Exhibit No.:
Issues: Normalized Revenue
Witness: Robert D. Adkins
Sponsoring Party: Missouri Public Service
Case No.: ER-

Before the Public Service Commission
of the State of Missouri

Direct Testimony

of

Robert D. Adkins

BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI
DIRECT TESTIMONY OF ROBERT D. ADKINS
ON BEHALF OF MISSOURI PUBLIC SERVICE,
A DIVISION OF UTILICORP UNITED INC.
CASE NO. ER-_____

Q. Please state your name and business address.

A. My name is Robert D. Adkins and my business address is 20 West 9th Street, Kansas City, MO, 64105 USA.

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

A. I am employed by UtiliCorp United Inc. ("UtiliCorp") as the Director-Energy Forecasting & Research department in the U.S. Utility business unit.

Q. Please describe your responsibilities in that position.

A. I am responsible for directing the development of econometric and end-use models and databases to weather normalize historical electric and gas sales, revenue and system loads for regulatory cases; forecast electric and natural gas sales, system loads, revenues, and customers; service area economic/demographic forecasts; market forecasts; and energy resource plans for UtiliCorp's regulated electric and gas utility operations in the United States. I also have responsibility for U.S. Utility's electric load research activities in the United States.

Q. Please describe your educational background.

A. I hold a Bachelor of Science degree in Electrical Engineering from the University of Missouri-Rolla (1974), and a Master of Business Administration degree in Finance from the University of Missouri-Kansas City (1979).

Q. Please describe your professional work experience.

A. From January 1975 to May 1979, I was employed as a Power System Planning Engineer at Burns & McDonnell Engineers-Architects in Kansas City, Missouri, where I was responsible for developing and using load forecasting, power supply planning, production cost and financial forecasting models, to perform economic studies and financial forecasts for electric utility clients. In June 1979, I joined Kansas City Power & Light Company as a Corporate Planning Engineer in the Corporate Planning & Finance Division, where I was responsible for performing load forecasts, construction/operating budget forecasts, economic evaluations, and financial forecasts. From January 1983 to December 1985, I served as Supervisor-Corporate Modeling, in the Financial Planning Department, Corporate Planning & Finance Division, of Kansas City Power & Light, where I was responsible for developing and using short-range monthly financial forecasting models, long-range strategic financial models, and related construction/operating budget systems, and revenue forecasting systems for financial planning and resource planning applications. From January 1986 to April 1991, I was employed as Director of Planning, Energy Group, with LMSL Public Utility Consultants, in Overland Park, Kansas, where I served as a project director and expert witness on finance and economics issues for energy utilities before state and federal regulatory agencies. From May 1991 to May 1995, I was employed by UtiliCorp as Manager-DSM Planning & Load Forecasting, responsible for demand-side planning, load forecasting, load research, and resource planning for UtiliCorp's Missouri Public Service ("MPS") division, as well as supporting other electric utility operations in these areas. From June 1995 to December 2000, I was

employed with UtiliCorp as Director-Corporate Forecasting responsible for energy and demand forecasting for all U.S. Utility regulated electric and gas utilities, including related economic forecasts and research. In December 2000, my title changed to Director-Energy Forecasting & Research reporting to UtiliCorp's U.S. Utility business unit with similar responsibilities, including energy forecasting and load research.

Q. Please describe your professional affiliations and certifications.

A. I have been a member of Phi Kappa Phi and Beta Gamma Sigma honorary societies since 1979. I served as Vice Chairman (1994) and Chairman (1995-1996) of the Edison Electric Institute, Economics Committee, and have been a member since 1991. I have been a member of the Edison Electric Institute Strategic Planning Committee since 1996. I have been an advisor to Electric Power Research Institute in the Retail Marketing Tools & Resource Management business unit since 1993. I have also been a member of the Southwest Power Pool, Load Forecasting Committee since 1991. I have been a member of the Institute of Business Forecasting since 1991. I have been a member of the American Association of Cost Engineers since 1990. I have been a Certified Demand-Side Professional ("CSDM") and member of the Association of Energy Engineers since 1993. I have been a member of the National Association of Business Economists and the Strategic Leadership Forum since 1997. I have been a member of the Society of Competitive Intelligence Professionals and Strategic Planning Society since 2000.

Q. Please describe your experience as an expert witness in regulatory proceedings before the Missouri Public Service Commission ("Commission"), and in other state and federal regulatory cases.

A. In September 1985, I provided testimony before the Missouri Public Service Commission on behalf of KCPL in Case Nos. ER-85-128 and EO-85-185 (Retail Rates) on issues regarding effects of load growth, generating capacity, and reserve margin on the phase-in plan for Wolf Creek Nuclear Station, and the economics of excluding CWIP from rate base. In February 1993, I provided testimony before the Commission on behalf of MPS in Case No. ER-93-37 (Retail Rates) on issues regarding weather normalized sales, demand-side programs, and load research.

My experience in these and other state and federal regulatory cases is shown on Schedule 1.

Q. What is the purpose of your direct testimony in this proceeding?

A. The purpose of my direct testimony in this proceeding is to sponsor and recommend that the Commission adopt the weather normalization adjustment to class sales and revenue for MPS shown on Schedule 2, the customer annualization adjustment shown on Schedule 3, and the weather normalized system hourly loads shown on Schedule 4. UtiliCorp witness Steve Ferry uses these weather normalized system hourly loads in estimating normalized fuel and purchase power costs. UtiliCorp witness Gary Clemens uses the weather normalization adjustment, and customer annualization adjustment in the normalized revenue requirements for MPS.

Q. Do you have a recommendation for the Commission regarding weather normalization of MPS sales and revenue, customer annualization adjustment, and system hourly loads?

A. I recommend that the Commission adopt the weather normalization adjustments to MPS sales and revenue, customer annualization adjustment, and the weather normalized system hourly loads that I am sponsoring in this case.

WEATHER NORMALIZATION OF CLASS SALES AND REVENUE

Q. Please provide a description of the methods and models used to calculate the weather normalization adjustments to class kWh sales for MPS.

A. Weather normalization adjusts the test year sales and revenue for the impact of weather. Normal weather is based on daily temperatures over a 30-year historical period (1961-1990). The Electric Power Research Institute ("EPRI") Hourly Electric Load Model ("HELM") was used to calculate the weather adjustments to weather sensitive rate class kWh sales for the test year ending June 30, 2000.

The weather sensitive rate classes that were weather normalized are as follows:

Residential (60-General Service, 70-Space Heat)
Small General Service (310-No Demand Meter, 311-Secondary, 316-Primary)
Large General Service (320-Secondary, 325-Primary)
Large Power (330-Secondary, 335-Primary)
Schools & Churches (340-Secondary)

HELM estimates the impacts of daily weather for each rate class by from hourly class load profile weather response functions, and bill cycle sales. Weather normalized sales are calculated for each month for each rate class, based on normal weather variables and the weather response functions. The weather variables are matched to align with the sales during the period over which sales were recorded. The weather normalization adjustment to kWh sales is calculated as the difference between weather normalized sales and actual sales. Actual weather and normal data for Kansas City International airport ("MCI") was

used in HELM to calculate weather variables. Normal weather data for MCI for daily temperatures over the 1961-1990 period was used in HELM, as developed by the Commission Staff ("Staff") in UtiliCorp's prior MPS Case No. ER-97-394 in 1997. Rate class hourly load profiles and weather response functions for MPS were used in HELM, as developed by the Staff in UtiliCorp's prior MPS Case No. ER-97-394 in 1997.

Q. Please describe the results of the weather normalization adjustment to kWh sales for the test year ending June 30, 2000.

A. Schedule 2 provides the weather normalization adjustment to kWh sales for each weather sensitive rate class. The total weather normalization adjustment for weather sensitive retail rate classes is 78,415,000 kWh for the test year ending June 30, 2000.

Q. Please describe the method for calculating the weather normalization adjustment to revenue for weather sensitive rate classes.

A. The method used for calculating the weather normalization adjustment for revenue for the test year ending June 30, 2000 for each weather sensitive rate class, is based on the same method used by the Staff in the prior MPS Case No. ER-97-394 in 1997. This method assumes that weather normalization affects only the rate class sales, with no effect from customer charges or other fixed charges paid by customers. This method was used to determine how average rate per kWh changed when energy sales per customer change for each rate class, before and after weather normalization. The monthly weather adjustment to revenues that corresponds to the monthly weather adjustment to kWh sales was calculated based on the appropriate rate per kWh.

Q. Please describe the results of the weather normalization adjustment to revenue for the test year ending June 30, 2000.

A. Schedule 2 provides the weather normalization adjustment to revenue for each weather sensitive rate class. The total weather normalization adjustment to revenue for weather sensitive retail rate classes is $3, 245,712 for the test year ending June 30, 2000.

CUSTOMER ANNUALIZATION ADJUSTMENT

Q. Please describe the method for calculating the customer normalization adjustment to revenue for weather sensitive rate classes.

A. The method used for calculating the customer annualization adjustment for revenue for the test year ending June 30, 2000 for each weather sensitive rate class, is based on the same method used by the Staff in the prior MPS Case No. ER-97-394 in 1997. Customer annualization adjustment to the test year revenue is made to reflect additional sales and revenue that will occur in the future because of projected growth in the number of customers. This method is simple and requires dividing the weather normalized test year rate class revenues by average customers, and then multiplying the result by the projected customers as of December 31, 2001 to obtain customer annualized revenues. Customers are projected based on trends over the past 5 years in this historical monthly customers by rate class. The customer annualization adjustment is the difference between the test year weather normalized revenues and the customer annualized revenues projected at December 31, 2001 customer levels.

Q. Please describe the results of the customer annualization adjustment to revenue at December 31, 2001.

A. Schedule 3 provides the customer annualization adjustment to revenue for each weather sensitive rate class. The total customer annualization adjustment to revenue for weather sensitive retail rate classes is $14,883,802 based on projected customer levels at December 31, 2001.

WEATHER NORMALIZATION OF SYSTEM HOURLY LOAD

Q. Please describe the method and data sources used for weather normalizing system hourly load for MPS.

A. System hourly load in kW represents the hourly electric supply requirements for the energy demands of MPS electric customers and internal needs. Actual system hourly loads for 1999 and 2000 were weather normalized using the HELM model with methods and data sources consistent with the weather normalization of class sales, as previously described in my testimony. A growth rate of 3.9%, based on historical growth during 1999-2000, was used to forecast 2001 weather normalized system hourly loads. The results for 2001 were simulated in HELM for the appropriate calendar days to produce a projection for the year 2001 weather normalized system hourly loads.

Q. Please describe the results of the MPS weather normalized system hourly loads for 2000 and 2001.

A. Schedule 4 provides a summary of the MPS weather normalized system hourly loads for 2000 and 2001. The MPS weather normalized net energy for load is estimated at 5,358,278 MWH, and 5,549,997 MWH for 2000 and 2001, respectively. The adjustment from 2000 actual to 2001 normal is system hourly loads is an increase of 73,031 MWH net energy for load, and 26 MW peak demand.

RECOMMENDATION

Q. What is your recommendation to the Commission?

A. My recommendation to the Commission is that it adopt the MPS weather normalization adjustment and customer annualization adjustment to rate class sales and revenue, and the weather normalized system hourly loads, which I am sponsoring in my testimony.

Q. Does this conclude your direct testimony?

A. Yes, it does.

EXPERT TESTIMONY EXPERIENCE – ROBERT D. ADKINS

1. **Kansas City Power & Light:** Missouri PSC Cases ER-85-128 and EO-85-185 (Retail Rates); Effects of load growth, generating capacity, and reserve margin on phase-in plan for Wolf Creek Nuclear Station, exclusion of CWIP from rate base and financial integrity. Rebuttal Testimony of Robert D. Adkins, September 1985.

2. **Potomac Electric Power Company**: District of Columbia PSC Cases 869 and 766 (Retail Rates); Load forecasts, energy-efficiency programs, resource plans, economic analysis of Chalk Point 3&4 gas conversion, and Ohio Edison 450 Mw power purchase contract. Direct Testimony of Robert D. Adkins, June 1988.

3. **Centerior Energy Corporation:** Ohio PUC Retail Rate Cases 88-170-EL-AIR (Cleveland Electric Illuminating) and 88-171-EL-AIR (Toledo Edison); Load forecasts, energy-efficiency programs, resource plans, power system reliability and reserve margin impacts of Perry 1 and Beaver Valley 2 Nuclear Unit. Direct and Rebuttal Testimony of Robert D. Adkins, November 1988.

4. **Tucson Electric Power Company:** Arizona Corporation Commission Cases U-1933-88-090 (Fuel Adjustor), U-1933-88-280 (Retail Rates), and Federal Energy Regulatory Commission Cases EL89-17-000 and EL89-18-000 (Wholesale Rates); Load forecasts, resource plans, fuel prices, system dispatch, power contracts, reserve margins, cost-of-service/rate design, and retrospective financial analysis of Alamito (GenCo 1984 spin-off and 1987 sale/leaseback of Springerville 1and San Juan 3 coal units) and successor companies (Century Power Corporation). Direct and Rebuttal Testimony of Robert D. Adkins, May 1989 (ACC) and July 1990 (FERC).

5. **CMS Energy (Consumers Power Company):** Michigan PSC Case U-9507; Review of Incentive Power Purchase Agreement with a proposed spin-off of Palisades Nuclear Generating Company (Nuclear GENCO), financial analysis of limited partnership structure, and related impact on load forecasts, resource plans, and retail rates of Consumers Power customers. Direct and Rebuttal Testimony of Robert D. Adkins, November 1990.

6. **UtiliCorp United Inc. (Missouri Public Service):** Missouri PSC Case ER-93-37 (Retail Rates); Test year weather normalized sales, demand-side programs, and load research project. Direct and Rebuttal Testimony of Robert D. Adkins, February 1993.

7. **UtiliCorp United Inc. (WestPlains Energy-Colorado):** Colorado PUC Case 94A-516E (Certificate of Public Convenience and Necessity); Load forecasts, demand-side programs, and economic impact of a proposed 141 Mw combined-cycle generating unit for service in 1998. Direct Testimony of Robert D. Adkins, April 1995.

8. **UtiliCorp United Inc. (WestPlains Energy-Colorado):** Colorado PUC Case 97A-373E (1996 Integrated Resource Plan); 1997-2018 Energy and Demand Forecast. Direct Testimony of Robert D. Adkins, March 1998.

9. **UtiliCorp United Inc. (Peoples Natural Gas-Minnesota, Minnesota Gas Utilities):** Minnesota PSC Case G007,011/GR-00-951 (Retail Rates); 2000 Forecasted Test Year, General Service Sales Projections. Direct Testimony of Robert D. Adkins filed May 2000 and August 2000.

UtiliCorp United Inc, Missouri Public Service Division
Weather Normalization Adjustment
Test Year Ending 6/30/00

MWh Sales Adjustment (Normal - Actual)

Rate Class	Jul-99	Aug-99	Sep-99	Oct-99	Nov-99	Dec-99	Jan-00	Feb-00	Mar-00	Apr-00	May-00	Jun-00	Annual
60	36,505	(28,891)	2,112	1,047	1,338	5,182	6,150	3,997	4,898	1,704	(694)	(11,749)	21,599
70	5,667	(4,569)	62	(188)	4,394	9,751	10,468	7,321	10,396	2,693	1,055	(1,453)	45,597
310	1,185	(809)	80	248	159	327	516	309	644	186	(29)	(473)	2,343
311	3,975	(2,410)	216	577	450	1,349	1,525	1,001	1,156	414	(358)	(1,575)	6,320
316	10	(15)	15	4	5	6	9	6	6	4	(3)	(8)	39
320	2,589	(1,891)	203	616	(858)	(260)	804	518	(146)	155	(561)	(838)	331
325	223	(211)	22	29	30	56	37	32	41	29	(47)	(12)	229
330	1,499	(1,598)	374	585	(1,089)	25	268	182	(257)	290	(993)	750	36
335	1,277	(1,082)	120	198	(617)	(39)	344	2	(85)	298	(658)	725	483
340	838	(756)	(33)	(167)	164	461	383	221	350	155	67	(245)	1,438
Total Retail	53,768	(42,232)	3,171	2,949	3,976	16,858	20,504	13,589	17,003	5,928	(2,221)	(14,878)	78,415
283	2,402	(3,743)	(709)	217	181	580	827	639	590	312	124	(1,208)	212

UtiliCorp United Inc, Missouri Public Service Division
Weather Normalization Adjustment
Test Year Ending 6/30/00

Revenue Adjustment (Normal - Actual)

Rate Class	Jul-99	Aug-99	Sep-99	Oct-99	Nov-99	Dec-99	Jan-00	Feb-00	Mar-00	Apr-00	May-00	Jun-00	Annual
60	2,786,067	(2,198,632)	160,637	57,111	76,717	278,845	319,870	213,396	266,063	97,399	(39,158)	(858,298)	1,160,018
70	423,756	(342,056)	4,657	(6,558)	150,138	337,351	381,547	265,699	360,669	88,620	36,231	(104,702)	1,595,352
310	102,201	(69,750)	7,030	7,303	3,692	10,789	19,948	12,116	24,775	4,248	(714)	(39,374)	82,263
311	291,632	(177,174)	15,940	24,748	19,906	58,242	62,667	41,363	49,326	18,520	(15,889)	(112,953)	276,329
316	683	(931)	965	166	204	239	349	210	238	140	(108)	(527)	1,628
320	168,039	(122,137)	13,359	23,576	(32,545)	(9,860)	30,179	19,348	(5,268)	5,860	(21,077)	(53,211)	16,263
325	14,175	(12,905)	1,471	1,041	1,086	2,116	1,415	1,182	1,519	1,096	(1,725)	(688)	9,783
330	76,563	(77,546)	18,491	20,923	(38,905)	911	9,783	6,601	(9,303)	10,517	(35,671)	36,647	19,009
335	64,649	(52,804)	5,960	6,864	(20,995)	(1,330)	11,640	69	(2,139)	10,045	(22,310)	34,301	33,749
340	61,680	(55,595)	(2,434)	(7,023)	8,129	18,590	15,431	9,202	13,732	6,244	2,509	(17,148)	51,317
Total Retail	3,989,445	(3,109,529)	226,075	127,951	165,428	695,892	852,829	569,185	699,613	242,689	(97,912)	(1,115,954)	3,245,712
283	96,146	(147,300)	(34,944)	6,685	3,398	7,764	11,190	9,877	10,210	5,682	2,727	(49,424)	(77,988)

Schedule RDA-2

UtiliCorp United Inc, Missouri Public Service Division
Customer Annualization Adjustment
Test Year Ending 6/30/00

Rate Class	Test Year 06/30/2000 Customers	Forecast 12/31/2001 Customers		Test Year 06/30/2000 Revenue/Cust	Forecast 12/31/2001 Revenue		Test Year 06/30/2000 WN Revenue	Forecast 12/31/2001 Cust Adj.
60	144,169	146,176		788.50	115,259,505		112,128,731	3,130,774
70	32,065	38,535		1,034.40	39,860,567		31,980,480	7,880,087
								-
310	15,683	17,186		739.02	12,700,752		11,423,498	1,277,254
311	7,853	8,155		4,009.26	32,694,000		31,085,550	1,608,450
316	8	7		23,471.28	164,299		155,870	8,429
320	935	969		37,687.32	36,516,375		34,485,631	2,030,744
325	22	20		73,319.53	1,494,985		1,566,431	(71,446)
330	94	96		211,474.43	20,195,808		19,968,897	226,911
335	33	32		644,243.48	20,725,313		21,762,924	(1,037,611)
340	1,059	997		3,206.60	3,198,357		3,359,720	(161,363)
Total	201,922	212,173		1,332.92	282,809,963		267,917,732	**14,892,231**

Schedule RDA-3

UtiliCorp United Inc, Missouri Public Service Division
System Load Summary
Year Ending 12/31/00

	Net Energy For Load (MWh)				Monthly Peaks (MW)				Load Factor	
Month	Actual 2000	Normal 2000	Adj.	% Adj.	Actual 2000	Normal 2000	Adj.	% Adj.	Actual 2000	Normal 2000
Jan	429,271	459,429	30,158	7.0%	759	834	75	9.9%	0.7602	0.7404
Feb	382,319	406,906	24,587	6.4%	730	808	79	10.8%	0.7530	0.7236
Mar	381,561	392,326	10,765	2.8%	654	706	52	8.0%	0.7845	0.7469
Apr	350,718	364,298	13,580	3.9%	684	746	63	9.1%	0.7127	0.6782
May	427,348	405,570	(21,778)	-5.1%	1,104	959	(145)	-13.1%	0.5203	0.5684
Jun	470,188	502,564	32,376	6.9%	1,093	1,156	64	5.8%	0.5977	0.6038
Jul	568,461	589,394	20932.6	3.7%	1,255	1,311	56	4.5%	0.6089	0.6043
Aug	650,815	564,354	(86,461)	-13.3%	1,335	1,252	(83)	-6.2%	0.6552	0.6059
Sep	493,940	429,801	(64,139)	-13.0%	1,319	1,074	(245)	-18.6%	0.5201	0.5558
Oct	392,654	385,847	(6,807)	-1.7%	872	734	(138)	-15.8%	0.6054	0.7066
Nov	408,203	388,260	(19,943)	-4.9%	768	717	(51)	-6.6%	0.7384	0.7521
Dec	521,487	469,529	(51,958)	-10.0%	937	883	(54)	-5.8%	0.7477	0.7147
Annual	5,476,966	5,358,278	(118,688)	-2.2%	1,335	1,311	(24)	-1.8%	0.4670	0.4653

Source: MPS weather normalized system hourly loads, 2000, HELM.

UtiliCorp United Inc, Missouri Public Service Division
System Load Summary
Year Ending 12/31/01

	Net Energy For Load (MWh)				Monthly Peaks (MW)				Load Factor	
Month	Actual 2000	Normal 2001	**Adj.**	% Adj.	Actual 2000	Normal 2001	**Adj.**	% Adj.	Actual 2000	Normal 2001
Jan	429,271	479,867	50,596	11.8%	759	866	107	14.1%	0.7602	0.7448
Feb	382,319	407,300	24,981	6.5%	730	839	110	15.0%	0.7530	0.6975
Mar	381,561	407,483	25,922	6.8%	654	733	79	12.1%	0.7845	0.7472
Apr	350,718	380,135	29,417	8.4%	684	775	92	13.4%	0.7127	0.6812
May	427,348	417,179	(10,169)	-2.4%	1,104	995	(109)	-9.9%	0.5203	0.5635
Jun	470,188	513,231	43,043	9.2%	1,093	1,176	84	7.6%	0.5977	0.6061
Jul	568,461	636,946	68484.6	12.0%	1,255	1,361	106	8.5%	0.6089	0.6290
Aug	650,815	587,656	(63,159)	-9.7%	1,335	1,331	(4)	-0.3%	0.6552	0.5934
Sep	493,940	439,573	(54,367)	-11.0%	1,319	1,115	(204)	-15.5%	0.5201	0.5475
Oct	392,654	404,379	11,725	3.0%	872	907	35	4.0%	0.6054	0.5993
Nov	408,203	402,483	(5,720)	-1.4%	768	756	(12)	-1.5%	0.7384	0.7394
Dec	521,487	473,765	(47,722)	-9.2%	937	916	(21)	-2.3%	0.7477	0.6952
Annual	5,476,966	5,549,997	**73,031**	1.3%	1,335	1,361	**26**	1.9%	0.4670	0.4642

Source: MPS weather normalized system hourly loads, 2001, HELM.

Schedule RDA-4

BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI

In the matter of Missouri Public Service of Kansas City, Missouri, for authority to file tariffs increasing electric rates for service provided to customers in the Missouri Public Service area	)))))	Case No. ER-_____

County of Jackson)
) ss
State of Missouri)

AFFIDAVIT OF ROBERT D. ADKINS

Robert D. Adkins, being first duly sworn, deposes and says that he is the witness who sponsors the accompanying testimony entitled "Direct Testimony of Robert D. Adkins;" that said testimony was prepared by him and under his direction and supervision; that if inquiries were made as to the facts in said testimony and schedules, he would respond as therein set forth; and that the aforesaid testimony and schedules are true and correct to the best of his knowledge, information, and belief.

Robert D. Adkins

Robert D. Adkins

Subscribed and sworn to before me this 1st day of June, 2001.

Terry D. Lutes

Notary Public

My Commission expires:

8/20/2004

TERRY D. LUTES
Jackson County
My Commission Expires
August 20, 2004