be taken into account in the cost models, which currently apply a single cost of capital to all investments. In order to reflect unique risks, the cost models need to be modified to allow a different cost of capital to be applied to different types of plant and equipment used to provide

the "riskier" services or plant types. Finally, Staff raises the question that if the Commission is going to allow a higher cost of capital for unique risks, shouldn't the Commission also consider applying a lower cost of capital to plant that is "uniquely less risky," such as distribution loop plant, which is a monopoly bottleneck to the network. Therefore, before making recommendations as to how the Commission should implement the FCC directive, staff will first review other parties' views on the matter.

Q. Why didn't you make adjustments to depreciation rates?

A. In the TRO, the FCC first states that it rejects the ILEC proposals to require the use of financial depreciation rates in TELRIC studies. TRO, ¶688. The FCC then clarifies its rules with respect to the rate at which an asset is depreciated over its useful life by saying that under the "economic depreciation" requirement, a carrier may accelerate recovery of the initial capital outlay for an asset over its useful life to reflect any anticipated decline in its value. *Id.* at ¶690. The FCC further points out that a number of issues would first have to be resolved prior to implementing such a proposal including how to measure the anticipated decline in value, how UNE prices should be structured to reflect decreases in depreciation over time and whether levelizing depreciation rates over time as

cost models currently do diminishes the effectiveness or eliminates the intended effect of the acceleration. TRO at ¶691. Plainly, the clarification does not require the Commission to change the depreciation rates used in the calculation of TELRIC. In addition, Staff has a number of questions about whether Verizon's asset lives and depreciation rates should first be updated, to which investments (i.e. new vs. embedded) the clarified rule would apply , and how the UNE cost models can be modified to apply any accelerated method.

COST MODEL RESULTS AND DEAVERAGING PROPOSALS

Q. What network element costs did you estimate using the HAI model?

A. I estimate the costs for the following network elements, which are set forth in Attachment A of the Third Supplemental Order in this docket:

2 and 4-wire analog loops

2-wire non-loaded loops

Sub-loops

NID

Analog Port w/local switching

Q. How does Staff propose that wirecenter costs be deaveraged into zones?

A. Staff proposes to continue using the five zone method that the Commission adopted in Phase 3 of Docket UT-960369. In the testimony filed last June, Staff used an AT&T optimization program to develop zone costs. Since that time, Staff has developed its own optimization based minimizing the sum of squared error. Supporting testimony for the new optimization program will be provided by staff witness Dr. Blackmon in the Qwest deaveraging testimony due February 7, 2004. The program used to develop the zones is included in Ex._TLS-7, the Staff revised workpapers exhibit.

Q. What are the proposed statewide average and zone rates for 2-wire analog loops?

A. The deaveraged zone loop rates for Verizon, are as follows:

	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5
Verizon	$12.85	$21.44	$42.67	$104.74	$529.10

Exhibit__(TLS-9) shows the wirecenter assignments to each zone. The statewide average 2-wire analog loop costs is estimated to be $17.25 for Verizon. If the cost of equity is increased by one percent, the statewide average loop rate would increase to $17.75, and if the cost of equity is increased two percent, the statewide

average loop rate would increase to $18.26. The supporting calculations are found in file Vz_calculations_rev.xls under tabs "ave.loop cost" and "5_zones" in the staff workpapers CD-ROM.

Q. What are your proposed zone rates for 4-wire analog loops?

A. I developed the 4-wire loop rates using the 1.50 factor for Verizon that the Commission ordered in Docket UT-960369, which are as follows:

	Zone 1	Zone 2	Zone 3	Zone4	Zone 5
Verizon	$19.27	$32.16	$64.01	$157.11	$793.65

Q. What rates do you propose for non-loaded loops?

A. The non-loaded loop rates are shown as follows:

	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5
Verizon	$7.67	$15.42	$32.41	$90.00	$420.18

The supporting calculations are found in file Vz_calculations_rev.xls under tab "NL_loops" in the staff workpapers CD-ROM.

Q. What ratios do you propose for sub-loop elements?

A. The Verizon feeder and distribution ratios are shown as follows:

Verizon

	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5
Feeder	.369	.316	.406	.370	.120
Distribution	.631	.684	.594	.630	.880

The supporting calculations are found in file Vz_calculations_rev.xls under tab "subloops" in the staff workpapers CD-ROM.

Q. What rates do you propose for ports with local switching?

A. The proposed rates for ports including flat-rated local switching are as follows:

	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5
Verizon	$2.95	$3.72	$7.47	$10.67	$101.74

The tariffed port rate is currently $1.34 for both Qwest and Verizon. The reason for the increase in the port rate between this study and prior studies is that flat-rated usage is now included in the port rate in the HAI 5.3 model. This change to the model is consistent with prior Staff testimony in the pricing phase of the earlier generic proceeding and is consistent with the Commission's Seventeenth Supplemental Order in Docket UT-960369 et al., where the Commission stated: "The Commission prefers a capacity-charge concept because it better reflects the

cost structure of the telecommunications network." *In the Matter of the Pricing Proceeding for Interconnection, Unbundled Elements, Transport and Termination, and Resale*, Docket Nos. UT-960369 et al., Eighth Supplemental Order, at 5 (Aug. 30, 1999). Staff recommends the Commission adopt the port charges that include a flat-rated usage charge. In addition, as can be seen from the rate spread between zones, there are material differences in costs between zones. Therefore, I also propose that the combined port and switching rate element be deaveraged into five zones. The supporting calculations are found in file Vz_calculations_rev.xls under tab "port_sw_cost" in the staff workpapers CD-ROM.

Q. What rates do you propose for the NID?

A. The monthly rate for the NID is $.47 for Verizon. The supporting calculations are found in files Qw_calculations.xls and Vz_calculations_rev.xls under tab "NID" in the staff workpapers CD-ROM.

Q. Is Staff also proposing additional wirecenter deaveraging?

A. Yes, Staff is proposing that certain wirecenters exhibiting a strong core-fringe cost relationship be further deaveraged into a core and fringe zone scheme rather than the entire wirecenter being assigned to a single zone. The genesis for this

proposal is a Petition that was filed with the WUTC by Fairpoint Communications on September 4, 2001 (UT-011220-P) petitioning the Commission to change the zone classifications for certain wirecenters. The petition identified nine Qwest wirecenters that were characterized as large, exceeding 100 square miles, with dense urban cores having sufficient access lines to qualify for inclusion in a less costly density zone. The wirecenters identified in the petition are Aberdeen, Bellingham, Lacey, Moses Lake, Olympia, Pasco, Port Angeles, Walla Walla, and Yakima. While the petition was withdrawn shortly after it was filed and Fairpoint has since ceased doing business in Washington, the issue raised in the petition is important for competition in Washington and the Commission should consider it in this proceeding.

Q. What was the issue raised by Fairpoint's petition?

A. CLECs that operate in areas outside the high-density Seattle-Tacoma metropolitan area pay higher unbundled loop rates because the wirecenters are classified in higher cost density zones. There are a number of wirecenters serving mid-size cities like Olympia, Pasco, and Port Angeles where the population size and density are such that loop costs should be low enough to allow the CLEC to compete in the city. However, the service area of the

wirecenters serving these cities also serves a large rural area such that the average loop cost in the wirecenter results in a zone 4 or 5 classification, which are the two highest cost zones in the state. This makes it uneconomic for the CLEC to operate in the lower cost, denser areas in the cities. Staff is concerned with the inability of CLECs to compete in areas where population size and density should allow them to operate economically because meaningful competition will not occur in these areas of the state where market entry is justified economically. In order to address this concern, Staff is proposes that certain wirecenters be disaggregated into core and fringe zones.

Q. How do you propose the Commission determine the core and fringe zone boundaries?

A. The Commission should determine the core area as the area defined by the city limits of the city contained in the wirecenter and the fringe area as the area outside the city limits but within the wirecenter serving area.

Q. How did you separate wirecenter costs into the core and fringe zones?

A. The HAI model produces cost output disaggregated to the cluster level. The cluster data represent serving areas for groups of customer locations, and the

clusters are identified by the census block groups (CBGs) in which they are located. The loop cost outputs by clusters are first identified from the HAI 5.2(a)[1] model workfile. The cluster loop cost data are then separated between clusters contained inside, outside, and spanning the city limits, then reaggregated to develop loop costs for serving within the city limits versus outside the city limits. The core and fringe area costs were then determined for Qwest and Verizon wirecenters, and Staff selected wirecenters that exhibited a strong difference between core and fringe area costs for disaggregation. For Qwest, 15 wirecenters covering 13 cities qualified for inclusion while Verizon had none. The Qwest wirecenters that qualified for further deaveraging were placed into the appropriate zones by separately including the core and fringe costs and lines in the staff's zone optimizer program. Further testimony on the core-fringe deaveraging proposal will be provided on February 7, 2004.

Q. How did you identify the location of the loop cost cluster data relative to the city limits?

[1] The HAI 5.3 does not include an updated cluster module for determining cluster loop costs so cluster investment values were calculated using HAI 5.2 cluster module. The calculations are shown in Exhibit TLS-3, the Staff Workpapers.

A. Staff used the ArcView 3.2a GIS software program along with Bureau of Census data for census block groups (CBGs) and Washington State Department of Transportation data on city boundaries and roads to accurately locate city limits, census block groups and cluster data relative to one another. The CBG data layer is overlaid with the city boundary data layer to identify CBGs relative to the city limits. The cluster data centroids and cluster areas are projected and overlaid on the city and CBG data to determine whether they are correctly located and to visually determine whether clusters are contained wholly or partially within city limits. The software, files and data used for the analysis are provided on the Staff Workpapers CD-ROM. Maps showing the city limits, CBGs and cluster centroids for the selected wirecenters are shown in the file "MAPS.pdf" in the Staff workpapers.

Q. Were any of the cluster data you examined found to be incorrectly located?

A. Yes. Each data cluster position is located by its bearing and distance from the wirecenter. After determining the necessary adjustments to properly project the clusters, the location of the cluster centroid was checked to see if it was located in the CBG it is assigned to. For each wirecenter where core-fringe deaveraging is being proposed, I checked the cluster locations to see if they were located within

its assigned CBG. I found two kinds of location errors associated with data clusters that were not correctly located. The first is rotation error. Rotation errors are noted when a cluster is not correctly located but it can be moved to its proper location by changing only the bearing angle. This type of error does not cause any change in cost if it is corrected. The second type of error occurs when the cluster cannot be properly located unless the radial distance between the wirecenter and the cluster is changed. If the radial distance of a cluster needs to be changed to properly locate the cluster, the cost of the cluster will also be higher or lower depending on whether the correct radial distance is closer or farther from the wirecenter. With the exception of the Aberdeen wirecenter, there were very few errors in the clusters involving changes to radial distance. The Aberdeen wirecenter had 16 clusters that were incorrectly located such that the radial distance had to be adjusted. In order to correct the radial distance measurement, I used the software program measuring tool to measure the correct distance between the wirecenter and the CBG associated with the cluster. The cluster data base file was then updated with the revised radial distances to calculate corrected cost estimates.

Q. Do you have any further testimony at this time?

A. No.