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November 3, 2006

Honorable Sara Kyle, Chairman
c/o Sharla Dillon, Docket & Records Manager
Tennessee Regulatory Authority
460 James Robertson Parkway
Nashville, TN 37243-0505

> RE:  In the Matter of: Tennessee Rural Independent Coalition Petition for
> Suspension and Modification Pursuant to 47 U.S.C. Section 251(f)(2)
> TRA Docket No. 06-00228

Dear Chairman Kyle:

On November 2, 2006, the CMRS Providers filed the *CMRS Providers' Response to the Tennessee Rural Coalition's Supplemental Statement Regarding Petition for Section 251(f)(2) Suspension and Modification of Section 251(B)(5) TELRIC Pricing Methodology* (the "*CMRS Providers' Response*"). Exhibit 3 to the *CMRS Providers' Response* is the Affidavit of W. Craig Conwell, which contained a facsimile signature page.

Please find enclosed an original Exhibit 3 to the *CMRS Providers' Response*, which contains the original signature page. An additional copy of this filing is enclosed to be "File Stamped" for our records. If you have any questions or require additional information, please let me know.

Very truly yours,

Melvin J. Malone

cc:  Parties of Record

3339569_1.DOC

# EXHIBIT 3

## AFFIDAVIT OF W. CRAIG CONWELL

STATE OF SOUTH CAROLINA

COUNTY OF GREENVILLE

BEFORE ME, the undersigned authority, duly commissioned and qualified in and for the State and County aforesaid, personally came and appeared W. Craig Conwell, who being by me first duly sworn deposed and said that:

I, W. Craig Conwell, being of lawful age and duly sworn upon my oath, do hereby depose and state as follows:

## Introduction

1.      I am an independent consultant specializing in telecommunications cost analysis. My business address is 405 Hammett Road, Greer, SC, 29650.

2.      I have Bachelors and Master of Science degrees in Industrial Engineering from Auburn University in Auburn, AL. I have over 30 years of experience in the telecommunications industry, with a broad background in telecommunications cost analysis as an employee of the Bell System, with Arthur Andersen & Co. in its telecommunications consulting practice, and for the past ten years as an independent consultant. In recent years, I have been extensively involved in negotiations and arbitrations of reciprocal compensation rates between incumbent local exchange carriers (ILECs) and wireless carriers. I have analyzed numerous ILEC cost studies for compliance with the FCC rules for Total Element Long Run Incremental Costs (TELRIC), and I have testified as an expert cost witness on behalf of wireless carriers in

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one or more arbitrations in six states, including Tennessee.[1] I also was involved on behalf of the AT&T (previously SBC) local exchange carriers in the arbitrations establishing rates for unbundled network elements and collocation. I have provided expert testimony on one or more occasions in 13 states. Over the years, I have developed cost models, performed cost studies, participated in the design of telecommunications cost accounting systems, and taught service cost courses for the United States Telephone Association and telephone company staffs.

3.    I have prepared numerous estimates of the required effort to perform cost studies and other consulting projects. As a Director with Arthur Andersen & Co., I was responsible for preparing proposals for client engagements and managing teams of consultants. The proposals included estimates of the number of personnel required for projects and hours of consulting effort. The proposals became the basis for consulting contracts. As an independent consultant, I am frequently asked by clients to provide estimates of time and necessary effort prior to undertaking a project. The process of developing project estimates involves: defining client needs and project deliverables, identifying key assumptions, defining the major tasks, identifying resource requirements, defining workflow, and estimating work days.

## Purpose and Summary of Affidavit

4.    The purpose of my affidavit is to provide an estimate of the effort required to perform a *forward-looking economic cost study* of transport and termination by a small ILEC. In providing the estimate, I will describe the following:

- Cost study deliverables.
- Key assumptions affecting cost study tasks, resource requirements and work effort.
- Major cost study tasks.
- Resource requirements.

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[1]  Cause Nos. PUD 200200150 and PUD 200300771 in Oklahoma, Docket No. 03-00585 in Tennessee, Case Nos. IO-2005-0468 and TO-2006-0147 in Missouri, Case Nos. U-14678 and U-14889 in Michigan, A.06-02-028-038, 040 in California, and Docket Nos. TC06-036 – TC06-042 in South Dakota.

- Estimated total work days.

5.      Based on the assumptions listed below, I have estimated that the activities required for each ILEC to complete a TELRIC study (using exclusively company-specific data) will total, on average, 11.75 days; in addition, 7.88 days of work will be required for activities shared among all ILECs performing cost studies. This represents the time of activities from initial study planning, through data gathering and cost analysis, to preparation of study documentation. There are numerous factors that will affect the total effort (productive days of work) to perform studies. I describe these factors below. ILECs planning to undertake cost studies and making estimates of internal and external resource requirements should take these and other factors into consideration to prepare company-specific estimates.

## Estimate of Cost Study Effort

6.      *Cost Study Deliverables.* The cost study is to provide for each ILEC the following:

- A summary of transport and termination costs. These costs are to comply with FCC Rules at 47 C.F.R. §§51.505 and 51.511. They are to represent the forward-looking economic costs to transport and terminate telecommunications traffic originated by wireless carriers – that is, mobile-to-land traffic.[2] The summary is to provide a breakdown of transport and termination costs in terms of end office switching, transport-fiber cable and transport-transmission equipment.

- An electronic, Excel-based model showing the calculation of transport and termination costs. An exhibit to the CMRS Providers` Brief contains a copy of an Excel model used to compute transport and termination cost benchmarks. The cost study is to produce a similar Excel workbook, modified to reflect the particular circumstances of the ILEC.

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[2] See 47 C.F.R. 51.505 for the definition of "forward-looking economic cost."

- Supporting documentation consisting of a description of key assumptions, the analyses and work papers supporting input data used in the cost model, and relevant source documents.

7. *Key Assumptions*. In preparing the estimate of work effort to produce these deliverables, the following key assumptions are made:

- Cost study input data are company-specific, as necessary. However, in some cases, input data may not differ materially among companies. Examples include current plant costs, capital cost factors and economic lives. When the same or similar input data can be used by more than one company, the effort to develop these data is assumed to be shared among companies. For this estimate, ten ILECs are assumed to be producing cost studies, so the effort of preparing common input data is assumed to be shared among all ten companies.

- An individual with experience and proficiency in performing transport and termination cost studies and Total Element Long Run Incremental Cost (TELRIC) model development produces the study and manages the project.

- ILEC personnel are available to provide cost study assumptions and input data. This includes information on current and forward-looking network configuration, current costs to purchase and install network elements, current and projected total demand, financial reports, *etc.*

- ILEC records regarding current network configuration (network diagrams) are available.

- ILEC records of current network element capacities and utilization (total demand) are maintained. These records show current switch equipped line and trunk capacity and in-service quantities, cable route fiber capacity and utilization, and transport transmission equipment capacities and utilization (DS1 equivalents).

- ILEC personnel can obtain vendor quotes or produce estimates of probable costs to purchase and install transport and termination network elements.

These include switches, fiber cable and transport transmission equipment (add/drop multiplexers, fiber terminals, *etc.*) Consulting engineers may have models for estimating probable plant costs.

- <u>Since the effort for some cost study tasks depend on the size and complexity of the ILEC, a typical small ILEC is assumed in estimating the days of effort required.</u> An ILEC with five to six end offices, a single SONET ring and one to two meet points with the transit carrier is assumed. ILECs with fewer end offices, point-to-point circuits connecting to transit carriers, and perhaps no remotes have simpler interoffice networks, and the effort required to determine transport and termination costs is less for these companies.

8.   *Major Cost Study Tasks.* Attachment A lists the necessary tasks for an ILEC to produce a transport and termination cost study. The tasks are grouped among six categories. These include: initial background information gathering, three categories for the calculation of switching, transport fiber and transport transmission equipment investments, the calculation of annual cost factors and costs per minute of use (MOU), and the final review and preparation of documentation. Tasks are identified as to whether they must be repeated for each ILEC (code = 'Y'), or whether the task is performed once for all ILECs (code = 'N').

9.   *Resource Requirements.* The resources required to perform transport and termination cost studies are largely *labor*. Studies can be performed using personal computers, Excel software and common information sources, such as electronic accounting records, records of network element capacities and utilization, and others. Labor resource requirements are indicated for each task in terms of the number of days of productive effort required. The following tasks are assumed to be required for producing an ILEC study: (1) obtaining background information and source data, (2) providing forward-looking estimates of total demand and capacity requirements for network elements, (3) identifying currently available technologies, (4) efficiently sizing network elements, (5) obtaining current plant cost data, (6) plant investment calculation, (7)

annual cost factor development and calculation of costs per MOU, (8) performing final review and documentation preparation, and (9) study management. "Days of effort" are provided for each task. These represent the cumulative productive days of work necessary to complete the task. The work effort may occur over several days and in parallel with other tasks.

10.    There are several factors that will affect the days of effort or activity times.
- Certain tasks for ILECs with few end offices (one or two) with direct point-to-point transport links to transit carriers are more straightforward, resulting in fewer days of effort and lower costs. For example, obtaining background information (tasks 2-7 on Attachment A) involves dealing with fewer network elements and less complexity. As result, the number of days required to gather this information may be less than 3.25 days included in the estimate.
- When transport and termination cost studies are to be produced for multiple ILECs, the activity times may decline as individuals become more proficient in the tasks. Since calculating annual cost factors requires the same methods and source data, this effort should become more routine, even though factors must be computed for each company.
- The average time per ILEC for activities shared by two or more ILECs (*e.g.*, preparing cost study work plan (task 1 on Attachment A), obtaining vendor quotes (task 9), *etc.*) varies with the number of ILECs. The estimate assumes ten ILECs are producing transport and termination cost studies, so 1/10th of the activity times for shared activities is attributed to each ILEC.

*Estimated Total Work Days.* Activity times (in days) are summed and shown on rows 56 and 57 of Attachment A. The activities required for each ILEC total 11.75 days; in addition, 7.88 days of work are required for activities shared among all ILECs performing cost studies.

_W. Craig Conwell_

W. Craig Conwell

SWORN TO AND SUBSCRIBED BEFORE
ME THIS _2_ DAY OF _November_ , 2006.

My Commission Expires August 11, 2016

# Attachment A

| | A | B | C | D | E | F | G | H |
|---|---|---|---|---|---|---|---|---|
| 1 | **Estimate to Produce Forward-Looking Economic Cost Study** | | | | | | | |
| 2 | | | | | | | | |
| 3 | **Transport and Termination** | | | | | | | |
| 4 | | | | | | Days of Effort | | |
| 5 | Task Category | Task No. | Task | Task Repeated for Each ILEC? | ILEC Personnnel | Engineer | Cost Analyst | Total |
| 6 | Background information gathering | 1 | Prepare cost study work plan. | N | - | - | 0.75 | 0.75 |
| 7 | | 2 | Obtain recent financial data - balance sheets, plant account balances. expenses. | Y | 0.13 | - | - | 0.13 |
| 8 | | 3 | Obtain network diagram showing switches, cable routes. transit carrier meet points, transport systems. | Y | 0.50 | - | - | 0.50 |
| 9 | | 4 | Obtain end office switching information - CLLI codes, host-remote clusters, capacities and in-service quantities. | Y | 0.25 | - | - | 0.25 |
| 10 | | 5 | Obtain interoffice (IO) fiber cable information - cable routes, cable types and sizes, fibers in service by type of use and spare capacity. | Y | 0.25 | - | - | 0.25 |
| 11 | | 6 | Obtain interoffice transport transmission equipment information - transport system type, system size, system routing, equipment capacities and in-service quantities (DS1 equivalents) at each network node. | Y | 0.50 | - | - | 0.50 |
| 12 | | 7 | Obtain current traffic data - total switched and interoffice minutes of use (MOU) per line and interoffice MOU per switch trunk. | Y | 0.50 | - | - | 0.50 |
| 13 | | 8 | Advise on information requirements.  Review background material. | Y | - | - | 0.38 | 0.38 |
| 14 | | | | | | | | |
| 15 | | | Subtotal | | 2.13 | - | 1.13 | 3.25 |
| 16 | | | | | | | | |
| 17 | Calculation of switching investment | 9 | Obtain detailed vendor quotes or develop probable current costs to purchase and install typical, new standalone/host and remote switches (two typical configurations).  Cost details show components of switch costs, driver of component quantities (lines, trunk DS1s, etc. ), unit prices and other costs of construction | N | - | 1.50 | - | 1.50 |
| 18 | | 10 | Determine usage-sensitive portion of end office switching investment based on analysis of switch component capacities and demand variables causing exhaustion of capacity. | N | - | 1.00 | 0.50 | 1.50 |
| 19 | | 11 | For each end office. estimate forward-looking capacity requirements - equipped lines, host-remote trunks, IO trunks, etc. | Y | 0.38 | - | 0.13 | 0.50 |
| 20 | | 12 | Estimate for standalone/host and remote switches typical switch building space requirements, land and building costs per sq. ft., power plant investment per central office and percentage of power plant investment attributable to switching. | N | - | 0.75 | - | 0.75 |
| 21 | | 13 | Structure cost model and enter data to compute usage-sensitive investment per switch and overall usage-sensitive investment per line. | Y | - | - | 0.38 | 0.38 |
| 22 | | | | | | | | |
| 23 | Calculation of transport fiber cable investment | 14 | Estimate IO fiber cable route mileage by cable type and size from network diagram. | Y | 0.25 | - | - | 0.25 |
| 24 | | 15 | Obtain current fiber cable installation costs by cable type and size | N | - | 0.38 | - | 0.38 |
| 25 | | 16 | Estimate forward-looking total demand for interoffice fiber cable-miles for transport system(s), loop carrier system(s), leased fibers and other. | Y | 0.75 | - | 0.13 | 0.88 |
| 26 | | 17 | Estimate forward-looking total demand in DS1 equivalents (switch trunks and dedicated circuits) for each ring and/or point-to-point circuit | Y | 0.75 | 0.50 | 0.13 | 1 38 |
| 27 | | 18 | Estimate forward-looking annual minutes of use per switch trunk (DS0). | Y | 0 13 | 0.13 | - | 0.25 |
| 28 | | 19 | Structure cost model to compute transport fiber cable investment per DS1, per switch trunk (DS0) and per IO minute of use based on total IO fiber cable investment (per ring or point-to-point circuit), the portion of fiber-miles attributable to the IO transport system, and total DS1 equivalents per ring or point-to-point circuit. | N | - | - | 0 75 | 0.75 |
| 29 | | 20 | Enter data to compute company-specific transport fiber cable investment per IO MOU. | Y | - | - | 0.25 | 0 25 |
| 30 | | | | | | | | |
| 69 | | | | | | | | |

| | A | B | C | D | E | F | G | H |
|---|---|---|---|---|---|---|---|---|
| 1 | **Estimate to Produce Forward-Looking Economic Cost Study** | | | | | | | |
| 2 | | | | | | | | |
| 3 | **Transport and Termination** | | | | | | | |
| 4 | | | | | | | Days of Effort | |
| 5 | Task Category | Task No. | Task | Task Repeated for Each ILEC? | ILEC Personnnel | Engineer | Cost Analyst | Total |
| 31 | Calculation of transport transmission equipment investment | 21 | Estimate total demand for switched and dedicated DS1 circuits at each network node or wirecenter and for each IO transport system. Determine efficient transport system size (OC48, OC12, OC3 or smaller). | Y | - | 0.50 | - | 0.50 |
| 32 | | 22 | Obtain vendor quotes or develop probable current costs to purchase and install typical transmission equipment at each network node for SONET rings and/or point-to-point circuits - add/drop multiplexer, optical distribution panel, pigtails, digital cross connect, *etc.*, as necessary | N | - | 0.50 | - | 0.50 |
| 33 | | 23 | Develop power plant loading factor. | Y | - | - | 0.25 | 0.25 |
| 34 | | 24 | Structure cost model to compute (1) transport transmission equipment investment per network node, (2) investment per termination at DS1 and DS0, and (3) investment per IO minute of use based on average terminations (1, 3 or more) per mobile-to-land call. | N | - | - | 0.75 | 0.75 |
| 35 | | 25 | Enter data to compute company-specific transport transmission equipment investment per IO MOU. | Y | - | - | 0.25 | 0.25 |
| 36 | | | | | | | | |
| 37 | Calculation of annual cost factors and costs per MOU | 26 | Research/estimate forward-looking debt ratios, costs of debt and equity, effective income tax rate and economic lives. | N | - | - | 0.75 | 0.75 |
| 38 | | 27 | Compute capital cost factors | N | - | - | 0.25 | 0.25 |
| 39 | | 28 | Calculate direct expense factors based on recent financials, adjusted as necessary to remove retail service costs (switching, transmission equipment, cable. network support assets and general support assets). | Y | 0.13 | - | 0.50 | 0 63 |
| 40 | | 29 | Calculate support asset factors for plant non-specific expenses and the costs of network support and general support assets. | Y | 0.13 | - | 0.50 | 0.63 |
| 41 | | 30 | Calculate common cost factor based on recent corporate operations expenses, adjusted to remove costs of activities attributable to retail services or other specific services. | Y | 0.13 | - | 0.38 | 0.50 |
| 42 | | 31 | Enter cost factors in cost model to compute recurring annual costs and costs per MOU associated with switching, transport fiber cable and transpor transmission equipment. | Y | - | - | 0.25 | 0.25 |
| 43 | | | | | | | | |
| 44 | | | Subtotal | | 2.63 | 5.25 | 6.13 | 14.00 |
| 45 | | | | | | | | |
| 46 | Final review & preparation of documentation | 32 | Review cost model and results for accuracy and reasonableness | Y | 0.38 | 0.25 | 0.38 | 1.00 |
| 47 | | 33 | Document key assumptions. | Y | - | - | 0.25 | 0.25 |
| 48 | | 34 | Organize supporting workpapers and analyses. | Y | - | 0.13 | 0.25 | 0.38 |
| 49 | | 35 | Copy and organize all source documents. | Y | 0.50 | - | 0.13 | 0.63 |
| 50 | | 36 | Assemble documentation. | Y | - | - | 0.13 | 0.13 |
| 51 | | | | | | | | |
| 52 | | | Subtotal | | 0 88 | 0.38 | 1.13 | 2.38 |
| 53 | | | | | | | | |
| 54 | | | | | | | | |
| 55 | | | Total Work Effort | | | | | |
| 56 | | | Activities specific to individual ILECs | | 5.63 | 1.50 | 4.63 | 11.75 |
| 57 | | | Activities shared among ILECs | | - | 4.13 | 3.75 | 7.88 |
| 58 | | | | | | | | |
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