#### MISSOURI PUBLIC SERVICE COMMISSION

# STAFF REPORT COST OF SERVICE APPENDICES

**EMPIRE DISTRICT GAS COMPANY** 

CASE NO. GR-2009-0434

Jefferson City, Missouri August 2009

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Date	

#### MISSOURI PUBLIC SERVICE COMMISSION

### STAFF REPORT COST OF SERVICE

**APPENDIX 1**Staff Credentials

#### **EMPIRE DISTRICT GAS COMPANY**

CASE NO. GR-2009-0434

#### **APPENDIX 1**

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#### **SHANA ATKINSON**

#### **Educational and Employment Background and Credentials**

I am currently employed as a Utility Regulatory Auditor I for the Missouri Public Service Commission (Commission). I accepted the position of Utility Regulatory Auditor I in December 2008.

In May 2007, I earned a Bachelor of Science in Accountancy and a Master of Accountancy degree from the University of Missouri-Columbia. My accounting degree required an understanding of financial concepts, including the cost of capital.

I assisted with the preparation of schedules in the Missouri Gas Energy rate case, Case No. GR-2009-0355. I sponsored recommendations in two finance cases, Case Nos. GF-2009-0331 and EF-2009-0266. I have developed rate of return recommendations for numerous small water and sewer rate cases and have assisted as needed in small water and sewer certificate cases.

Company Name	Case Number	<u>Testimony/Issues</u>	Contested or Settled
Laclede Gas Company	GT-2009-0056	Surrebuttal Testimony - Tariff	Contested
Missouri-American Water Company	WR-2008-0311 & SR-2008-0312	Report on Cost of Service – Tank Painting Tracker, Lobbying Costs, PSC Assessment Direct – Overview of Staff's Filing Rebuttal – True-Up Items, Unamortized Balance of Security AAO, Tank Painting Expense, Fire Hydrant Painting Expense Surrebuttal – Unamortized Balance of Security AAO, Cedar Hill Waste Water Plant, Tank Painting Expense, Fire Hydrant Painting Expense	Settled
Missouri Gas Utility, Inc.	GR-2008-0060	Report on Cost of Service - Plant-in Service/Capitalization Policy, Plant-in Service/Purchase Price Valuation, Depreciation Reserve, Revenues, Uncollectible Expense	Settled
Laclede Gas Company	GR-2007-0208	Direct- Test Year and True-Up, Environmental costs, AAOs, Revenue, Miscellaneous Revenue, Gross receipts Tax, Gas Costs, Uncollectibles, EWCR, AMR, Acquisition Adjustment	Settled
Kansas City Power & Light	ER-2006-0314	Direct- Gross Receipts Tax, Revenues, Weather Normalization, Customer Growth/Loss Annualization, Large Customer Annualization, Other Revenue, Uncollectible (Bad Debt) Expense, Payroll, A&G Salaries Capitalization Ratio, Payroll Taxes, Employer 401 (k) Match, Other Employee Benefits Surrebuttal- Uncollectible (Bad Debt) Expense, Payroll, A&G Salaries Capitalization Ratio, Other Employee Benefits	Contested
Missouri Gas Energy	GR-2006-0204	<u>Direct</u> - Payroll, Incentive Compensation, Payroll Taxes, Employee Benefits, Lobbying, Customer & Governmental Relations Department, Collections Contract	Settled

Company Name	Case Number	Testimony/Issues	Contested or Settled
Missouri Gas Energy	GU-2005-0095	Rebuttal- Accounting Authority Order Surrebuttal- Accounting Authority Order	Contested
The Empire District Electric Company	ER-2004-0570	<u>Direct</u> - Payroll	Settled
Missouri American Water Company & Cedar Hill Utility Company	SM-2004-0275	<b>Direct</b> - Acquisition Premium	Settled
Missouri Gas Energy	GR-2004-0209	Direct- Safety Line Replacement Program; Environmental Response Fund; Dues & Donations; Payroll; Customer & Governmental Relations Department Disallowance; Outside Lobbyist Costs Rebuttal- Customer Service; Incentive Compensation; Environmental Response Fund; Lobbying/Legislative Costs True-Up- Rate Case Expense	Contested
Osage Water Company	ST-2003-0562 / WT-2003-0563	<u>Direct</u> - Payroll <u>Rebuttal</u> - Payroll; Lease Payments to Affiliated Company; alleged Legal Requirement of a Reserve	Case Dismissed
Missouri American Water Company	WR-2003-0500	<u>Direct</u> - Acquisition Adjustment; Water Treatment Plant Excess Capacity; Retired Treatment Plan; Affiliated Transactions; Security AAO; Advertising Expense; Customer Correspondence	Settled
Empire District Electric	ER-2002-424	<u>Direct</u> - Dues & Donations; Memberships; Payroll; Security Costs <u>Rebuttal</u> - Energy Traders' Commission <u>Surrebuttal</u> - Energy Traders' Commission	Settled

Company Name	Case Number	<u>Testimony/Issues</u>	Contested or Settled
Laclede Gas Company	GR-2002-356	Direct- Advertising Expense; Safety Replacement Program and the Copper Service Replacement Program; Dues & Donations; Rate Case Expense Rebuttal- Gas Safety Replacement Program / Deferred Income Taxes for AAOs	Settled
Missouri-American Water Company	WO-2002-273	Rebuttal- Accounting Authority Order Cross-Surrebuttal- Accounting Authority Order	Contested
Environmental Utilities	WA-2002-65	<u>Direct</u> - Water Supply Agreement <u>Rebuttal</u> - Certificate of Convenience & Necessity	Contested
Warren County Water & Sewer	WC-2002-160 / SC-2002-155	Direct- Clean Water Act Violations; DNR Violations; Customer Service; Water Storage Tank; Financial Ability; Management Issues  Surrebuttal- Customer Complaints; Poor Management Decisions; Commingling of Regulated & Non-Related Business	Contested
Laclede Gas Company	GR-2001-629	<u>Direct</u> - Advertising Expense; Safety Replacement Program; Dues & Donations; Customer Correspondence	Settled
Gateway Pipeline Company	GM-2001-585	Rebuttal- Acquisition Adjustment; Affiliated Transactions; Company's Strategic Plan	Contested
Empire District Electric	ER-2001-299	<u>Direct</u> - Payroll; Merger Expense <u>Rebuttal</u> - Payroll <u>Surrebuttal</u> - Payroll	Settled
Osage Water Company	SR-2000-556/ WR-2000-557	<u>Direct</u> - Customer Service	Contested

Company Name	Case Number	<u>Testimony/Issues</u>	Contested or Settled
St. Louis County Water Company	WR-2000-844	<u>Direct</u> - Main Incident Expense	Settled
Missouri American Water Company	WR-2000-281/ SR-2000-282	Direct- Water Plant Premature Retirement; Rate Case Expense Rebuttal- Water Plant Premature Retirement Surrebuttal- Water Plant Premature Retirement	Contested
Laclede Gas Company	GR-99-315	Direct- Advertising Expense; Dues & Donations; Miscellaneous Expense; Items to be Trued-up	Contested
St. Joseph Light & Power	HR-99-245	Direct- Advertising Expense; Dues & Donations; Miscellaneous Expense; Items to be Trued-up  Rebuttal- Advertising Expense  Surrebuttal- Advertising Expense	Settled
St. Joseph Light & Power	ER-99-247	Direct- Merger Expense; Rate Case Expense; Deferral of the Automatic Mapping/Facility Management Costs Rebuttal- Merger Expense; Rate Case Expense; Deferral of the Automatic Mapping/Facility Management Costs Surrebuttal- Merger Expense; Rate Case Expense; Deferral of the Automatic Mapping/Facility Management Costs	Settled
Laclede Gas Company	GR-98-374	<u>Direct</u> - Advertising Expense; Gas Safety Replacement AAO; Computer System Replacement Costs	Settled
Missouri Gas Energy	GR-98-140	Direct- Payroll; Advertising; Dues & Donations; Regulatory Commission Expense; Rate Case Expense	Contested

Company Name	Case Number	Testimony/Issues	Contested or Settled
Gascony Water Company, Inc.	WA-97-510	Rebuttal- Rate Base; Rate Case Expense; Cash Working Capital	Settled
Union Electric Company	GR-97-393	<u>Direct</u> - Interest Rates for Customer Deposits	Settled
St. Louis County Water Company	WR-97-382	<u>Direct</u> - Interest Rates for Customer Deposits, Main Incident Expense	Settled
Associated Natural Gas Company	GR-97-272	Direct- Acquisition Adjustment; Interest Rates for Customer Deposits  Rebuttal- Acquisition Adjustment; Interest Rates for Customer Deposits  Surrebuttal- Interest Rates for Customer Deposits Deposits	Contested
Missouri-American Water Company	WA-97-45	Rebuttal- Waiver of Service Connection Charges	Contested
Imperial Utility Corporation	SC-96-427	<u>Direct-</u> Revenues, CIAC <u>Surrebuttal-</u> Payroll; Uncollectible Accounts Expense; Rate Case Expense, Revenues	Settled
St. Louis Water Company	WR-96-263	<u>Direct</u> -Main Incident Repairs <u>Rebuttal</u> - Main Incident Repairs <u>Surrebuttal</u> - Main Incident Repairs	Contested
Steelville Telephone Company	TR-96-123	<u>Direct</u> - Depreciation Reserve Deficiency	Settled

Company Name	Case Number	Testimony/Issues	Contested or Settled
Missouri-American Water Company	WR-95-205/ SR-95-206	Direct- Property Held for Future Use; Premature Retirement of Sewer Plant; Depreciation Study Expense; Deferred Maintenance Rebuttal- Property Held for Future Use; Premature Retirement of Sewer Plant; Deferred Maintenance Surrebuttal- Property Held for Future Use; Premature Retirement of Sewer Plant	Contested
St. Louis County Water Company	WR-95-145	Rebuttal- Tank Painting Reserve Account; Main Repair Reserve Account Surrebuttal- Main Repair Reserve Account	Contested

#### Kim Cox

#### **EDUCATION**

Bachelor of Science Central Missouri State University, Warrensburg, MO – May 1996

#### PROFESSIONAL EXPERIENCE

I am currently employed as a Rate and Tariff Examiner III for the Missouri Public Service Commission (Commission). I began my employment with the Commission on July 13, 2009. Before coming to the Commission I was in the regulatory field for ten years where I held the position of a Quality Assurance Analyst.

Since starting with the Commission I have completed the Consumer Affairs Training held by NARUC and provided a Staff Recommendation for an application by Missouri Gas Utility for a Certificate of Convenience and Necessity in case GA-2010-0012.

#### MICHAEL J. ENSRUD

My educational and professional experience is as follows:

I have a Bachelor of Science from Drake University. I attended the NARUC Annual Regulatory Studies Program at Michigan State University. In the regulatory field, I've worked for CompTel Missouri, and CommuniGroup, Inc., Teleconnect, TeleCom\* USA, and General Telephone Company of the Midwest in the private sector. In addition, I have four-years of experience with the Iowa Public Utility Board – Iowa's equivalent to the Missouri Commission.

I have filed written testimony and have testified in several cases before Missouri Public Service Commission. Schedule 1 lists the cases where I have filed testimony (or otherwise materially participated) as a Staff witness before this Commission. (There are numerous cases going back to the mid-1980s where I filed testimony on behalf of Teleconnect (TeleCom\*USA), CompTel of Missouri & CommuniGroup, Inc. - various private entities or trade associations - that are not listed). I have also testified in other jurisdictions.

#### MICHAEL J. ENSRUD

#### Schedule 1

Cases that I have testified (or otherwise materially participated) in as a Staff witness:

**Atmos Energy Corporation - GR-2006-0387 - Miscellaneous Rate Issues & Seasonal Reconnection Charge.** 

Missouri Gas Energy (a Division of Southern Union Company) - GR-2006-0422 - Miscellaneous Rate Issues & Seasonal Reconnection Charge.

AmerenUE (Union Electric Company) - GR- 2007-0003 - Miscellaneous Rate Issues & Seasonal Reconnection Charge.

**Laclede Gas Company - GR-2005-0284 -** Miscellaneous Rate Issues & Credit Scoring / **GR - 2007-0208 -** Miscellaneous Rate Issues & Credit Scoring & Rate Switching Customers

Southern Missouri Natural Gas Company (Southern Missouri Natural Gas Company) - GE-2005-0189 - Promotional Practices

Empire District Electric Company of Joplin - ER-2006-0315 - Street Lighting

Missouri Gas Utilities, Inc. (MGU) - GR-2008-0060 - Miscellaneous Rate Issues

Trigen Kansas City Energy Corporation - HR-2008-0300 - Miscellaneous Rate Issues

Union Electric Company d/b/a AmerenUE - ER-2008-0318 – Renewable Energy Certificates

Kansas City Power & Light – KCP&L Greater Missouri Operations Company ("GMO") – HR-2009-0092 – Contract Adjustment & Imputation – AG Processing (AGP)

#### **JERMAINE GREEN**

#### **Educational and Employment Background and Credentials**

I am currently employed as a Utility Regulatory Auditor I for the Missouri Public Service Commission (Commission). I accepted the position of Utility Regulatory Auditor I in June 2009.

In May 2009, I earned a Bachelor of Arts in Accounting from Westminster College in Fulton, Missouri. While in college I was chairman of the Student Government Association Finance Committee and managed an annual budget of \$100,000. Prior to joining the Commission I worked for Central Bancompany in the capacity of a part-time Teller.

While at the Commission, I have assisted with the preparation of schedules in the Noel Water Company rate case, Case No. WR-2009-0395. I sponsored recommendations on Plant in Service, Depreciation Expenses and Reserve.

#### **Empire District Gas Company**

#### GR-2009-0434

#### Education, Background and Case Participation

#### Paul R. Harrison

I am a Utility Regulatory Auditor IV with the Missouri Public Service Commission (PSC or Commission). I have performed duties as a Utility Regulatory Auditor within the Auditing Department at the Commission since January 18, 2000. I have also been responsible for the supervision of other Audit Department employees in rate cases and other regulatory proceedings before the Commission.

I graduated from Park College, Kansas City, Missouri, where I earned Bachelor of Science degrees in both Accounting and Management with Magna Cum Laude honors in July 1995. I also earned an Associate degree in Missile Maintenance Technology from the Community College of the Air Force in June 1990.

Prior to coming to work at the Commission, I was the manager for Tool Warehouse Inc. for four and one-half years. As the manager, I managed, supervised, coordinated and scheduled daily activities of personal assigned to the Tool Warehouse. I was responsible for the daily sales volume and ordered all merchandise, (\$2.5million), for the tool warehouse in accordance with Tool Warehouse policy and procedures.

Prior to being the manager of the Tool Warehouse Inc, I was in the United States Air Force (USAF) for twenty-three years. During my career in the USAF, I was assigned many different duty positions with various levels of responsibility. I retired from active duty on May 1, 1994 as Superintendent of the 321st Strategic Missile Wing Missile Mechanical

Flight. In that capacity, I supervised 95 missile maintenance technicians and managed assets valued in excess of \$50 million.

My duties at the Commission include performing audits of the books and records of regulated public utilities under the jurisdiction of the MoPSC, in conjunction with other Commission Staff (Staff) members. In this capacity, I am required to prepare testimony and serve as a Staff expert witness on rate cases concerning the ratemaking philosophy and methodology of issues that I am assigned.

I have acquired general knowledge of these topics through my experience and analyses in prior rate cases before this Commission. I have also acquired knowledge of these topics through review of Staff work papers for prior rate cases brought before this Commission. I have reviewed prior Commission decisions with regard to these areas. I have reviewed the Company's testimony, work papers and responses to Staff's data requests addressing these topics. In addition, my college coursework included accounting and auditing classes. Since commencing employment with the Commission in January 2000, I have attended various in house training seminars and National Association of Regulatory Utility Commission (NARUC) conferences. I have participated in approximately twenty-three formal rate case proceedings. I have also participated in and supervised the work on a number of informal rate proceedings. As a senior auditor and the Lead Auditor on a number of cases, I have participated in the supervision and instruction of new accountants and auditors within the Utility Services Division.

The Schedule below lists the rate cases in which I filed testimony, the issues that I have successful completed and the small informal cases that I have been assigned.

COMPANY	CASE NO.	TESTIMONY/ISSUES
	SUMMARY O	F FORMAL CASES
Empire District Gas Company	GR-2009-0434	In Progress Cost of Service Report- Allocations/Rents; Right-of-Way Clearing; AAO-MGP Costs; Franchise Fees; Reconciliation; Income & Deferred Taxes.  Lead Auditor
Kansas City Power & Light (KCPL)	ER-2009-0089	April 2009 Surrebuttal- Non-Talent Assessment Severance Costs True-Up - Pensions & OPEBS; Income & Deferred Taxes
KCP&L Greater Missouri Operations Company (KCPL-GMO MPS & L&P Electric)	ER-2009-0090	April 2009 Surrebuttal-Cost of Removal-Income Taxes, Regulatory Asset Amortization.  True-Up - Pensions & OPEBS; Income & Deferred Taxes  Lead Auditor
Kansas City Power & Light (KCPL)	ER-2009-0089	March 2009 Cost of Service Report- Pensions & OPEBS; Non-Talent Assessment Severance Costs; Officer Expenses; Meals & Entertainment Expense; Employee Relocation Expense; Lobbying Expense; Lease Expenses; Non-Operating Cost Adjustment; Income & Deferred Taxes
KCP&L Greater Missouri Operations Company (KCPL-GMO MPS & L&P Electric)	ER-2009-0090	March 2009 Cost of Service Report- Pensions & OPEBS; Miscellaneous Adjustments; SJLP Merger Transition Costs; Employee Relocation Expense; Lease Expenses; Income & Deferred Taxes  Lead Auditor
KCP&L Greater Missouri Operations Company (KCPL-GMO L&P Steam)	HR-2009-0092	March 2009 Cost of Service Report- Pensions & OPEBS; Miscellaneous Adjustments; Income & Deferred Taxes Lead Auditor

COMPANY	CASE NO.	TESTIMONY/ISSUES
Missouri American Water Company	WR-2008-0311	October 2008 Surrebuttal- Belleville Lab Allocations; Compensation for Services MAWC Provided to AWR Litigated- Corporate Allocations True-Up - Corporate Allocations; Income & Deferred Taxes Lead Auditor
Missouri American Water Company	WR-2008-0311	August 2008 Cost of Service Report- Case Reconciliation; Corporate Allocations & Expenses; Belleville Lab Allocations; Compensation for Services MAWC Provided to AWR; Income & Deferred Taxes  Lead Auditor
Laclede Gas Company		In Progress Investigation of Affiliated Transactions, Corporate Allocations & Appropriate Time Charges Between Laclede's Regulated & Unregulated Subsidiaries
Missouri Gas Energy	GU-2007-0480	July 2008  Rebuttal- AAO Manufactured Gas Plant  Litigated- Manufactured Gas Plant
Missouri Gas Energy	GU-2007-0480	September 2007 Memorandum – AAO Manufactured Gas Plant Lead Auditor
Missouri Gas Utility	GR-2008-0060	February 2008 Cost of Service Report- Revenue Requirement Run (EMS) Merger & Acquisition Costs (Start-Up Costs); Corporate Allocations; Income & Deferred Taxes  Lead Auditor

COMPANY	CASE NO.	TESTIMONY/ISSUES
Missouri Gas Energy	GR-2006-0422	November 2006
		Rebuttal- Environmental Response Fund, Manufactured Gas Plant
		Litigated- Manufactured Gas Plant
Missouri Gas Energy	GR-2006-0422	October 2006
		Direct—Revenues; Purchased Gas Adjustments; Bad Debt Expense; ECWR AAO Bad Debt: Rent; Pensions & OPEBS; Income Taxes; Franchise Taxes; Manufactured Gas Plant, and Case Reconciliation
		Litigated- Emergency Cold Weather Rule
		True-Up - Revenues; Bad Debt Expense; Pensions
		& OPEBS; Income Taxes
The Empire District Electric Company	ER-2006-0315	July 2006
		Rebuttal- Storm Damage Tracker
The Empire District Electric Company	ER-2006-0315	June 2006
		Direct- Tree Trimming Expense and Construction Over- Run Costs
Missouri Pipeline & Missouri Gas Company LLC	GC-2006-0378	November 2006
Cas company EEC		Plant in Service, Depreciation Reserve, Depreciation Expense, Transactions & Acquisition Costs and Income Taxes
New Florence Telephone Company	TC-2006-0184	October 2006  Plant in Service; Depreciation Reserve; Depreciation Expense; Plant Overage; and Materials & Supplies
Cass County Telephone Company	TC-2005-0357	July 2006  Plant in Service; Depreciation Reserve; Depreciation
		Expense; Plant Overage; Plant Held for Future Use and Missouri Universal Service Fund

COMPANY	CASE NO.	TESTIMONY/ISSUES
Cass County Telephone Company & New Florence Telephone Company Fraud Investigation Case	TO-2005-0237	May 2006  Fraud Investigation case involving Cass County Telephone and New Florence Telephone
Missouri Gas Energy	GR-2004-0209	June 2004
<b></b>		Surrebuttal - Revenues and Bad Debt Expense
		True-Up - Revenues; Bad Debt Expense; Income Taxes
Missouri Gas Energy	GR-2004-0209	May 2004
		Rebuttal - Revenues; Bad Debt Expense; and Manufactured Gas Plant
		Litigated- Manufactured Gas Plant
Missouri Gas Energy	GR-2004-0209	April 2004
		Direct - Revenues; Purchased Gas Adjustments; Bad Debt Expense; Medical Expense; Rents; and Income Taxes
Union Electric Company d/b/a AmerenUE (Gas)	GR-2003-0517	October 2003
w.v.c.im.ssiio.2 (Gib)		Direct - Corporate Allocations; UEC Missouri Gas Allocations; CILCORP Allocations; Rent Expense; Maintenance of General Plant Expense; Lease Agreements; and Employee Relocation Expense
Union Electric Company	EC-2002-1	June 2002
d/b/a AmerenUE		Surrebuttal - Coal Inventory; Venice Power Plant Fire; Tree Trimming Expense; and Automated Meter Reading Service
Laclede Gas Company	GR-2002-356	June 2002
		Direct - Payroll; Payroll Taxes; 401k Pension Plan; Health Care Expenses; Pension Plan Trustee Fees; and Clearing Account:
		True- Up – Payroll; Payroll Taxes; and Clearing Accounts

COMPANY	CASE NO.	TESTIMONY/ISSUES
Union Electric Company d/b/a AmerenUE (2 <sup>nd</sup> period, 3 <sup>rd</sup> EARP)	EC-2002-1025	April 2002  Direct - Revenue Requirement Run; Plant in Service; Deprec Reserve; Other Rate Base items; Venice Power Plant Fire expenditures; Tree Trimming Expense; and Coal Inventory
2 <sup>nd</sup> Complaint Case, Union Electric Company d/b/a AmerenUE  New Test Year ordered by the Commission.	EC-2002-1	March 2002  Direct - Materials and Supplies; Prepayments; Fuel Inventory; Customer Advances for Construction; Customer Deposits; Plant in Service; Depreciation Reserve; Venice Power Plant Fire Expenditures; Tree-Trimming Expense; Automated Meter Reading Expense; Customer Deposit Interest Expense; Year 2000 Computer Modification Expense; Regulatory Advisor's Consulting Fees; and Property Taxes  Deposition – April 11, 2002
1 <sup>st</sup> Complaint Case, Union Electric Company d/b/a AmerenUE	EC-2002-1	July 2001  Direct - Materials and Supplies; Prepayments; Fuel Inventory; Customer Advances for Construction; Customer Deposits; Plant in Service; Depreciation Reserve; Power Plant Maintenance Expense; Tree-Trimming Expense; Automated Meter Reading Expense; Customer Deposit Interest Expense; Year 2000 Computer Modification Expense; Computer Software Expense; Regulatory Advisor's Consulting Fees; Board of Directors Advisor's Fees and Property Taxes.  Deposition – November 27 2001
Union Electric Company d/b/a AmerenUE (2 <sup>nd</sup> period, 2 <sup>nd</sup> EARP)	EC-2001-431	February 2001  Coal Inventory
Union Electric Company d/b/a AmerenUE (Gas)	GR-2000-512	August 2000  Direct - Cash Working Capital; Advertising Expense; Missouri PSC Assessment; Dues and Donations; Automated Meter Reading Expenses; Computer System Software Expenses (CSS); Computer System Software Expenses (Y2K); Computer System Software Expenses (EMPRV); Generation Strategy Project Expenses; Regulatory Advisor's Consulting fees and Board of Directors Advisor's fees.

COMPANY	CASE NO.	CASE NO. TESTIMONY/ISSUES	
SUMMARY OF INFORMAL CASES			
Noel Water Company	WR-2009-0395	August 2009  Cost of Service; All Revenues & Expenses related to Noel Water Company; Plant in Service; Depreciation Reserve & other Rate Base Items.  Lead Auditor	
Tri-State Water Company	WR-2009-0058	May 2008  Payroll; rent expense; miscellaneous maintenance expenses; Rate Base and Income Taxes.  Lead Auditor	
Big Island Water & Sewer Company	WA-2006-0480 SA-2006-0482	January 2007  Direct - Certificate of Necessitate Application Case: Cost of Service; All Revenues & Expenses related to Big Island Water & Sewer; Plant in Service; Depreciation Reserve & other Rate Base Items.  Lead Auditor	
Aqua Missouri, Inc (Water and Sewer)	QS-2005-0008 QW-2005-009 QS-2005-0010 QW-2005-0011	October 2006  All Revenues & Expenses related to Aqua MO Water & Sewer; Plant in Service; Depreciation Reserve & other Rate Base Items.  Lead Auditor	
Lake Region Water and Sewer Company (Certificate Case)	WA-2005-0463	October 2006  Certificate of Necessitate Application Case  Lead Auditor	

COMPANY	CASE NO.	TESTIMONY/ISSUES
Tri-State Utility Inc.	WA-2006-0241	May 2006  Certificate of Necessitate Application Case  Lead Auditor
Osage Water Company Environmental Utilities Missouri American Water Company	WO-2005-0086	February 2005  Rate Base; Cost of Service; Income Statement Items; Pre-Post Sale of OWC, Sale of EU Assets to MAWC
North Suburban Public Utility Company, Inc. (Water & Sewer)	WF-2005-0164	December 2004  Sale of All Stocks of Lake Region Water & Sewer to North Suburban Water & Sewer, Value of Rate Base Assets, Acquisition Premium  Lead Auditor
Mill Creek Sewers, Inc.	SR-2005-0116	December 2004  Cost of Service; All Revenues & Expenses related to Mill Creek Sewer; Plant in Service; Depreciation Reserve & other Rate Base Items.  Lead Auditor
Roark Water and Sewer, Inc.	WR-2005-0153 SR-2005-0154	September 2004  Cost of Service; All Revenues & Expenses related to Roark Water & Sewer; Plant in Service; Depreciation Reserve & other Rate Base Items.  Lead Auditor
Osage Water Company	WT-2003-0583 SR-2003-0584	December 2003  Cost of Service; All Revenues & Expenses related to Osage Water; Plant in Service; Depreciation Reserve & other Rate Base Items

COMPANY	CASE NO.	TESTIMONY/ISSUES		
SU	SUMMARY OF NON-CASE RELATED AUDITS			
	SUMMART OF NON-CASE RELATED AUDITS			
January 2006 – En	January 2006 – Environmental Utilities and Osage Water Company Audit Concerning			
Provision of Service to Eagle Woods Subdivision and Disconnect Notice				
November 2004 - Internal Audit of Public Service Commission (PSC) Fixed Assets, Physical				
ı	Inventory Control Process and Location of Assets			

#### Manisha Lakhanpal

Present Position: Regulatory Economist III

I joined Missouri Public Service Commission in August 2007 as a Regulatory Economist II in the Economic Analysis Section of the Energy Department, Operations Division.

#### **Educational Background:**

In December 2005, I graduated with a Masters of Science in Applied Economics, specializing in Electricity, Natural Gas and Telecommunication, from Illinois State University, Normal, Illinois. I have a Post Graduate Diploma in Business Management from Chetana's Institute of Management and Research, Mumbai, India and an undergraduate degree in Political Science and History from University of Delhi, New Delhi, India.

#### Work Experience:

I first joined Missouri Public Service Commission as an intern in 2006 (May 2006 - August 2006). Prior to returning to PSC I was employed by the Indiana Utility Regulatory Commission, Indianapolis, as a Utility Analyst (September 2006- August 2007). During my time in Indiana I worked on a variety of cases and projects, including a major rate case, wholesale power cost trackers for municipal utilities, environmental cost recovery cases, a certificate of need for the first wind power project in Indiana as well as a related case involving the purchase of output from the facility, and annual report to the legislature on the state of the industry in Indiana.

In the summer of 2005 (May 2005-July 2005), I worked as an Intern at CommonWealth Edison (ComEd), Chicago, on projects related to deregulation of electric markets in Illinois.

In India I have worked as an Operations Executive for an insurance company (June 2001 - December 2003).

#### **Case Proceeding Participation**

Company	Case Number	Issue
Missouri Gas Utility	GR-2008-0060	Weather normal variables for weather normalization
Empire District Electric Company	ER-2008-0093	Weather normal variables for weather normalization, Large Customer Analysis
Trigen-Kansas City Energy Corporation-(Steam/Heat)	HR-2008-0300	Weather normal variables and weather normalization factors
Ameren UE	ER-2008-0318	Weather normal variables for weather normalization, Revenue for Large Power Class
Kansas City Power & Light Company	ER-2009-0089	Weather normal variables for weather normalization, Retail Rate Revenue
KCP&L GMO Company	ER-2009-0090	Weather normal variables for weather normalization
MGE (filed rebuttal and surrebuttal testimony)	GR-2009-0355	Weather normal variables for weather normalization

#### Phil S. Lock

#### **Educational and Employment Background**

I am employed as a Regulatory Auditor with the Missouri Public Service Commission. I graduated from Central Missouri State University with a Bachelor of Science degree in Finance in 1980 and Accounting in 1986.

Prior to employment with the Commission, I was employed as a Tax Auditor with the Missouri Highway Reciprocity Commission. I also held a position as a Research Analyst with the Division of Family Services.

I began employment with the Commission in 1987 as a Regulatory Auditor in the Accounting Department (now known as the Auditing Department). My duties included assisting with audits and examinations of the books and records of utility companies operating within the state of Missouri.

In October 1993, I obtained by current position as a Regulatory Auditor in the Procurement Analysis Department. Since that time, my responsibilities include reviewing and analyzing amounts charged by natural gas local distribution companies (LDCs) through the Purchased Gas Adjustment (PGA)/Actual Cost Adjustment (ACA) mechanism. Since my time in the Procurement Analysis Department, I have performed and/or assisted in performing numerous ACA reviews of gas utility companies operating within the state of Missouri. Please see the attached table for a list of cases and issues in which I have filed testimony.

#### **SUMMARY OF TESTIMONY**

#### PHIL S. LOCK

COMPANY NAME	CASE NUMBER	ISSUES
Grand River Mutual Telephone	TR-87-25	Cash Working Capital
Kansas Power and Light Company	GR-89-48	Lost & Unaccounted for Gas
St. Joe Light and Power Company	GR-90-84	PGA Costs
Associated Natural Gas Company	GR-90-152	Revenues, Gas Costs, Bad Debts
United Cities Gas Company	GR-92-21	Take-or-Pay Refunds
Laclede Gas Company	GR-92-165	Weather Normalization, Customer Annualization, Unbilled Revenue, Postage & Card Stock Expense, Uncollectible Accounts, E&D Expense, Gas Expense
United Cities Gas Company	GR-93-47	Revenues, Gas Costs, Uncollectible Expense, Postage Expense, Customer Bypass
Laclede Gas Company	GR-93-149	Transportation within Contract Demand
Laclede Gas Company	GR-94-328	Capacity Reservation Charges
Missouri Public Service	GR-95-273	Capacity Release
Missouri Public Service	GA-97-132	Establish Optimal Gas Cost and Transportation Level
Missouri Public Service	GR-99-435	Put and Call Transactions
Greeley Gas Company	GR-2001-394	Purchasing Practices
Atmos Energy	GR-2001-396	Agency Fees, Overrun Gas, Storage, Purchasing Practices
Aquila Networks D/B/A Missouri Public Service	GR-2001-461	Purchasing Practices, Deferred Carrying Cost Balance, Puts/Calls
Gateway Pipeline Company	GM-2001-585	PGA Costs
Aquila Networks D/B/A Missouri Public Service	GR-2004-0072	Gas Storage Inventory
Atmos Energy Corporation	GR-2006-0387	Gas Storage Inventory, Uncollectible Expense, Gas Cost Tariff Change

#### **DAULA MADEKA**

#### **Present Position:**

I am currently employed as a Utility Regulatory Auditor III in the Auditing Department, Utility Services Division.

#### **Education Background and Work Experience:**

I graduated with a Masters degree in Business Administration from Lincoln University, Jefferson City, Missouri in August 2005. I attained a Bachelor of Science degree in Accounting from Lincoln University in May 2004. Prior to employment with the Commission, I was employed by the Department of Health and Senior Services. I joined the Commission as a Utility Regulatory Auditor I in March 2006.

### CASE PARTICIPATION OF PAULA MAPEKA

Date Filed	Case Name	Case Number	Testimony Type/Issues
02/22/2008	The Empire District Electric Company	ER-2008-0093	Staff Report, Cost of Service - Rate Base, Plant in Service, Depreciation Reserve, Cash Working Capital, Materials and Supplies, Prepayments, Customer Advances, Customer Deposits, Clearing Accounts, Payroll, Payroll Taxes and 401K Benefit Costs, Incentive Compensation, Rate Case Expenses, Dues and Donations, Edison Electric Institute Dues, Insurance Expense, Customer Deposit Interest Expense, Property Tax Expense, Advertising Expenses, Postage Expenses, Outside Services, Injuries and Damages
05/24/2007	Laclede Gas Company	GR-2007-0208	Direct - Accounting Schedules, Rate Base, Plant in Service, Adjustments to Plant in Service, Depreciation Reserve, Cash Working Capital, Interest on IFP & EWP, Depreciation Expense, Cost of Removal, Advertising, Postage Expense, Property Taxes, MO Franchise Taxes, Postage Expenses, Regulatory Expenses, Outside Services
12/11/2006	Missouri Gas Energy	GR-2006-0422	Surrebuttal - Rate Case Expenses
11/21/2006	Missouri Gas Energy	GR-2006-0422	Rebuttal - Cash Working Capital, Software Amortization
10/12/2006	Missouri Gas Energy	GR-2006-0422	Direct - Miscellaneous Expenses, Insurance, Postage, Property Taxes, Regulatory Expenses, Dues & Donations, Accounting Schedules, Promotional Giveaways, Other Ratebase Issues, Advertising, Depreciation Expense, Inquiries & Damages, Interest on Customer Deposits, Case Working Capital, Depreciation Reserve, Plant in Service

### CASE PARTICIPATION OF PAULA MAPEKA

Date Filed	Case Name	Case Number	Testimony Type/Issues
06/23/2006	The Empire District Electric Company	ER-2006-0315	Direct - Postage Expenses, Property and Liability Insurance, Injuries and Damages & Worker's Compensation, Customer Deposits, PSC Assessment, Rate Case Expense, Customer Advances, Material &Supplies

#### HENRY WARREN, PHD

REGULATORY ECONOMIST
UTILITY OPERATIONS DIVISION
ENERGY DEPARTMENT

#### **EDUCATION AND EXPERIENCE**

I received my Bachelor of Arts and my Master of Arts in Economics from the University of Missouri-Columbia, and a Doctor of Philosophy (PhD) in Economics from Texas A&M University. Prior to joining the PSC Staff (Staff), I was an Economist with the U.S. National Oceanic and Atmospheric Administration (NOAA). At NOAA I conducted research on the economic impact of climate and weather. I began my employment at the Commission on October 1, 1992 as a Research Economist in the Economic Analysis Department. My duties consisted of calculating adjustments to test-year energy use based on test-year weather and normal weather, and I also assisted in the review of Electric Resource Plans for investor owned utilities in Missouri. From December 1, 1997, until May 2001, I was a Regulatory Economist II in the Commission's Gas Department, where my duties included analysis of issues in natural gas rate cases and were expanded to include reviewing tariff filings, applications and various other matters relating to jurisdictional gas utilities in Missouri. On June 1, 2001 the Commission organized an Energy Department and I was assigned to the Tariff/Rate Design Section of the Energy Department. My duties in the Energy Department include analysis of issues in rate cases of natural gas and electric utilities, tariff filings, applications, and various other matters relating to jurisdictional gas and electric utilities in Missouri, including review of Electric Resource Plans and Regulatory Plans for investor owned electric utilities in Missouri. I have also served on various task forces, collaboratives, and working groups dealing with issues relating to jurisdictional natural gas and electric utilities.

# MISSOURI PUBLIC SERVICE COMMISSION CASES IN WHICH PREPARED TESTIMONY, REPORT, OR REVIEW WAS SUBMITTED BY: HENRY E. WARREN, PhD

COMPANY NAME	CASE NUMBER
St. Joseph Light and Power Company	GR-93-042 <sup>1</sup>
Laclede Gas Co.	GR-93-149
Missouri Public Service	GR-93-172 <sup>1</sup>
Western Resources	GR-93-240 <sup>1</sup>
Laclede Gas Co.	GR-94-220 <sup>1</sup>
Kansas City Power & Light Co.	EO-94-3601 <sup>2</sup>
United Cities Gas Co.	GR-95-160 <sup>1</sup>
UtiliCorp United, Inc.	EO-95-187 <sup>2</sup>
The Empire District Electric Co.	ER-95-279 <sup>1</sup>
The Empire District Electric Co.	EO-96-56 <sup>2</sup>
St. Joseph Light and Power Company	EO-96-198 <sup>2</sup>
Laclede Gas Co.	GR-96-193 <sup>1</sup>
Missouri Gas Energy	GR-96-285 <sup>1</sup>
The Empire District Electric Co.	ER-97-081 <sup>1</sup>
Union Electric Co.	GR-97-393 <sup>1</sup>
Missouri Gas Energy	GR-98-140 <sup>1</sup>
Laclede Gas Co.	GR-98-374 <sup>1</sup>
St. Joseph Light & Power Company	GR-99-246 <sup>1</sup>
Laclede Gas Co.	GR-99-315 <sup>1</sup>
Union Electric Company (d/b/a AmerenUE)	GR-2000-512 <sup>1</sup>
Missouri Gas Energy	GR-2001-292 <sup>1</sup>
Laclede Gas Co.	GR-2001-629 <sup>1</sup>

<sup>&</sup>lt;sup>1</sup>Testimony includes computations to adjust test year volumes, therms, or kWh to normal weather.

<sup>&</sup>lt;sup>2</sup>Staff Report or Review

# MISSOURI PUBLIC SERVICE COMMISSION CASES IN WHICH PREPARED TESTIMONY, REPORT OR REVIEW WAS SUBMITTED BY: HENRY E. WARREN, PhD

#### (CONTINUED)

COMPANY NAME	CASE NUMBER
Laclede Gas Company	GC-2002-0110 <sup>2</sup>
Laclede Gas Company	GR-2002-0356 <sup>1</sup>
Aquila, Inc.	GC-2003-0131 <sup>2</sup>
Laclede Gas Company	GC-2003-0212 <sup>2</sup>
Laclede Gas Company	GT-2003-0117
Aquila, Inc., (d/b/a Aquila Networks MPS and L&P)	GR-2004-0072 <sup>1</sup>
Missouri Gas Energy	GR-2004-0209
Laclede Gas Company	GC-2004-0240 <sup>2</sup>
Kansas City Power & Light Company	EO-2005-0329 <sup>2</sup>
Union Electric Company (d/b/a AmerenUE)	EO-2006-0240 <sup>2</sup>
The Empire District Electric Company	ER-2006-0315
The Atmos Energy Corporation	GR-2006-0387 <sup>1</sup>
Missouri Gas Energy	GR-2006-0422 <sup>1</sup>
Union Electric Company (d/b/a AmerenUE)	GR-2007-0003 <sup>1</sup>
Kansas City Power & Light Company	EO-2007-0008 <sup>2</sup>
Aquila, Inc., (d/b/a Aquila Networks MPS and L&P)	EO-2007-0298 <sup>2</sup>
Laclede Gas Company	GR-2007-0208 <sup>2</sup>
Missouri Gas Energy - The Empire District Gas Company	GA-2007-0289, et al
Union Electric Company (d/b/a AmerenUE)	EO-2007-0409 <sup>2</sup>

<sup>&</sup>lt;sup>1</sup>Testimony includes computations to adjust test year volumes, therms, or kWh to normal weather.

<sup>&</sup>lt;sup>2</sup>Staff Report or Review

# MISSOURI PUBLIC SERVICE COMMISSION CASES IN WHICH PREPARED TESTIMONY, REPORT OR REVIEW WAS SUBMITTED BY: HENRY E. WARREN, PHD

(CONTINUED)

The Empire District Electric Company EO-2008-0069<sup>2</sup>
Union Electric Company (d/b/a AmerenUE) ER-2008-0318
Missouri Gas Energy GR-2009-0355<sup>1</sup>

<sup>&</sup>lt;sup>1</sup>Testimony includes computations to adjust test year volumes, therms, or kWh to normal weather.

<sup>&</sup>lt;sup>2</sup>Staff Report or Review

#### **Educational and Employment Background and Credentials**

#### <u>of</u>

#### **David Williams**

I am currently employed as a Utility Engineering Specialist II for the Missouri Public Service Commission (Commission). I was employed by the Commission in July of 2008. I received a Master of Science degree in Industrial Engineering from the University of Missouri - Columbia in 1967, and undergraduate degrees in engineering and business management in 1965.

From 1967 until 2000 I was employed by the University of Missouri in engineering, research and information technology capacities.

#### CASE PARTICIPATION OF DAVID WILLIAMS

Case/Tracking Number	Company Name - Issue
SR-2010-0023	Aqua Missouri, Inc. (Development) - Depreciation Assignment
SR-2010-0026	Aqua Missouri, Inc. (CU) - Depreciation Assignment
WR-2010-0027	Aqua Missouri, Inc. (CU) - Depreciation Assignment
IO-2009-0032	Citizens Telephone Company - Depreciation Assignment
GR-2009-0434	Then Empire District Gas Company - Depreciation Assignment
WR-2009-0151	Hickory Hills Water & Sewer Company, Inc Depreciation Assignment
SR-2009-0154	Hickory Hills Water & Sewer Company, Inc Depreciation Assignment
HR-2009-0092	KCP&L Greater Missouri Operations Company - Depreciation Review
WR-2010-0111	Lake Region Water & Sewer Co Depreciation Assignment
SR-2010-0110	Lake Region Water & Sewer Co Depreciation Assignment
GR-2009-0355	Missouri Gas Energy - Depreciation Review
WR-2009-0150	Missouri Utilities Company - Depreciation Assignment
SR-2009-0153	Missouri Utilities Company - Depreciation Assignment
WR-2009-0149	Osage Water Company- Depreciation Assignment
SR-2009-0152	Osage Water Company- Depreciation Assignment
WR-2009-0197	Suburban Water and Sewer Company, Inc Depreciation Assignment
WA-2009-0261	Whiteside Hidden Acres, L.L.C Depreciation Review
SA-2009-0262	Whiteside Hidden Acres, L.L.C Depreciation Review
WA-2009-0031	Woodland Acres Water System - Depreciation Review

#### MISSOURI PUBLIC SERVICE COMMISSION

## STAFF REPORT COST OF SERVICE

## APPENDIX 2 Support for Staff Cost of Capital Recommendations

#### **EMPIRE DISTRICT GAS COMPANY**

CASE NO. GR-2009-0434

MISSOURI PUBLIC SERVICE COMMISSION

The DCF model is a market-oriented approach for deriving the cost of common equity. The cost of common equity calculated from the DCF model is inherently capable of attracting capital. This results from the theory that security prices adjust continually over time, so that an equilibrium price exists and the stock is neither undervalued nor overvalued. It can also be stated that stock prices continually fluctuate to reflect the required and expected return for the investor.

The constant-growth form of the DCF model was used in this analysis. This model relies upon the fact that a company's common stock price is dependent upon the expected cash dividends and upon cash flows received through capital gains or losses that result from stock price changes. The interest rate which discounts the sum of the future expected cash flows to the current market price of the common stock is the calculated cost of common equity. This can be expressed algebraically as:

where k equals the cost of equity. Since the expected price of a stock in one year is equal to the present price multiplied by one plus the growth rate, equation (1) can be restated as:

Present Price = Expected Dividends + Present Price 
$$(1+g)$$
 (2)  
 $(1+k)$   $(1+k)$ 

where g equals the growth rate and k equals the cost of equity. Letting the present price equal  $P_0$  and expected dividends equal  $D_1$ , the equation appears as:

$$P_0 = \frac{D_1}{(1+k)} + \frac{P_0(1+g)}{(1+k)}$$
(3)

The cost of equity equation may also be algebraically represented as:

$$k = \frac{D_1}{P_0} + g \tag{4}$$

Thus, the cost of common stock equity, k, is equal to the expected dividend yield  $(D_1/P_0)$  plus the expected growth in dividends (g) continuously summed into the future. The growth in dividends and implied growth in earnings will be reflected in the current price. Therefore, this model also recognizes the potential of capital gains or losses associated with owning a share of common stock.

The discounted cash flow method is a continuous stock valuation model. The DCF theory is based on the following assumptions:

- 1. Market equilibrium;
- 2. Perpetual life of the company;
- 3. Constant payout ratio;
- 4. Payout of less than 100% earnings;
- 5. Constant price/earnings ratio;
- 6. Constant growth in cash dividends;
- 7. Stability in interest rates over time;
- 8. Stability in required rates of return over time; and,
- 9. Stability in earned returns over time.

Flowing from these, it is further assumed that an investor's growth horizon is unlimited and that earnings, book values and market prices grow hand-in-hand. Although the entire list of the above assumptions is rarely met, the DCF model is a reasonable working model describing an actual investor's expectations and resulting behaviors.

The CAPM describes the relationship between a security's investment risk and its market rate of return. This relationship identifies the rate of return which investors expect a security to earn so that its market return is comparable with the market returns earned by other securities that have similar risk. The general form of the CAPM is as follows:

$$k = R_f + \beta (R_m - R_f)$$

where:

k = the expected return on equity for a specific security;

 $R_f$  = the risk-free rate;

 $\beta$  = beta; and

 $R_m - R_f =$  the market risk premium.

The first term of the CAPM is the risk-free rate (Rf). The risk-free rate reflects the level of return that can be achieved without accepting any risk. In reality, there is no such risk-free asset, but it is generally represented by U.S. Treasury securities.

The second term of the CAPM is beta  $(\beta)$ . Beta is an indicator of a security's investment risk. It represents the relative movement and relative risk between a particular security and the market as a whole (where beta for the market equals 1.00). Securities with betas greater than 1.00 exhibit greater volatility than do securities with betas less than 1.00. This causes a higher beta security to be less desirable to a risk-averse investor and therefore requires a higher return in order to attract investor capital away from a lower beta security.

The final term of the CAPM is the market risk premium  $(R_m - R_f)$ . The market risk premium represents the expected return from holding the entire market portfolio less the expected return from holding a risk-free investment.

#### AN ANALYSIS OF THE COST OF CAPITAL

#### **FOR**

#### THE EMPIRE DISTRICT GAS COMPANY

CASE NO. GR-2009-0434

**SCHEDULES** 

BY

**SHANA ATKINSON** 

**UTILITY SERVICES DIVISION** 

MISSOURI PUBLIC SERVICE COMMISSION

**OCTOBER 2009** 

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2-2	Graph of Federal Reserve Discount Rates and Federal Funds Rates
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3-2	Graph of Rate of Inflation
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4-2	Average Yields on Thirty-Year U.S. Treasury Bonds
4-3	Graph of Average Yields on Mergent's Public Utility Bonds and Thirty-Year U.S. Treasury Bonds
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22-7	Costs of Equity Used in Equity Research Reports for WGL Holdings, Inc.

#### Federal Reserve Discount Rate Changes and Federal Reserve Funds Rate Changes

Date	Federal Reserve Discount Rate	Federal Reserve Funds Rate	Date	Federal Reserve Discount Rate	Federal Reserve Funds Rate
01/01/83	8.50%		06/30/99	4.50%	5.00%
12/31/83	8.50%		08/24/99	4.75%	5.25%
04/09/84	9.00%		11/16/99	5.00%	5.50%
11/21/84	8.50%		02/02/00	5.25%	5.75%
12/24/84	8.00%		03/21/00	5.50%	6.00%
05/20/85	7.50%		05/19/00	6.00%	6.50%
03/07/86	7.00%		01/03/01	5.75%	6.00%
04/21/86	6.50%		01/04/01	5.50%	6.00%
07/11/86	6.00%		01/31/01	5.00%	5.50%
08/21/86	5.50%		03/20/01	4.50%	5.00%
09/04/87	6.00%		04/18/01	4.00%	4.50%
08/09/88	6.50%		05/15/01	3.50%	4.00%
02/24/89	7.00%		06/27/01	3.25%	3.75%
07/13/90	1.0070	8.00%	08/21/01	3.00%	
10/29/90					3.50%
11/13/90		7.75%	09/17/01	2.50%	3.00%
		7.50%	10/02/01	2.00%	2.50%
12/07/90		7.25%	11/06/01	1.50%	2.00%
12/18/90	A	7.00%	12/11/01	1.25%	1.75%
12/19/90	6.50%		11/06/02	0.75%	1.25%
01/09/91		6.75%	01/09/03	2.25%**	1.25%
02/01/91	6.00%	6.25%	06/25/03	2.00%	1.00%
03/08/91		6.00%	06/30/04	2.25%	1.25%
04/30/91	5.50%	5.75%	08/10/04	2.50%	1.50%
08/06/91		5.50%	09/21/04	2.75%	1.75%
09/13/91	5.00%	5.25%	11/10/04	3.00%	2.00%
10/31/91		5.00%	12/14/04	3.25%	2.25%
11/06/91	4.50%	4.75%	02/02/05	3.50%	2.50%
12/06/91		4.50%	03/22/05	3.75%	2.75%
12/20/91	3.50%	4.00%	05/03/05	4.00%	3.00%
04/09/92		3.75%	06/30/05	4.25%	3.25%
07/02/92	3.00%	3.25%	08/09/05	4.50%	3.50%
09/04/92		3.00%	09/20/05	4.75%	3.75%
01/01/93			11/01/05	5.00%	4.00%
12/31/93	No Changes	No Changes	12/13/05	5.25%	4.25%
02/04/94		3.25%	01/31/06	5.50%	4.50%
03/22/94		3.50%	03/28/06	5.75%	4.75%
04/18/94		3.75%	05/10/06	6.00%	5.00%
05/17/94	3.50%	4.25%	06/29/06	6.25%	5.25%
08/16/94	4.00%	4.75%	08/17/07	5.75%	5.25%
11/15/94	4.75%	5.50%	09/18/07	5.25%	4.75%
02/01/95	5.25%	6.00%	10/31/07	5.00%	4.50%
07/06/95	3.23 /6	5.75%	12/11/07	4.75%	
12/19/95					4.25%
	5.00%	5.50%	01/22/08	4.00%	3.50%
01/31/96	5.00%	5.25%	01/30/08	3.50%	3.00%
03/25/97	E 000/	5.50%	03/16/08	3.25%	0.000/
12/12/97	5.00%		03/18/08	2.50%	2.25%
01/09/98	5.00%		04/30/08	2.25%	2.00%
03/06/98	5.00%		10/08/08	1.75%	1.50%
09/29/98		5.25%	10/29/08	1.25%	1.00%
10/15/98	4.75%	5.00%	12/16/08	0.50%	0.00-0.25%
11/17/98	4.50%	4.75%			

<sup>\*</sup> Staff began tracking the Federal Funds Rate.

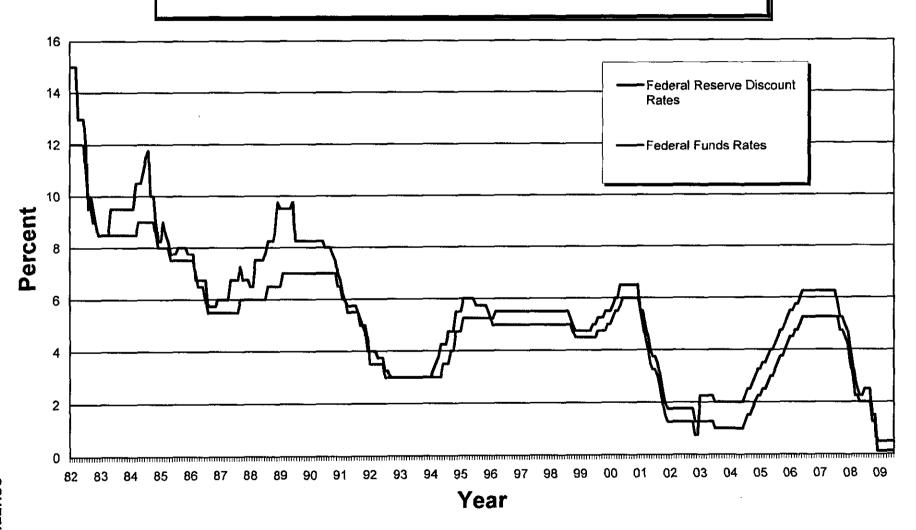
Source:

Federal Reserve Discount rate Federal Reserve Funds rate http://www.newyorkfed.org/markets/statistics/dlyrates/fedrate.html http://www.newyorkfed.org/markets/statistics/dlyrates/fedrate.html

Note: Interest rates as of December 31 for each year are underlined.

<sup>\*\*</sup>Revised discount window program begins. Reflects rate on primary credit. This revised discount window policy results in incomparability of the discount rates after January 9, 2003 to discount rates before January 9, 2003.

## Federal Reserve Discount Rates and Federal Funds Rates



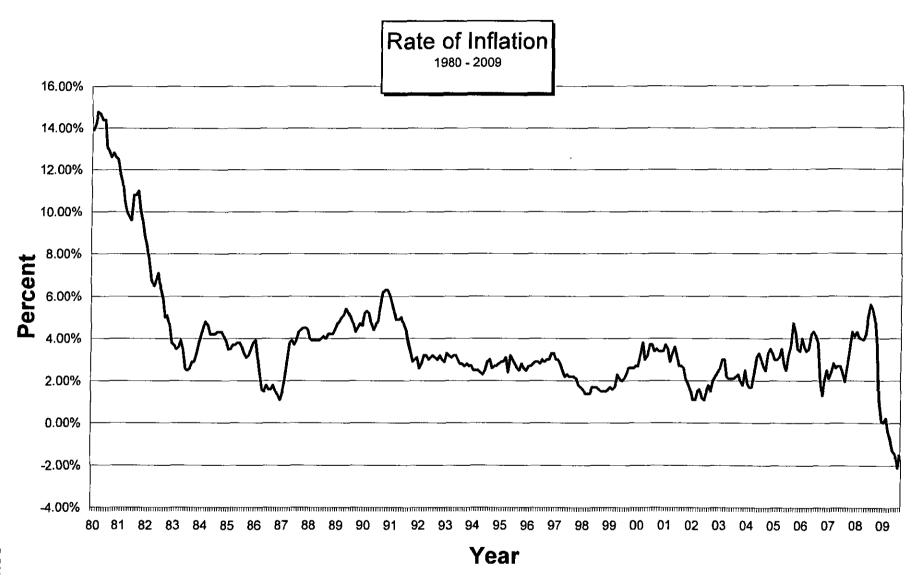
#### Rate of Inflation

Mo/Year	Rate (%)	Mo/Year	Rate (%)	Mo/Year	Rate (%)	Mo/Year	Rate (%)	Mo/Year	Rate (%)						
Jan 1980	13.90	Jan 1984	4.20	Jan 1988	4.00	Jan 1992	2.60	Jan 1996	2.70	Jan 2000	2.70	Jan 2004	1.90	Jan 2008	4.30
Feb	14.20	Feb	4,60	Feb	3.90	Feb	2,80	Feb	2.70	Feb	3.20	Feb	1.70	Feb	4.00
Mar	14,80	Mar	4.80	Mar	3.90	Mar	3.20	Mar	2.80	Mar	3.70	Mar	1.70	Mar	4.00
Apr	14.70	Apr	4.60	Apr	3.90	Apr	3,20	Apr	2.90	Apr	3.00	Apr	2.30	Apr	3.90
May	14,40	May	4.20	May	3.90	May	3.00	May	2.90	May	3.20	May	3,10	May	4.20
Jun	14.40	Jun	4.20	Jun	4.00	Jun	3.10	Jun	2.80	Jun	3.70	Jun	3.30	Jun	5.00
Jul	13.10	Jul	4.20	Jul	4.10	Jul	3.20	Jul	3.00	Jul	3.70	Jul	3,00	Jul	5.60
Aug	12.90	Aug	4.30	Aug	4.00	Aug	3.10	Aug	2.90	Aug	3.40	Aug	2.70	Aug	5.40
Sep	12,60	Sep	4,30	Sep	4.20	Sep	3,00	Sep	3.00	Sep	3.50	Sep	2,50	Sep	4.90
Oct	12.80	Oct	4.30	Oct	4.20	Oct	3,20	Oct	3.00	Oct	3.40	Oct	3,30	Oct	3,70
Nov	12.60	Nov	4.10	Nov	4.20	Nov	3.00	Nov	3.30	Nov	3.40	Nov	3.50	Nov	1.10
Dec	12,50	Dec	3.90	Dec	4.40	Dec	2.90	Dec	3,30	Dec	3.40	Dec	3,30	Dec	0.10
Jan 1981	11,80	Jan 1985	3,50	Jan 1989	4.70	Jan 1993	3,30	Jan 1997	3.00	Jan 2001	3.70	Jan 2005	3.00	Jan 2009	0.00
Feb	11.40	Feb	3.50	Feb	4.80	Feb	3.20	Feb	3.00	Feb	3.50	Feb	3,00	Feb	0.20
Mar	10.50	Mar	3.70	Mar	5.00	Mar	3,10	Mar	2.80	Mar	2.90	Mar	3,10	Mar	-0.40
Apr	10.00	Apr	3.70	Apr	5.10	Apr	3.20	Apr	2.50	Apr	3.30	Apr	3,50	Apr	-0.70
May	9,80	May	3.60	May	5.40	May	3,20	May	2.20	May	3.60	May	2,60	May	-1.28
Jun	9.60	Jun	3.80	Jun	5.20	Jun	3.00	Jun	2.30	Jun	3,20	Jun	2.50	June	-1.40
Jul	10.80	Jut	3.60	Jul	5,00	Jul	2.80	Jul	2.20	Jul	2.70	Jul	3,20	July	-2.10
Aug	10.80	Aug	3,30	Aug	4.70	Aug	2.80	Aug	2.20	Aug	2.70	Aug	3.60	Aug	-1.50
Sep	11.00	Sep	3.10	Sep	4.30	Sep	2.70	Sep	2.20	Sep	2.60	Sep	4.70		
Oct	10.10	Oct	3.20	Oct	4.50	Oct	2.80	Oct	2.10	Oct	2.10	Oct	4.30		
Nov	9,60	Nov	3.50	Nov	4.70	Nov	2.70	Nov	1.80	Nov	1.90	Nov '	3,50		
Dec	8,90	Dec	3.80	Dec	4.60	Dec	2.70	Dec	1.70	Dec	1.60	Dec	3.40		
Jan 1982	8.40	Jan 1986	3,90	Jan 1990	5.20	Jan 1994	2,50	Jan 1998	1.60	Jan 2002	1.10	Jan 2006	4.00		
Feb	7,60	Feb	3.10	Feb	5.30	Feb	2.50	Feb	1.40	Feb	1.10	Feb	3,60		
Mar	6,80	Mar	2.30	Mar	5.20	Mar	2.50	Mar	1.40	Mar	1.50	Mar	3.40		
Apr	6.50	Apr	1.60	Apr	4.70	Apr	2.40	Apr	1.40	Apr	1.60	Арг	3.50		
May	6.70	May	1.50	May	4.40	May	2,30	May	1.70	May	1.20	May	4.20		
Jun	7.10	Jun	1.80	Jun	4.70	Jun	2.50	Jun	1.70	Jun	1.10	June	4.30		
Jul	6.40	Jul	1.60	Jul	4.80	Jul	2.90	Jul	1.70	Jul	1.50	July	4.10 3.80		
Aug	5,90	Aug	1,60	Aug	5,60	Aug	3,00	Aug	1.60	Aug	1.80	Aug	2,10		
Sep	5.00	Sep	1.80	Sep	6.20	Sep	2.60	Sep	1.50	Sep	1.50 2.00	Sep Oct	1,30		
Oct	5.10	Oct	1.50	Oct	6.30	Oct	2.70	Oct	1.50	Oct	2.20	Nov	2,00		
Nov	4,60	Nov	1.30	Nov	6.30	Nov	2.70	Nov	1.50	Nov	2.40	Dec	2,50		
Dec	3,80	Dec	1.10	Dec	6.10	Dec	2.80	Dec Jan 1999	1.60 1.70	Dec Jan 2003	2.40	Jan 2007	2.10		
Jan 1983	3.70	Jan 1987	1.50	Jan 1991	5.70	Jan 1995	2.90	· · ·	1.60	Feb	3.00	Feb	2.40		
Feb	3,50	Feb	2.10	Feb	5.30	Feb	2.90 3.10	Feb Mor	1,70	Mar	3.00	Mar	2.80		
Mar	3,60	Mar	3.00	Mar	4.90	Mar		Mar	2,30	Apr	2.20	Apr	2,60		
Apr	3.90	Apr	3,80	Apr	4.90	Apr	2.40	Apr	2.10	May	2.10	May	2,70		
May	3,50	May	3.90	May	5.00	May	3.20 3.00	May Jun	2,10	Jun	2.10	Jun	2.70		
Jun	2.60	Jun	3.70	Jun	4.70 4.40	Jun Jul	2.80	Jul	2.10	Jul	2.10	Jul	2,40		
Jul	2.50	Jul	3.90	Jul	3.80	-	2.60		2.30	Aug	2.20	Aug	2.00		
Aug	2.60	Aug	4.30	Aug	3.40	Aug Sep	2.50	Aug Sep	2.60	Sep	2.30	Sep	2.80		
Sep	2.90	Sep Oct	4.40 4.50	Sep Oct	2.90	Oct	2.80	Oct	2.60	Oct	2.00	Oct	3,50		
Oct	2,90 3,30	Oct Nov	4.50	Nov	3.00	Nov	2.60	Nov	2.60	Nov	1.80	Nov	4,30		
Nov Dec	3,30	Dec	4.40	Dec	3,10	Dec	2.50	Dec	2.70	Dec	1.90	Dec	4,10		
1366															

Source: U.S. Dept of Labor, Bureau of Labor Statistics, Consumer Price Index - All Urban Consumers,

Change for 12-Month Period, Bureau of Labor Statistics,

http://www.bls.gov/schedule/archives/cpi\_nr.htm



# SCHEDULE 4-1

#### THE EMPIRE DISTRICT GAS COMPANY CASE NO. GR-2009-0434

#### Average Yields on Mergent's Public Utility Bonds

Mo/Year	Rate (%)	Mo/Year	Rate (%)	Mo/Year_	Rate (%)	Mo/Year	Rate (%)	Mo/Year	Rate (%)	Mo/Year	Rate (%)	Mo/Year	Rate (%)	Mo/Year	Rate (%) 6.08
Jan 1980	12.12	Jan 1984	13.40	Jan 1988	10.75	Jan 1992	8.67	Jan 1996	7.20	Jan 2000	8.22	Jan 2004	6.23	Jan 2008	6.28
Feb	13.48	Feb	13.50	Feb	10.11	Feb	8.77	Feb	7.37	Feb	8.10	Feb	6.17	Feb	6.29
Mar	14.33	Mar	14.03	Mar	10.11	Mar	8.84	Mar	7.72	Mar	8.14	Mar	6.01	Mar	6.36
Apr	13.50	Apr	14.30	Apr	10.53	Apr	8.79	Apr	7.88	Арг	8.14	Apr	6.38	Apr	6.38
May	12.17	May	14.95	May	10.75	May	8.72	May	7.99	May	8.55	May	6.68	May	6.50
Jun	11.87	Jun	15.16	Jun	10.71	Jun	8.64	Jun	8.07	Jun	8.22	Jun	6.53 6.34	Jun Jul	6.50
Jul	12.12	Jul	14.92	Jul	10.96	Jul	8.46	Jul	8.02	Jul	8.17	Jul	6.18	Aug	6.48
Aug	12.82	Aug	14.29	Aug	11.09	Aug	8.34	Aug	7.84	Aug	8.05	Aug	6.01	Sep	6.59
Sep	13,29	Sep	14.04	Sep	10.56	Sep	8.32	Sep	8.01	Sep	8,16 8,08	Sep Oct	5,95	Oct	7.70
Oct	13,53	Oct	13.68	Oct	9,92	Oct	8.44	Oct	7.76	Oct	8.03	Nov	5.97	Nov	7.80
Nov	14.07	Nov	13.15	Nov	9.89	Nov	8.53	Nov	7.48	Nov	7.79	Dec	5,93	Dec	6.87
Dec	14.48	Dec	12.96	Dec	10.02	Dec	8.36	Dec	7.58	Dec	7.7 <del>8</del> 7.76	Jan 2005	5,80	Jan 2009	6.77
Jan 1981	14.22	Jan 1985	12.88	Jan 1989	10.02	Jan 1993	8.23	Jan 1997	7.79	Jan 2001	7.76	Feb	5,64	Feb	6.72
Feb	14.84	Feb	13.00	Feb	10.02	Feb	8.00	Feb	7.68	Feb	7.59	Mar	5.86	Mar	6.85
Mar	14,86	Mar	13,66	Mar	10.16	Mar	7.85	Mar	7.92	Mar			5.72	Арг	6.90
Арг	15,32	Apr	13.42	Арг	10.14	Арг	7.76	Apr	8.08	Apr	7.81 7.88	Apr May	5.60	May	6.83
May	15.84	May	12.89	May	9.92	May	7.78	May	7.94	May	7.75	Jun	5.39	June	6.54
Jun	15.27	Jun	11.91	Jun	9,49	Jun	7,68	Jun	7,77	Jun	7.73	Jul	5,50	July	6.15
Jul	15.87	Jul	11.88	Jul	9.34	Jul	7.53	Jul	7,52	Jul	7.71		5,50	Aug	5.80
Aug	16.33	Aug	11.93	Aug	9.37	Aug	7.21	Aug	7.57	Aug	7.57 7.73	Aug	5.54	Aug	3.00
Sep	16.89	Sep	11.95	Sep	9.43	Sep	7.01	Sep	7,50	Sep	7.73	Sep Oct	5.79		
Oct	16.76	Oct	11,84	Oct	9.37	Oct	6.99	Oct	7.37	Oct	7.61	Nov	5.88		
Nov	15,50	Nov	11,33	Nov	9,33	Nov	7.30	Nov	7.24	Nov	7.86	Dec	5.83		
Dec	15.77	Dec	10.82	Dec	9.31	Dec	7,33	Dec	7,16 7,03	Dec Jan 2002	7.69	Jan 2006	5.77		
Jan 1982	16.73	Jan 1986	10.66	Jan 1990	9.44	Jan 1994	7,31	Jan 1998	7.03		7.62	Feb	5,83		
Feb	16.72	Feb	10.16	Feb	9.66	Feb	7.44	Feb	7.13	Feb Mar	7.83	Mar	5.98		
Mar	16.07	Mar	9.33	Mar	9.75	Mar	7,83	Mar	7.13		7.74	Apr	6,28		
Apr	15.82	Apr	9.02	Арг	9.87	Apr	8.20	Apr Mav	7.12	Apr May	7.74	May	6.39		
May	15.60	May	9.52	May	9.89	May	8.32 8.31	Jun	6.99	Jun	7.67	June	6.39		
Jun	16,18	Jun	9.51	Jun	9,69 9,66	Jun Jul	8,47	Jul	6,99	Jul	7.54	July	6.37		
Jul	16.04	Jul	9.19	Jul	9.84	Aug	8,41	Aug	6.96	Aug	7.34	Aug	6,20		
Aug	15.22	Aug	9.15	Aug	10.01	Sep	8.65	Sep	6.88	Sep	7.23	Sep	6.03		
Sep	14,56	Sep	9.42 9.39	Sep Oct	9.94	Oct	8.88	Oct	6.88	Oct	7.43	Oct	6.01		
Oct	13.88	Oct	9.15	Nov	9.76	Nov	9.00	Nov	6.96	Nov	7.31	Nov	5,82		
Nov	13.58	Nov	8.96	Dec	9.57	Dec	8.79	Dec	6.84	Dec	7.20	Dec	5.83		
Dec	13,55 13,46	Dec Jan 1987	8.77	Jan 1991	9.56	Jan 1995	8.77	Jan 1999	6.87	Jan 2003	7.13	Jan 2007	5.96		
Jan 1983	13.60	Feb	8.81	Feb	9.31	Feb	8.56	Feb	7.00	Feb	6,92	Feb	5.91		
Feb	13.28	Mar	8.75	Mar	9.39	Mar	8,41	Mar	7.18	Mar	6.80	Mar	5.87		
Mar	13.20	Apr	9.30	Apr	9.30	Apr	8.30	Apr	7.16	Apr	6.68	Apr	6.01	•	
Apr	13.00	May	9.82	May	9.29	May	7.93	May	7.42	May	6.35	May	6.03		
May	13.17	Jun	9.87	Jun	9.44	Jun	7.62	Jun	7.70	Jun	6.21	June	6.34		
Jun	13.17	Jul	10.01	Jul	9.40	Jul	7.73	Jul	7.66	Jul	6,54	July	6.28		
Jul	13.50	Aug	10.33	Aug	9.16	Aug	7.86	Aug	7.86	Aug	6.78	Aug	6.28		
Aug	13.35	Sep	11.00	Sep	9.03	Sep	7.62	Sep	7.87	Sep	6.58	Sep	6.24		
Sep	13,19	Oct	11.32	Oct	8.99	Oct	7,46	Oct	8.02	Oct	6.50	Oct	6,17		
Oct	13.33	Nov	10.82	Nov	8.93	Nov	7.40	Nov	7.86	Nov	6.44	Nov	6.04		
Nov	13.48	Dec	10.99	Dec	8.76	Dec	7.21	Dec	B.04	Dec	6.36	Dec	6.23		
Dec	13.40	Dec	,0.58		5.70										

Source: Mergent Bond Record

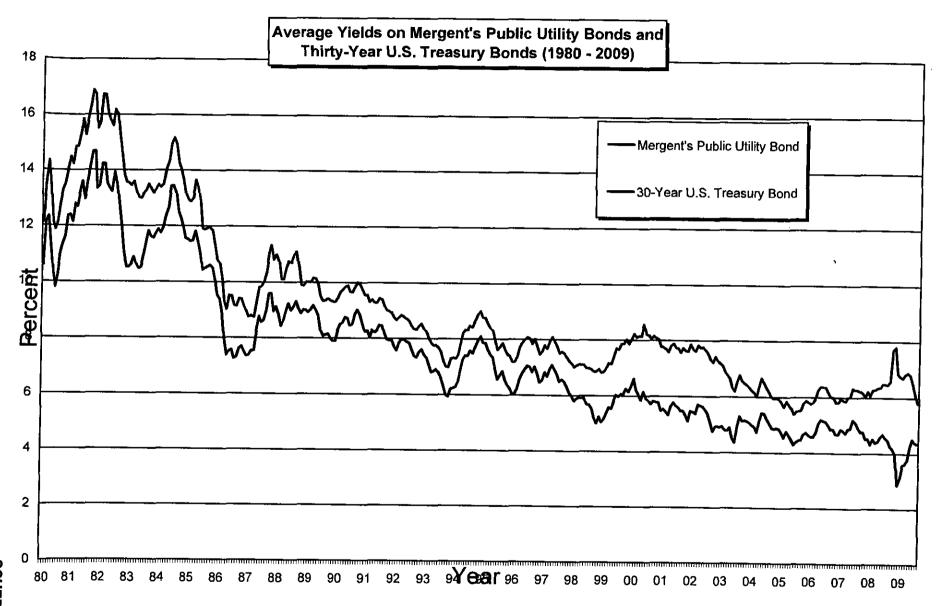
# **SCHEDULE 4-2**

#### THE EMPIRE DISTRICT GAS COMPANY CASE NO. GR-2009-0434

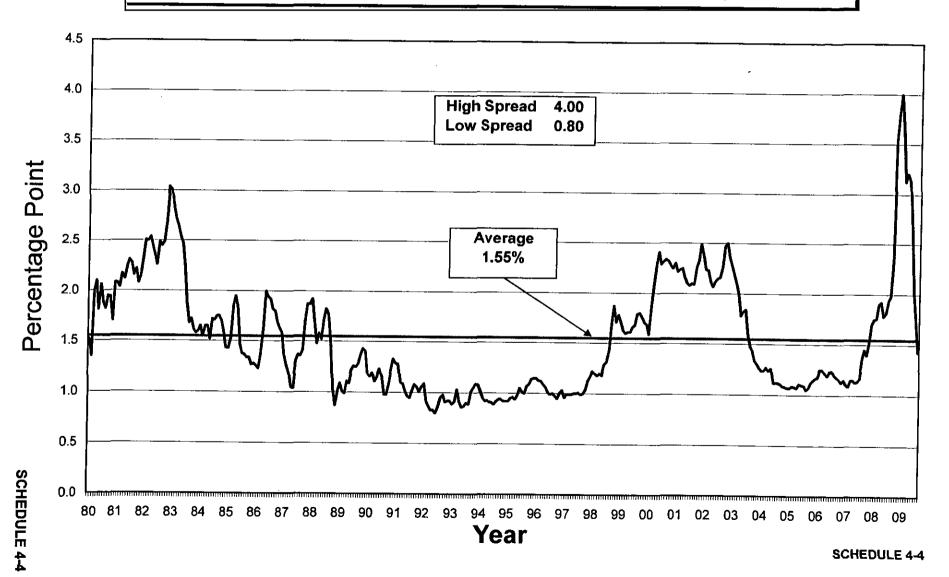
#### Average Yields on Thirty-Year U.S. Treasury Bonds

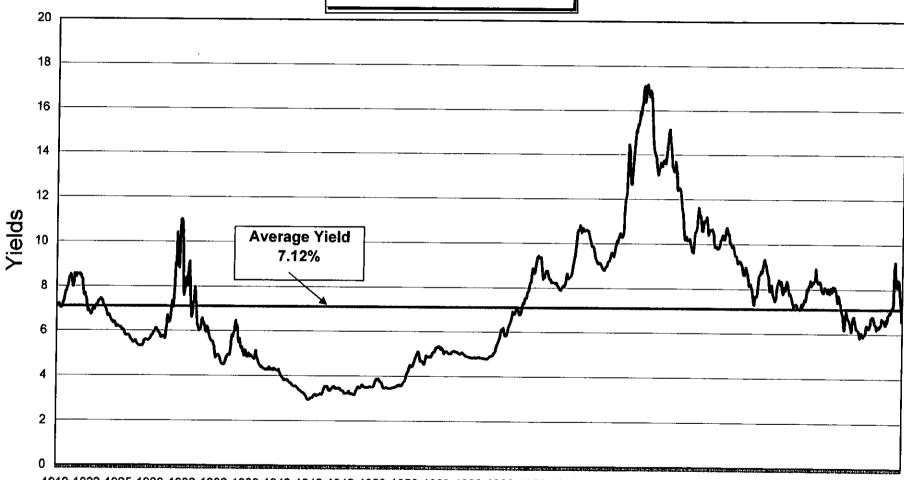
Mo/Year	Rate (%)	Mo/Year	Rate (%)	Mo/Year_	Rate (%)	Mo/Year	Rate (%)	Mo/Year	Rate (%)	Mo/Year	Rate (%)	Mo/Year_	Rate (%)	Mo/Year	Rate (%)
Jan 1980	10.60	Jan 1984	11.75	Jan 1988	8.83	Jan 1992	7.58	Jan 1996	6.05	Jan 2000	6.63	Jan 2004	4.99	Jan 2008	4,33 4,52
Feb	12.13	Feb	11.95	Feb	8.43	Feb	7.85	Feb	6.24	Feb	6.23	Feb	4.93	Feb	4.39
Mar	12.34	Mar	12.38	Mar	8.63	Mar	7,97	Mar	6.60	Mar	6.05	Mar	4.74	Mar	
Apr	11.40	Apr	12.65	Apr	8.95	Apr	7.96	Apr	6.79	Apr	5.85	Apr	5.14	Apr	4.44
May	10.36	May	13.43	May	9.23	May	7.89	May	6.93	May	6.15	May	5.42	May	4.60
Jun	9,81	Jun	13.44	Jun	9.00	Jun	7.84	Jun	7.06	Jun	5.93	Jun	5.41	Jun	4.69
Jul	10.24	Jul	13.21	Ju!	9.14	Jul	7.60	Jul	7.03	Jul	5.85	Jul	5.22	Jul *	4.57
Aug	11.00	Aug	12.54	Aug	9.32	Aug	7,39	Aug	6.84	Aug	5,72	Aug	5.06	Aug	4,50
Sep	11.34	Sep	12,29	Sep	9.06	Sep	7.34	Sep	7.03	Sep	5.83	Sep	4.90	Sep	4.27
Oct	11.59	Oct	11.98	Oct	8.89	Oct	7.53	Oct	6.81	Oct	5.80	Oct	4,86	Oct	4,17
Nov	12,37	Nov	11.56	Nov	9.02	Nov	7.61	Nov	6.48	Nov	5.78	Nov	4.89	Nov	4.00
Dec	12.40	Dec	11.52	Dec	9,01	Dec	7.44	Dec	6.55	Dec	5.49	Dec	4.86	Dec	2.87
Jan 1981	12,14	Jan 1985	11.45	Jan 1989	8.93	Jan 1993	7.34	Jan 1997	6.83	Jan 2001	5.54	Jan 2005	4.73	Jan 2009 Feb	3.13
Feb	12,80	Feb	11,47	Feb	9,01	Feb	7.09	Feb	6.69	Feb	5.45	Feb	4.55	Feb	3,59 3,64
Mar	12,69	Mar	11,81	Mar	9.17	Mar	6.82	Mar	6.93	Mar	5,34	Mar	4.78	Mar	3.76
Apr	13.20	Apr	11.47	Apr	9.03	Apr	6.85	Apr	7.09	Apr	5.65	Apr	4.65	Apr	4.23
May	13.60	May	11.05	May	8.83	May	6.92	May	6.94	May	5.78	May	4.49	May	4,52
Jun	12.96	Jun	10.44	Jun <sub>.</sub>	8,27	Jun	6.81	Jun	6.77	Jun	5.67	Jun	4.29	June	
Jul	13,59	Jul	10.50	Jul	8.08	Jul	6.63	Jul	6.51	Jul	5.61	Jul	4.41	July	4.41
Aug	14,17	Aug .	10,56	Aug	8.12	Aug	6.32	Aug	6.58	Aug	5.48	Aug	4.46	Aug	4.37 4.19
Sep	14.67	Sep	10.61	Sep	8.15	Sep	6.00	Sep	6.50	Sep	5.48	Sep	4.47	Sept	4, 10
Oct	14,68	Oct	10,50	Oct	8,00	Oct	5,94	Oct	6.33	Oct	5.32	Oct	4.67		
Nov	13.35	Nov	10.06	Nov	7,90	Nov	6.21	Nov	6.11	Nov	5.12	Nov	4,73 4.66		
Dec	13,45	Dec	9.54	Dec	7.90	Dec	6.25	Dec	5.99	Dec	5.48	Dec	4.59		
Jan 1982	14.22	Jan 1986	9.40	Jan 1990	8.26	Jan 1994	6.29	Jan 1998	5.81	Jan 2002	5.44	Jan 2006 Eab	4.58		
Feb	14.22	Feb	8.93	Feb	8.50	Feb	6.49	Feb	5.89	Feb	5.39 5.71	Feb Mar	4.73		
Mar	13,53	Mar	7.96	Mar	8.56	Mar	6.91	Mar	5.95	Mar	5.67	Apr	5.06		
Apr	13.37	Apr	7.39	Apr	8.76	Apr	7.27	Apr	5.92	Apr	5.64	May	5.20		
May	13.24	May	. 7.52	May	8.73	May	7,41	May	5.93 5.70	May Jun	5.52	Jun	5.16		
Jun	13,92	Jun	7.57	Jun	8.46	Jun	7,40	Jun	5.68	Jul	5.38	July	5.13		
Jul	13.55	Jul	7.27	Jul	8.50	Jul	7.58	Jul	5.54	Aug	5.08	Aug	5.00		
Aug	12.77	Aug	7.33	Aug	8.88	Aug	7.49	Aug Sep	5.20	Sep	4.76	Sep	4.85		
Sep	12.07	Sep	7.62	Sep	9.03	Sep	7.71	Oct	5.01	Oct	4.93	Oct	4.85		
Oct	11.17	Oct	7.70	Oct	8.86	Oct	7.94	_	5.25	Nov	4.95	Nov	4.69		
Nov	10.54	Nov	7.52	Nov	8.54	Nov	8.08 7.87	Nov Dec	5.06	Dec	4.92	Dec	4.68		
Dec	10.54	Dec	7.37	Dec	8.24	Dec		Jan 1999	5.16	Jan 2003	4.94	Jan 2007	4,85		
Jan 1983	10.63	Jan 1987	7.39	Jan 1991	8.27	Jan 1995	7.85	_	5.37	Feb	4.81	Feb	4.82		
Feb	10.88	Feb	7.54	Feb	8.03	Feb	7,61	Feb	5.58	Mar	4.80	Mar	4.72		
Mar	10.63	Mar	7.55	Mar	8.29	Mar	7,45	Mar	5.55	Арг	4.90	Apr	4.86		
Apr	10.48	Apr	8.25	Арг	8.21	Apr	7,36	Apr	5.81	May	4.53	May	4.90		
May	10.53	May	8.78	May	8.27	May	6.95	May		•	4.37	Jun	5.20		
Jun	10.93	Jun	8.57	Jun	8.47	Jun	6.57	Jun	6.04	Jun M	4.93	July	5.11		
Jul	11.40	Jul	8.64	Jul	B.45	Jul	6.72	Jul	5.98 6.07	Ju! Aug	5.30	Aug	4.93		
Aug	11.82	Aug	8.97	Aug	8.14	Aug	6.86	Aug	6.07 6.07	Aug Sep	5.14	Sep	4.79		
Sep	11.63	Sep	9.59	Sep	7.95	Sep	6.55	Sep	6.26	Oct	5.14	Oct	4.77		
Oct	11.58	Oct	9.61	Oct	7.93	Oct	6.37	Oct	_	Nov	5.13	Nov	4.52		
Nov	11.75	Nov	8.95	Nov	7.92	Nov	6.26	Nov	6.15 6.35	Dec	5.08	Dec	4.53		
Dec	11.88	Dec	9.12	Dec	7.70	Dec	6.06	Dec	0.55	Dec	5.56		4.00		

http://finance.yahoo.com/q/hp?s=^TYX http://research.stlouisfed.org/fred2/data/GS30.txt



Monthly Spreads Between Yields on Mergent's Public Utility Bonds and Thirty-Year U.S. Treasury Bonds (1980 - 2009)

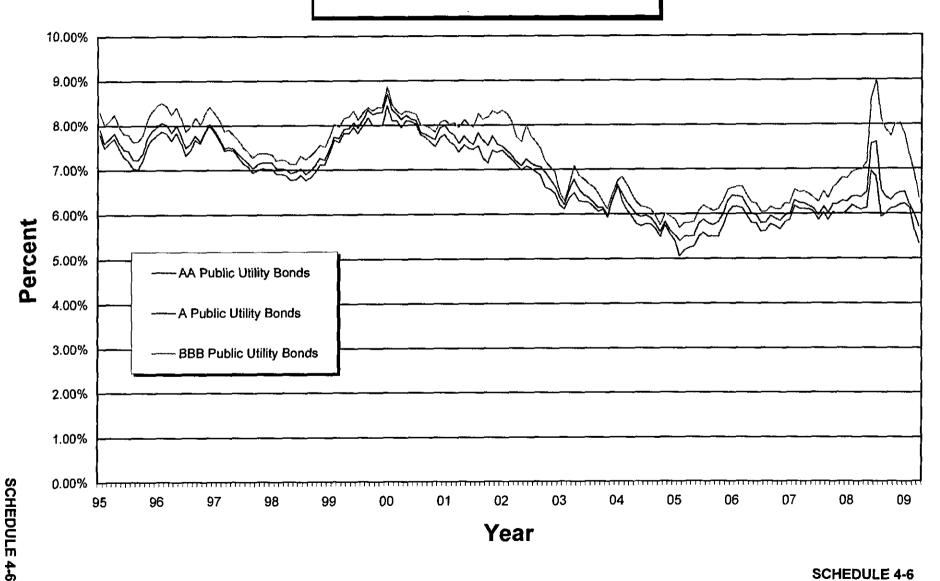




1919 1922 1925 1929 1932 1936 1939 1942 1946 1949 1953 1956 1960 1963 1966 1970 1973 1977 1980 1983 1987 1990 1994 1997 2001 2004 2007

Year

Public Utility Bond Yield Spreads 1995-2009



**SCHEDULE 4-6** 

#### Economic Estimates and Projections, 2009-2011

	lr	nflation Rat	e		Real GDP	•	U	inemployme	ent	3-1	Mo. T-Bill F	tate	30-Y	ear T-Bond	l Rate
Source	2009	2010	2011	2009	2010	2011	2009	2010	2011	2009	2010	2011	2009	2010	2011
Value Line Investment Survey – Selection & Opinion (8-28-09, page 3343)	0.60%	1.80%	2.20%	-2.70%	1.80%	3.00%	9.20%	10.00%	9.40%	0.20%	0.80%	2.50%	4.20%	4.80%	4.50%
The Budget and Economic Outlook FY2009-2019 (January 2009)	0.10%	1.70%	1.80%	-2.20%	1.50%	4.20%	8.30%	9.00%	8.00%	0.20%	0.60%	Ż.10%	N.A.	N.A.	N.A.
Current rate	-1.50%			-0.70%			9.80%			0.12%			4.02%		

Notes: N.A. = Not Available.

Value Line data for 2009-2010 are estimated.

CBO data values for 2009 and 2010 are forecasted, data for 2011 is projected.

Sources of Current Rates:

Inflation:

The Bureau of Labor Statistics, Consumer Price Index - All Urban Consumers, unadjusted 12-Month Period Ending, August 31, 2009 (see first paragraph).

http://www.bls.gov/schedule/archives/cpi\_nr.htm

GDP:

U.S. Department of Commerce, Bureau of Economic Analysis. Percentage change for the second Quarter 2009 (see first paragraph).

http://www.bea.gov/newsreleases/national/gdp/gdpnewsrelease.htm

Unemployment:

The Bureau of Labor Statistics, Economy Situation Summary - Unemployment Rate, September 2009.

http://www.bls.gov/news.release/empsit.nr0.htm

3-Month Treasury:

St. Louis Federal Reserve website for October 2, 2009 (Weekly).

http://research.stlouisfed.org/fred2/series/WTB3MS

30-Yr, T-Bond:

St. Louis Federal Reserve website for October 2, 2009 (Weekly).

http://research.stlouisfed.org/fred2/series/WGS30YR

Other Sources:

ValueLine Investment Survey Selection & Oplnion, August 28, 2009, page 3343.

The Congressional Budget Office, The Budget and Economic Outlook: Fiscal Years 2009-2019, January 2009.

http://www.cbo.gov/publications/bysubject.cfm?cat=0

#### Historical Capital Structures for The Empire District Electric Company Consolidated Basis

Capital Components	2004	2005	2006	2007	2008
Common Equity Preferred Stock	\$379,180,390	\$393,411,000	\$468,609,000	\$539,176,000	\$528,872,000
	\$0	\$0	\$0	\$0	\$0
Long-Term Debt	\$410,378,837 *	\$408,173,000 *	\$462,539,000 *	\$541,880,000 *	\$611,567,000 °
Short-Term Debt	\$0	\$30,952,000	\$77,050,000	\$33,040,000	\$102,000,000
Total	\$789,559,227	\$832,536,000	\$1,008,198,000	\$1,114,096,000	\$1,242,439,000

Capital Structure	2004	2005	2006	2007	2008	5-Year Average
Common Equity	48.02%	47.25%	46.48%	48,40%	42.57%	46.54%
Preferred Stock	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Long-Term Debt	51.98%	49.03%	45.88%	48.64%	49,22%	48.95%
Short-Term Debt	0.00%	3.72%	7.64%	2.97%	8.21%	4.51%
Total	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

Notes:

Source: Empire District Electric Company's 2004, 2005, 2006, 2007 and 2008 Annual Reports.

<sup>\*</sup> The amount of long-term debt includes current maturities, capital leases, and \$50 million of trust preferred stock.

# **SCHEDULE 7**

## THE EMPIRE DISTRICT GAS COMPANY CASE NO. GR-2009-0434 Selected Financial Ratios for The Empire District Electric Company

Financial Ratios	2004	2005	2006	2007	2008
Return on Common Equity	5.80%	6.00%	8.50%	6.20%	7.50%
Earnings Per Common Share	\$0.86	\$0.92	<b>\$1.4</b> 1	\$1.09	\$1.17
Cash Dividends Per Common Share	\$1.28	\$1.28	\$1.28	\$1.28	\$1.28
Common Dividend Payout Ratio	148.84%	139.13%	90.78%	117.43%	109.40%
Year-End Market Price Per Common Share	\$22.68	\$20.33	\$24.69	\$22.78	\$17.60
Year-End Book Value Per Common Share	\$14.76	\$15.08	\$15.49	\$16.04	\$15.56
Year-End Market-to- Book Ratio	1.54 x	1.35 x	1.59 x	1.42 x	1.13 x
Funds From Operations (FFO) Interest Coverage Ratio	3.7 x	3.9 x	3.7 x	3.7 x	3.5 x
FFO/Average Total Debt	16.8%	17.1%	16.7%	18.1%	13.3%
Corporate Credit Rating (Standard & Poor's Corporation)	BBB	BBB	BBB	BBB-	BBB-

#### Formulas:

Common Dividend Payout Ratio = Common Dividends Paid / Earnings Per Common Share.

Year-End Market-to-Book Ratio = Year-End Market Price Per Common Share / Year-End Book Value Per Common Share.

Sources: Standard and Poor's Empire Research Update April 3, 2009.

Value Line Investment Survey for The Empire District Electric Company, September 25, 2009.

http://finance.yahoo.com

## Capital Structure as of June 30, 2009 The Empire District Electric Company

Capital Component	 Dollar Amount	Percentage of Capital
Common Stock Equity	\$ 528,853,868	43.54%
Trust Preferred Stock	\$ 48,638,468	4.00%
Long-Term Debt	\$ 637,146,507	52.46%
Short-Term Debt	\$ _	0.00%
Total Capitalization	\$ 1,214,638,843	100.00%

Notes: 1. Long-term Debt at June 30, 2009 is based on the net balance of long-term debt, including current maturities (total principal amount of long-term debt outstanding less unamortized expenses and discounts) shown on Schedule 9. This balance also includes the amount of non-regulated debt.

2. Short-term debt balance net of construction work in progress (CWIP) was negative as of June 30, 2009. Therefore, no short-term debt is included in the capital structure.

Source: Empire District Gas' workpapers.

## Embedded Cost of Long-Term Debt as of June 30, 2009

	Amount Outstanding	Annual Cost
Bonds and Unsecured Notes Series:		
7.2% Series, Due 2016	\$25,000,000	\$1,800,000
5.2% Pollution Control Series, Due 2013	\$5,200,000	\$270,400
5.3% Pollution Control Series, Due 2013	\$8,000,000	\$424,000
7.05% Series, Due 2022	\$48,851,000	\$3,443,996
6.7% Series, Due 2033	\$62,000,000	\$4,154,000
5.8% Series, Due 7/1/2035	\$40,000,000	\$2,320,000
8-1/8 Series, Due 2009	\$20,000,000	\$1,625,000
6-1/2 Series, Due 2010	\$50,000,000	\$3,250,000
4.5% Series, Due 2013	\$98,000,000	\$4,410,000
5.875%, Due 2037	\$80,000,000	\$4,700,000
6.82% Series, Due 6/1/2036-EDG	\$55,000,000	\$3,751,000
FMB 6.375% Series, Due 6/1/2018	\$90,000,000	\$5,737,500
7.0% Series, Due 2/28/2024	\$75,000,000	\$5,250,000
Premium, Discount and Expense		\$2,281,562
Total	\$637,146,507	\$43,417,458
Embedded Cost of Long-term Debt		6.81%

Source: Response to DR No. 107

## Embedded Cost of Trust Preferred Stock as of June 30, 2009

	Amount Outstanding	Annual Cost
Trust Preferred Series:		
Trust Preferred	\$50,000,000	\$4,250,000
Premium, Discount and Expense	-\$1,361,532	\$62,840
Total	\$48,638,468	\$4,312,840
Embedded Cost of Preferred Stock		8.87%

Source: Response to DR No. 107

#### Criteria for Selecting Comparable Natural Gas Distribution Companies

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
			10-Year			•	
			Value Line	No Reduced	Projected Growth	At Least	Comparable
	Stock	Information	Historical	Dividend	Available from	Investment	Сотрапу
	Publicly	Printed In	Growth	since	Value Line and	Grade Credit	Met All
Natural Gas Distribution Companies	Traded	Value Line	Available	2006	IBES	Rating	Criteria
AGL Resources, Inc.	Yes	Yes .	Yes	Yes	Yes	Yes	Yes
Atmos Energy Corporation	'. Yes	Yes ye.	Yes	Yes	. Yes	Yes	Yes
Delta Natural Gas Company, Inc.	Yes	Yes	Yes	Yes	No		
Energy West	Yes	Yes	Yes	No			
Laclede Group	Yes	Yes	Yes	Yes	No		
Pledmont Natural Gas Company, Inc.	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Northwest Natural Gas Company	Yes	Yes	, Yes	Yes .	Yes	Yes	Yes
New Jersey Resources Corp.	Yes	Yes	Yes	'Yes	Yes	Yes	Yes
RGC Resources, Inc.	Yes	Yes	Yes	Yes	No		
South Jersey Industries, Inc.	Yes	Yes	Yes	Yes	Yes -	Yes	Yes
WGL Holdings, Inc.	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Sources: Column 1 = Edward Jones' Natural Gas Industry Summary, June 30, 2009.

Columns 2, 3, 4, and 5 = The Value Line Investment Survey: Ratings & Reports, September 11, 2009.

Column 6 = I/B/E/S Estimates, October 2009

Column 7 = Standard & Poor's RatingsDirect

## Seven Comparable Natural Gas Distribution Companies For The Empire District Gas Company

	Ticker	
Number	Symbol	Company Name
1	ATG	AGL Resources, Inc.
2	ATO	Atmos Energy Corporation.
3	NJR	New Jersey Resources Corporation
4	NWN	Northwest Natural Gas
5	PNY	Piedmont Natural Gas Company, Inc.
6	SJI	South Jersey Industries, Inc.
7	WGL	WGL Holdings, Inc.

## Ten-Year Dividends Per Share, Earnings Per Share & Book Value Per Share Growth Rates for the Seven Comparable Natural Gas Distribution Companies

		10-Year Annual Compou	und Growth Rates	Average of 10 Year Annual Compound
Company Name	DPS	EPS	BVPS	Growth Rates
AGL Resources, Inc.	4.00%	7.00%	7.00%	6.00%
Atmos Energy Corporation	2.50%	2.50%	6.50%	3.83%
New Jersey Resources Corp.	4.00%	7.50%	8.50%	6.67%
Northwest Natural Gas Co.	2.00%	5.00%	3.50%	3.50%
Piedmont Natural Gas Co.	5.00%	4.50%	5.50%	5.00%
South Jersey Industries, Inc.	3.50%	11.50%	9.00%	8.00%
WGL Holdings, Inc.	<u>1.50%</u>	<u>2.00%</u>	<u>4.00%</u>	<u>2.50%</u>
Average	<u>3.21%</u>	<u>5.71%</u>	<u>6.29%</u>	<u>5.07%</u>
Standard Deviation	1.16%	3.03%	1.94%	1.80%

Source: The Value Line Investment Survey: Ratings & Reports, September 11, 2009.

## Five-Year Dividends Per Share, Earnings Per Share & Book Value Per Share Growth Rates for the Seven Comparable Natural Gas Distribution Companies

		5-Year Annual Compound Growth Rates		Average of 5 Year Annual Compound
Company Name	DPS	EPS	BVPS	Growth Rates
AGL Resources, Inc.	8.00%	8.50%	10.00%	8.83%
Atmos Energy Corp.	1.50%	5.00%	7.50%	4.67%
New Jersey Resources Corp.	5.00%	7.50%	11.50%	8.00%
Northwest Natural Gas Co.	.3.00%	8.00%	3.50%	4.83%
Piedmont Natural Gas Co.	4.50%	6.50%	6.00%	5.67%
South Jersey Industries, Inc.	6.00%	13.00%	11.00%	10.00%
WGL Holdings, Inc. Average	<u>1.50%</u> <u>4.21</u> %	<u>4.00%</u> <u>7.50</u> %	<u>4.50%</u> <u>7.71</u> %	3.33% 6.48%
Standard Deviation	2.22%	2.70%	2.96%	2.29%

Source: The Value Line Investment Survey: Ratings & Reports, September 11, 2009.

## Average of Ten and Five-Year Dividends Per Share, Earnings Per Share & Book Value Per Share Growth Rates for the Seven Comparable Natural Gas Distribution Companies

	10-Year Average DPS, EPS &	5-Year Average DPS, EPS &	Average of 5-Year & 10-Year
Company Name	BVPS	BVPS	Averages
AGL Resources, Inc.	6.00%	8.83%	7.42%
Atmos Energy Corp.	3.83%	4.67%	4.25%
New Jersey Resources Corporation	6.67%	8.00%	7.33%
Northwest Natural Gas	3.50%	4.83%	4.17%
Piedmont Natural Gas Company, Inc.	5.00%	5.67%	5.33%
South Jersey Industries, Inc.	8.00%	10.00%	9.00%
WGL Holdings, Inc.	<u>2.50%</u>	<u>3.33%</u>	<u>2.92%</u>
Average	<u>5.07%</u>	<u>6.48%</u>	<u>5.77%</u>

## Five-Year Projected Dividends Per Share, Earnings Per Share & Book Value Per Share Growth Rates for the Seven Comparable Natural Gas Distribution Utility Companies

		5-Year Projected Com	Average of 5 Year Annual Compound	
Company Name	DP\$	EPS _	BVPS	Growth Rates
AGL Resources, Inc.	2.50%	3.50%	1.50%	2.50%
Atmos Energy Corp.	1.50%	4.00%	4.00%	3.17%
New Jersey Resources Corporation	5.50%	5.50%	9.50%	6.83%
Northwest Natural Gas	5.50%	5.00%	5.00%	5.17%
Piedmont Natural Gas Company, Inc.	3.50%	5.50%	4.00%	4.33%
South Jersey Industries, Inc.	7.00%	5.50%	6.00%	6.17%
WGL Holdings, Inc.	3.00%	4.00%	4.50%	3.83%
Average	4.07%	4.71%	4.93%	4.57%
Standard Deviation	1.82%	0.80%	2.26%	1.46%

Source: The Value Line Investment Survey: Ratings & Reports, September 11, 2009.

#### Historical and Projected Growth Rates for the Seven Comparable Natural Gas Distribution Companies

	(1)	(2)	(3)	(4)
			Projected	
	Historical	Projected	5-Year	Projected
	Growth Rate (DPS, EPS and	Growth Rate (DPS, EPS and	EPS Growth IBES	3-5 Year EPS Growth
Company Name	BVPS)	BVPS)	(Mean)	Value Line
AGL Resources, Inc.	7.42%	2.50%	4.50%	3.50%
Atmos Energy Corp.	4.25%	3.17%	5.00%	4.00%
New Jersey Resources Corporation	7.33%	6.83%	6.50%	5.50%
Northwest Natural Gas	4.17%	5.17%	5.17%	5.00%
Piedmont Natural Gas Company, Inc.	5.33%	4.33%	6.20%	5.50%
South Jersey Industries, Inc.	9.00%	6.17%	9.63%	5.50%
WGL Holdings, Inc.	2.92%	3.83%	4.50%	4.00%
	5.77%	4.57%	5.93%	4.71%

#### Proposed Range of Growth 4.75%-5.75%

Sources: Column 1 = Average of 10-Year and 5-Year Annual Compound Growth Rates from Schedule 11-3.

Column 2 = Schedule 12.

Column 3 = Reuters Website, October 2009

Column 4 = The Value Line Investment Survey: Ratings and Reports, September 11, 2009.

## Average High / Low Stock Price for July 2009 through September 2009 for the Seven Comparable Natural Gas Distribution Companies

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	July	2009	August 2009		September 2009		Average High/Low
	High	Low	High	Low	High	Low	Stock
	Stock	Stock	Stock	Stock	Stock	Stock	Price
Company Name	Price	Price	Price	Price	Price	Price	(7/09 - 9/09)
AGL Resources, Inc.	\$34.430	\$30.050	\$35.000	\$33.120	\$35.790	\$33.070	\$33.577
Atmos Energy Corp.	\$27.390	\$24.410	\$28.580	\$27.060	\$28.950	\$26.620	\$27.168
New Jersey Resources Corp.	\$40.610	\$35.990	\$38.990	\$35.860	\$37.040	\$35.640	\$37.355
Northwest Natural Gas Co.	\$46.000	\$42.230	\$45.060	\$41.720	\$42.860	\$41.120	\$43.165
Piedmont Natural Gas Co.	\$25.180	\$22.500	\$25.870	\$23.480	\$24.580	\$23.100	\$24.118
South Jersey Industries, Inc.	\$37.530	\$33.960	\$37.320	\$34.420	\$35.680	\$33.120	\$35.338
WGL Holdings, Inc.	\$33.790	\$30.370	\$34.390	\$32.650	\$34.240	\$32.450	\$32.982

Notes:

Column 7 = [ (Column 1 + Column 2 + Column 3 + Column 4 + Column 5 + Column 6) / 6].

Source: http://finance.yahoo.com

Discounted Cash Flow (DCF) Estimated Costs of Common Equity for the Seven Comparable Natural Gas Distribution Companies,

(1) (2) (3)

		Average	
	Expected	High/Low	Projected
	Annual	Stock	Dividend
Company Name	Dividend	Price	Yield
AGL Resources, Inc.	\$1.75	\$33.577	5.21%
Atmos Energy Corp.	\$1.34	\$27.168	4.91%
New Jersey Resources Corp.	\$1.27	\$37.355	3.40%
Northwest Natural Gas Co.	\$1.66	\$43.165	3.85%
Piedmont Natural Gas Co.	\$1.10	\$24.118	4.56%
South Jersey Industries, Inc.	\$1.26	\$35.338	3.57%
WGL Holdings, Inc.	\$1.50	\$32.982	4.55%
Average			4.29%

Proposed Dividend Yield:

Proposed Range of Growth:

Estimated Proxy Cost of Common Equity:

Recommended Cost of Common Equity

9.05%-10.05%

9.05%-10.05%

Notes:

Column 1 = Estimated Dividends Declared per share represents 25% of the projected dividend for 2009 and 75% of the projected dividend for 2010.

Column 3 = (Column 1 / Column 2).

Sources: Column 1 = The Value Line Investment Survey: Ratings and Reports, September 11, 20

Column 2 = Schedule 14.

# **SCHEDULE 18**

### THE EMPIRE DISTRICT GAS COMPANY CASE NO. GR-2009-0434

## Capital Asset Pricing Model (CAPM) Costs of Common Equity Estimates Based on Historical Return Differences Between Common Stocks and Long-Term U.S. Treasuries for the Seven Comparable Natural Gas Distribution Companies

	(1)	(2)	(3)	(4)	(5)	(6)
			Arithmetic	Geometric	Arithmetic	Geometric
			Average	Average	CAPM	CAPM
			Market	Market	Cost of	Cost of
	Risk	Company's	Risk	Risk	Common	Common
	Free	Value Line	Premium	Premium	Equity	Equity
Company Name	Rate	Beta	(1926-2008)	(1926-2008)	(1926-2008)	(1926-2008)
AGL Resources, Inc.	4.19%	0.75	5.60%	3.90%	8.39%	7.12%
Atmos Energy Corp.	4.19%	0.65	5.60%	3.90%	7.83%	6.73%
New Jersey Resources Corp.	4.19%	0.65	5.60%	3.90%	7.83%	6.73%
Northwest Natural Gas Co.	4.19%	0.60	5.60%	3.90%	7.55%	6.53%
Piedmont Natural Gas Co.	4.19%	0.65	5.60%	3.90%	7.83%	6.73%
South Jersey Industries, Inc.	4.19%	0.65	5.60%	3.90%	7.83%	6.73%
WGL Holdings, Inc.	4.19%	0.65	5.60%	3.90%	7.83%	6.73%
Average		0.66			<u>7.87%</u>	6.75%

#### Sources:

- Column 1 = The appropriate yield is equal to the average 30-year U.S. Treasury Bond yield for September 2009 which was obtained from the St. Louis Federal Reserve website at http://research.stlouisfed.org/fred2/series/GS30/22.
- Column 2 = Beta is a measure of the movement and relative risk of an individual stock to the market as a whole as reported by the Value Line Investment Survey: Ratings & Reports, September 11, 2009.
- Column 3 = The Market Risk Premium represents the expected return from holding the entire market portfolio less the expected return from holding a risk free investment. The appropriate Market Risk Premium for the period 1926 2008 was determined to be 5.60% based on an arithmetic average as calculated in Ibbotson Associates, Inc.'s Stocks, Bonds, Bills, and Inflation: 2009 Yearbook.
- Column 4 = The Market Risk Premium represents the expected return from holding the entire market portfolio less the expected return from holding a risk free investment. The appropriate Market Risk Premium for the period 1926 2008 was determined to be 3.90% based on a geometric average as calculated in Ibbotson Associates, Inc.'s Stocks, Bonds, Bills, and Inflation: 2009 Yearbook.
- Column 5 = (Column 1 + (Column 2 \* Column 3)).
- Column 6 = (Column 1 + (Column 2 \* Column 4)).

#### Selected Financial Ratios for the Seven Comparable Natural Gas Distribution Companies

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Company Name	2008 Common Equity Ratio	2008 Long-Term Debt Ratio	Funds From Operations to Interest	Funds From Operations to Total Debt	Market- to-Book Value	2008 Return on Common Equity	2009 Projected Return on Common Equity	Bond Rating
AGL Resources, Inc.	49.70%	50.30%	4.30 x	18.3%	1.56 x	12.60%	11.50%	A-
Atmos Energy Corp.	49.20%	50.80%	4.20 x	21.7%	1.20 x	8.80%	9.00%	BBB+
New Jersey Resources Corp.	61.50%	38.50%	5.3 <sup>1</sup> x	21.4% 1	2.15 x	15.70%	13.00%	Α
Northwest Natural Gas Co.	55.10%	44.90%	5.30 x	21.5%	1.72 x	10.90%	11.00%	AA-
Piedmont Natural Gas Co.	52.80%	47.20%	4.90 x	24.7%	1.88 x	12.40%	12.50%	Α
South Jersey Industries, Inc.	60.80%	39.20%	$4.40^{2} x$	$20.8\%^{2}$	1.95 x	13.10%	12.50%	BBB+
WGL Holdings, Inc.	62.40%	35.90%	5.40 x	26.0%	1.51 x	11.60%	12.00%	AA
Average	55.93%	43.83%	<u>4.83</u> x	22.1%	1.71 x	12.16%	11.64%	A

#### Sources:

The Value Line Investment Survey Ratings & Reports, September 11, 2009: for columns (1), (2), (6) and (7). Standard & Poor's RatingsDirect for columns (3), (4) and (8). AUS Utility Reports, October 2009 for column (5).

#### Notes:

<sup>&</sup>lt;sup>1</sup> Ratios were only available for subsidiary New Jersey Natural Gas Co.

<sup>&</sup>lt;sup>2</sup> Ratios were only available for subs

#### **Public Utility Revenue Requirement**

or

#### **Cost of Service**

The formula for the revenue requirement of a public utility may be stated as follows:

Equation 1:

Revenue Requirement = Cost of Service

or

Equation 2:

RR = O + (V - D)R

The symbols in the second equation are represented by the following factors:

RR = Revenue Requirement

O = Prudent Operating Costs, including Depreciation and Taxes

V = Gross Valuation of the Property Serving the Public

D = Accumulated Depreciation

(V-D) = Rate Base (Net Valuation)

(V-D)R = Return Amount (\$\$) or Earnings Allowed on Rate Base

R = iL+dP+kE or Overall Rate of Return (%)

i = Embedded Cost of Debt

d = Embedded Cost of Preferred Stock

P = Proportion of Preferred Stock in the Capital Structure

k = Required Return on Common Equity (ROE)

E = Proportion of Common Equity in the Capital Structure

## Weighted Cost of Capital for The Empire District Gas Company

Weighted Cost of Capital Using Common Equity Return of:

			Commo	on Equity Return	of:
Capital Component	Percentage of Capital	Embedded Cost	9.05%	9.55%_	10.05%
Common Stock Equity	43.54%		3.94%	4.16%	4.38%
Trust Preferred Stock	4.00%	8.87%	0.36%	0.36%	0.36%
Long-Term Debt	52.46%	6.81%	3.57%	3.57%	3.57%
Short-Term Debt	0.00%		0.00%	0.00%	0.00%
	100.00%		7.87%	8.09%	8.31%

Notes:

See Schedule 9 for the Capital Structure Ratios.

See Schedule 10 for the Embedded Cost of Long-Term Debt.

#### Costs of Equity Used in Equity Research Reports for AGL Resources Inc.

Investment Company	Date of Report	Discount Rate (Cost of Equity)	Terminal Growth	Equity Risk Premium	Risk-free rate	Beta
Goldman Sachs	8/31/2009	9.00%	2.00%	NA	NA	NA
	3/9/2009	8.50%	2.00%	NA	NA	NA
	7/17/2008	8.50%	2.00%	NA	NA	NA
Citigroup	3/29/2009	8.34%	NA	6.45%	3.50%	0.75
	10/15/2008	8.25%	NA	5.00%	4.50%	0.75

Notes:

NA = Not available

#### Costs of Equity Used in Equity Research Reports for Atmos Energy Corp.

Investment Company	Date of Report	Discount Rate (Cost of Equity)	DDM Growth Rate	Equity Risk Premium	Risk-free rate	Beta
Citigroup	3/29/2009	8.34%	NA	6.45%	3.50%	0.75
	10/15/2008	8.25%	NA	5.00%	4.50%	0.75
Brean Murray	2/5/2009	8.40%	3.50% <sup>1</sup>	4.40%	4.00%	NA
·	8/6/2008	8.20%	4.00% <sup>1</sup>	3.70%	4.50%	NA
Goldman Sachs	8/31/2009	9.00%	2.00% <sup>2</sup>	NA	NA	NA
	3/9/2009	8.50%	2.00% <sup>2</sup>	NA	NA	NA
	7/17/2008	8.50%	2.00% <sup>2</sup>	NA	NA	NA
UBS Investment Research	9/21/2009	9.00%	2.00% <sup>2</sup>	NA	NA	NA
	11/13/2008	9.40%	2.00% <sup>2</sup>	NA	NA	NΑ

#### Notes:

- Used in a single-stage DDM model.
   Terminal stage in multi-stage DDM model.

#### Costs of Equity Used in Equity Research Reports for New Jersey Resources Corp.

Investment Company	Date of Report	Discount Rate (Cost of Equity)	Single-stage DDM Growth Rate	Equity Risk Premium	Risk-free rate	Beta
Brean Murray	7/29/2009	8.00%	5.00%	4.00%	4.00%	NA
	11/14/2008	7.45%	4.50%	3.20%	4.25%	NA
	8/6/2008	7.80%	4.50%	3.30%	4.50%	NA

Notes:

#### Costs of Equity Used in Equity Research Reports for Northwest Natural Gas Company

Investment Company	Date of Report	Discount Rate (Cost of Equity)	Single-stage DDM Growth Rate	Equity Risk Premium	Risk-free rate	Beta
Brean Murray	8/4/2009	7.75%	5.00%	3.50%	4.25%	NA
	10/13/2008	7.75%	5.00%	3.50%	4.25%	NA

Notes:

#### Costs of Equity Used in Equity Research Reports for Piedmont Natural Gas Company

Investment Company	Date of Report	Discount Rate (Cost of Equity)	Single-stage DDM Growth Rate	Equity Risk Premium	Risk-free rate	Beta
Brean Murray	7/30/2009	7.30%	4.00%	3.30%	4.00%	NA
	1/6/2009	7.80%	4.50%	3.80%	4.00%	NA
	10/13/2008	7.45%	4.50%	3.20%	4.25%	NA
	2/5/2008	7.70%	4.00%	3.20%	4.50%	NA

Notes:

#### Costs of Equity Used in Equity Research Reports for South Jersey Industries, Inc.

Investment Company	Date of Report	Discount Rate (Cost of Equity)	Single-stage DDM Growth Rate	Equity Risk Premium	Risk-free rate	Beta
Brean Murray	8/7/2009	8.00%	5.00%	4.00%	4.00%	NA
	8/8/2008	8.30%	5.50%	3.80%	4.50%	NA

Notes:

#### Costs of Equity Used in Equity Research Reports for WGL Holdings, Inc.

			Single-stage			
Investment Company	Date of Report	Discount Rate (Cost of Equity)	DDM Growth Rate	Equity Risk Premium	Risk-free rate	Beta
Brean Murray	11/14/2008	7.75%	4.00%	3.50%	4.25%	NA
	8/5/2008	8.00%	4.00%	3.50%	4.50%	NA
Goldman Sachs	8/31/2009	9.00%	2.00%	NA	NA	NA
	3/9/2009	8.50%	2.00%	NA	NA	NA
	7/17/2008	8.50%	2.00%	NA	NA	NA

Notes:

# STAFF REPORT COST OF SERVICE

## **APPENDIX 3**Summary of Heating Degree Days

#### **EMPIRE DISTRICT GAS COMPANY**

CASE NO. GR-2009-0434

	DISTRICT:		NORTH						CLASSA	_	esidential
	DISTROT.	~~~				-			OLASS.	<b>5</b>	- Sinelinal
,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	ter & Terlines	1000	N	or	malized Sa	le	s per Custo	าก	ier	~; ·,	water the state of
[	Billing	1-1	Ccf		Ccf	7	Ccf			<del>- jiv ,</del>	Normal Usage
	Month		Actual	نينة مراج	Adjustment =		Normal	4	Customers	1	per Customer
	Jan		1,165,180	-	33,499	<u>.</u> جيد	1,198,679		8,268		144.9781
	Feb		1,245,681	-	-46,326	ign gar	1,199,355	:34°	8,251		145.3587
	Mar		1,166,128		-179,499	4	986,629		7,960		123.9484
	Apr		736,396	-	-77,356	d.	659,040	- <b>6</b> -	8,313	10-3	79.2782
-	May		321,219		-40,173	ė.	281,046	ë	7,761	4	36.2126
	Jun		122,403	-40	3,428	· Ç.,	125,831	Ť	6,960	i James	18.0791
-	Jul		78,354	-	3,453	101	81,807	1	6,034		13.5576
	Aug		69,410	*	802	T.	70,212	- in 5	5,848	-4in-	12.0062
	Sep		74,105		-11,291		62,814	-	6,132		10.2437
	Oct	الله الله السرة	94,767		34,282	<u></u> -	129,049	ii	6,715		19.2180
	Nov	-	317,867		-6,095		311,772		7,722	4	40.3745
	Dec		851,560		-68,583		782,977		8,087	X	96.8192
į.			6,243,070	. 9	-353,858		5,889,212		88,051	in the	802.6092
			دوموندون ومانود المناود ومانوسون دود فهمانوسون ومانوسون ومانوسون		-5.67%					مان مان مان مان مان مان مان مان مان	
Į.		,	أجمعت بالمشمار بالمساد	g (5)						£1	

Billing	DAYS	HDD	SUMMED
Month	Adjustment	Adjustment	Adjustment
Jan	0	33,499	33,499
Feb	<b></b> ○	-46,326	-46,326
🖺 Mar	<b>3</b> 0	-179,499	-179,499
∐ Apr	<u> </u>	-77,356	-77,356
May May	o	-40,173	-40,173
Jun	<b>□</b> 0	3,428	3,428
∏ lut	288	3,165	3,453
🖺 Aug	334	468	101
Sep	<b></b>	-11,499	-11,291
— Oct	- 0	34,282	34,282
Nov	<u> </u>	-6,095	-6,095
- Dec	0	-68,583	4 · · · · · · · · · · · · · · · · · · ·
	830	-354,689	1 ii l
	0.01%	-5.68%	-5.67%

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_	<del></del>	_		Ne		a I	ies per Cus	to	mer			
1	Billing		Ccf	1	Ccf		Ccf				Normal Usage	1
L	Month	L	Actual	L	Adjustment		Normal	ĺ	Customers		per Customer	1
	Jan		748,018		-39,949		708,069		4,880		145.0962	
	Feb		749,025	l	-69,525		679,500		4,832		140.6250	l
	Mar		643,752	1	-157,451		486,301		4,601		105.6947	l
ļ	Apr		434,907	1	-83,711		351,196		4,846		72.4713	ŀ
ļ	May		202,273		-64,006		138,267		4,584	٠.,	30.1630	
1	Jun	1	75,839		-23,247		52,592	*.4	4,216		12,4744	l
	Jul		44,680	1	2,023		46,703		3,600	,	12.9731	l
	Aug		42,048		1,039		43,087	-	3,502		12.3036	l
1	Sep	}	46,514	-	-13,091	. `	33,423	,	3,633		9.1999	ŀ
İ	Oct	1	62,918	-	17,650		80,568		3,929		20.5059	1
	Nov	1	215,220	1	-20,236		194,984		4,570	•	42.6661	1
e .	Dec		520,290		-59,533		460,757		4,710	¥ .	97.8253	
1			3,785,484		-510,036	1 10 1	3,275,448		51,903		757.2852	1
				ľ	-13.47%			٠.		*	1	•

Billing	DAYS	HDD	SUMMED	
Month	Adjustment	Adjustment	Adjustment	
Jan	0	-39,949	-39,949	
Feb	\ o	-69,525	-69,525	
Mar	0	-157,451	-157,451	4
Apr	0	-83,711	-83,711	
May	) 0	-64,006	-64,006	
Jun		-23,247	-23,247	
Jul )	313	1,710	2,023	· `
Aug	357	682	1,039	- 25
Sep	728	-13,819	-13,091	
Oct		17,650	17,650	
Nov		-20,236	-20,236	
Dec	0	-59,533	-59,533	.9
	1,399	-511,435	-510,036	
	0.04%	-13.51%	-13.47%	
* , ,				_ '

DISTRICT:	SOUTH			CLASS: R	esidential
		Normalized S	ales per Custo	omer	
Billing	Ccf	Ccf	Ccf		Normal Usage
Month	Actual	Adjustment	Normal	Customers	per Customer
Jan	3,311,594	55,738	3,367,332	25,798	130.5269
Feb	3,746,317	-114,598	3,631,719	25,783	140.8571
Mar	3,183,764	-512,947	2,670,817	24,914	107.2015
Apr	2,132,310	-218,314	1,913,996	25,899	73.9023
May	1,085,249	-111,936	973,313	24,405	39.8817
Jun	489,247	1,479	490,726	23,353	21.0134
Jul	309,221	9,798	319,019	22,036	14.4772
Aug	306,425	-262	306,163	21,855	14.0088
Sep	314,557	-39,602	274,955	22,102	12.4403
Oct	377,805	108,577	486,382	22,631	21.4918
Nov	989,720	-22,031	967,689	24,490	39.5136
Dec	2,378,635	-173,155	2,205,480	25,234	87.4011
,	18,624,844	-1,017,255	17,607,589	288,500	732.3781
#*		-5.46%	•		An An

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	Billing	DAYS	HDD	SUMMED	
l à	Month	Adjustment	Adjustment	Adjustment	
ŀ	Jan	0	55,738	55,738	
١٠	Feb	0	-114,598	-114,598	
	Mar	0	-512,947	-512,947	
:	Apr	0	-218,314	-218,314	
	May	0	-111,936	-111,936	
1	Jun	-408	1,887	1,479	
	Jul	438	9,359	9,798	
l	Aug	-1,819	1,557	-262	
1	Sep	-1,991	-37,611	-39,602	
	Oct	0	108,577	108,577	
	Nov	0	-22,031	-22,031	,
١.	Dec	0	-173,155	-173,155	
	*	-3,780	-1,013,474	-1,017,255	
1		-0.02%	-5.44%	-5.46%	
_					

DISTRICT:													
		ormalized Sa	les per Custo	mer	*								
Billing	Ccf	Ccf	Ccf		Normal Usage								
Month	Actual	Adjustment	Normal	Customers	per Customer								
Jan	5,224,792	49,288	5,274,080	38,946	135.4203								
Feb	5,741,023	-230,449	5,510,574	38,866	141.7839								
Mar	4,993,644	-849,896	4,143,748	37,475	110.5737								
Apr	3,303,613	-379,382	2,924,231	39,058	74.8689								
May	1,608,741	-216,115	1,392,626	36,750	37.8946								
Jun	687,489	-18,340	669,149	34,529	19.3793								
Jul	432,255	15,274	447,529	31,670	14.1310								
Aug	417,883	1,579	419,462	31,205	13.4421								
Sep	435,176	-63,984	371,192	31,867	11.6482								
Oct	535,490	160,509	695,999	33,275	20.9166								
Nov	1,522,807	-48,362	1,474,445	36,782	40.0861								
Dec	3,750,485	-301,271	3,449,214	38,031	90.6948								
* .	28,653,398	-1,881,149	26,772,249	35,705	749.8284								
		-6.57%			***								

· · · · · · · · · · · · · · · · · · ·				
Billing	DAYS	HDD	SUMMED	*
Month_	Adjustment	Adjustment	Adjustment	
Jan	0	49,288	49,288	غ.
Feb	0	-230,449	-230,449	
Mar	\ o(	-849,896	-849,896	
Apr	0	-379,382	-379,382	
May	0	-216,115	-216,115	
Jun	-408	-17,932	-18,340	
luL	1,040	14,234	15,274	
Aug	-1,127	2,706	1,579	
Sep	-1,055	-62,929	-63,984	:
Oct	0	160,509	160,509	, .
Nov	0	-48,362 <sup>/</sup>	-48,362	
Dec	0	-301,271	-301,271	
	-1,551	-1,879,598	-1,881,149	
·	-0.01%	-6.56%	-6.57%	
, , , , , , , , , , , , , , , , , , ,		, ,		

DIST	RICT:		VORTH						CLASS:	S	<u>CF</u>	
Normalized Sales per Customer												
	ing		Ccf	<b>1</b>	Ccf	-	Ccf	1		***	Normal Usage	
Mo	nth		Actual		djustment		Normal	-	Customers	سترب سنب	per Customer	
Já	an		394,560		13,578	ينم <u>ئ</u> ند سسم	408,138	Ţ.	1,185	**:3	344.4201	
F	eb	17.00 (17.00) 18.00 (17.00) 18.00 (17.00)	386,444		-15,523		370,921		1,190		311.6985	
M	аг	-previ	355,994		-55,846		300,148		1,156		259.6438	
Α	pr	بيت	192,292		-25,083	يسون إسماعات	167,209	-	1,199	+ + i +	139.4575	
M	ay	-	78,062		-11,437		66,625	1	1,106	4	60.2395	
<sub>.</sub> J	un	-0	28,596		982		29,578	1	873	-	33.8804	
J	ul		26,775		824		27,599	**	691		39.9411	
Α	ug	ليو	22,989	غود. مورد	181	i	23,170	1	651	-	35.5911	
S	ер		23,478		-2,915		20,563		666	-	30.8759	
C	ct		27,810		9,087	ا بسور	36,897		766		48.1687	
N	ov	+12	92,123		-2,367	-	89,756		1,091		82.2699	
D	ес		246,002		-21,290		224,712		1,154	E	194.7247	
-			1,875,125	-,,,,,,	-109,807		1,765,318		11,728		1806.2596	
<del>؞؞ڿڡؠ؞ڶ</del> ؞ٷۼڣ ڽڹڴۣۣ؞ۅڛڎۥڛڽۣ؞؞؞		, <u></u>			-5.86%	برند. میند	Activities of the second		<u>ئىلىك يەسانەرە يەرىدى ئوسىلى بىلىدى ئۇرۇپ.</u> ئىرىدىكى ئىلىنىڭ ئىرىدى ئىرىدى ئارىدى ئى		ka industrial della distribution	

					, 		
Billing		DAYS	عث بدي	HDD	-	SUMMED	-#2
Month		Adjustment	1	Adjustment		Adjustment	-
Jan		0	1	13,578	~-	13,578	
Feb		0	, ,	-15,523		-15,523	1
Mar		0	ر ويستم محمود	-55,846	Ť.	-55,846	
□ Apr		0	ب. مي <u>ج</u>	-25,083	-	-25,083	-4.5
May		0	ئرىپ ئەسىد	-11,437	بية. الإيت	-11,437	
∷ Jun	-	0		982	4	982	-
Jul		50	-9	775		824	
Aug Aug		67	-	114	Ť	181	
.⊒ Sep		62		-2,977	,;	-2,915	
Coct		0		9,087	4	9,087	
Nov		0	****	-2,367	7	-2,367	مرسر سازد قاد
□ Dec	][	0	211	-21,290	7	-21,290	
		179	-	-109,986		-109,807	
graphic bases and a second		0.01%		-5.87%	اي	-5.86%	J.,
- 18-7- 1-18-11-11-11-11-11-11-11-11-11-11-11-11		<del></del>	-9-4	عابسات بمجنب بسبيب		*:::::::::::::::::::::::::::::::::::::	÷.,,,

DISTRICT:	NORTHWES	Τ	CLASS: SCF									
Normalized Sales per Customer												
Billing	Ccf ·	Ccf	Ccf		Normal Usage							
Month	Actual	Adjustment	Normal	Customers	per Customer							
Jan	224,210	-12,995	211,215	671	314.7758							
Feb	210,197	-18,414	191,783	657	291.9064							
Mar	175,414	-43,415	131,999	643	205.2860							
Apr	106,967	-24,256	82,711	670	123.4491							
May	46,629	-17,675	28,954	626	46.2521							
Jun	23,522	-6,883	16,639	530	31.3935							
Jul	14,799	625	15,424	434	35.5381							
Aug	11,767	203	11,970	416	28.7730							
Sep	12,725	-2,330	10,395	421	24.6913							
Oct	15,815	3,337	19,152	486	39.4075							
Nov	55,533	-5,749	49,784	621	80.1670							
Dec	144,209	-16,203	128,006	658	194.5381							
	1,041,787	-143,758	898,029	6,833	1577.1039							
		-13.80%			· · · · · · · · · · · · · · · · · · ·							

Billing	DAYS	HDD	SUMMED	
Month	Adjustment	Adjustment	Adjustment	
Jan	0	-12,995	-12,995	
Feb	0	-18,414	-18,414	
Mar	o	-43,415	-43,415	
Apr	0	-24,256	-24,256	
May	0	-17,675	-17,675	
Jun	o	-6,883	-6,883	
Jul	61	564	625	
Aug	74	128	203	
Sep	157	-2,487	-2,330	
Oct	0	3,337	3,337	
Nov	0	-5,749	-5,749	
Dec	0	16,203	-16,203	
	292	-144,050	-143,758	
÷ ,	0.03%	-13.83%	-13.80%	
i				

DISTRICT:	SOUTH			CLASS: S	CF	
		Normalized Sa	les per Custo	omer		
Billing	Ccf	Ccf	Ccf		Normal Usage	
Month	Actual	Adjustment	_Normal	Customers	per Customer	
Jan	738,428	5,228	743,656	2,846	261.2986	
Feb	876,058	-18,958	857,100	2,865	299.1624	
Mar	722,018	-110,869	611,149	2,759	221.5111	*
Apr	440,206	-48,370	391,836	2,863	136.8622	
May	200,130	-26,097	174,033	2,675	65.0592	2.
. Jun	87,119	-1,644	85,475	2,130	40.1289	ľ
Jul	61,345	1,739	63,084	1,682	37,5055	
Aug	62,875	-83	62,792	1,641	38.2646	. ,
Sep	64,628	-5,374	59,254	1,662	35.6520	ļ
Oct	71,049	16,056	87,105	1,818	47.9124	
Nov	164,118	-5,156	158,962	2,591	61.3517	, 1
Dec	493,373	-36,528	456,845	2,787	163.9200	1
	3,981,347	-230,056	3,751,291	28,319	1589.5864	s.
* * * * * * * * * * * * * * * * * * * *		-5.78%				

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					٠,
	Billing	DAYS	HDD	SUMMED	ě
٠.	Month	Adjustment	Adjustment	Adjustment	
*	Jan	0	5,228	5,228	
1	Feb	0	-18,958	-18,958	
l	Mar	) 0	-110,869	-110,869	
	Apr	0	-48,370	-48,370	-
ļ	May	ol	-26,097	-26,097	٠.
	Jun	-144	-1,500	-1,644	•
]	Jul	125	1,615	1,739	
	Aug	-314	232	-83	
	Sep	-406	-4,969	-5,374	
^	Oct	·l ol	16,056	16,056	
l	Nov	0	-5,156	-5,156	
}	Dec		-36,528	-36,528	
Ì		-739	-229,316	-230,056	
		-0.02%	-5.76%	-5.78%	
		;			
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		Normalized Sa	les per Custo	mer	
Billing	Ccf	Ccf	Ccf		Normal Usage
Month	Actual	Adjustment	Normal	Customers	per Customer
Jan	1,357,198	5,810	1,363,008	4,702	289.8784
Feb	1,472,699	-52,895	1,419,804	4,712	301.3167
Mar	1,253,426	-210,130	1,043,296	4,558	228.8934
Apr	739,465	-97,708	641,757	4,732	135.6206
May	324,821	-55,209	269,612	4,407	61.1781
Jun	139,237	-7,546	131,691	3,533	37.2745
Jul	102,919	3,188	106,107	2,807	37.8009
Aug	97,631	301	97,932	2,708	36.1638
Sep	100,831	-10,619	90,212	2,749	32.8163
Oct	114,674	28,480	143,154	3,070	46.6300
Nov	311,774	-13,272	298,502	4,303	69.3708
Dec	883,584	-74,021	809,563	4,599	176.0303
	6,898,259	-483,621	6,414,638	3,907	1641.9723

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	Billing		DAYS	Ì	HDD		SUMMED	*
	Month		Adjustment	1	Adjustment		Adjustment	
Į ·	Jan		0		5,810		5,810	
	Feb		o		-52,895		-52,895	
\ `	Mar		o		-210,130		-210,130	,
	Apr '		o		-97,708		-97,708	
	May		o		-55,209		-55,209	
	Jun		-144	Ì	-7,402		-7,546	
-	Jul	İ.	235		2,953		3,188	
ı	Aug		-173		473		301	
	Sep		-186		-10,433		-10,619	
	Oct				28,480	١,	28,480	
ŀ	Nov		0		-13,272		-13,272	, , ,
	Dec		0	-	-74,021		-74,021	
		•	-268		-483,352		-483,621	
			0.00%		-7.01%		-7.01%	

					heri in de marie de la companya del la companya de						
DISTRICT: NORTH CLASS: SVF											
		No	rmalized S	ales per Cust	omer						
Billing Mont		Ccf Actual	Ccf Adjustment	Ccf Normal	Customers	Normal Usage per Customer					
Jan Est		154,574	5,554	160,128	82	1952.7843					
Feb Mar	بهست	172,634 171,366	-8,736 -22,914	163,898 148,452	82 86	1998.7614 1726.1809					
Apr		100,427	-9,373	91,054	83	1097.0384					
May Jun		52,770 - 31,285 <u>-</u>	-4,686 729	<del>-1</del>	81 77	593.6325 415.7686					
Jul		32,851	609	- in-	70	477.9942					
Aug Sep	1 1	26,463 31,358	227 -1,653	26,690 29,705	68 71	392.5041 418.3809					
Oct		46,160	5,183		74	693.8272					
Nov Dec	ميد	86,477 151,191	-896 -8,847	85,581 - 142,344	78 82	1097.1976 1735.8967					
		1,057,556	-44,802	1,012,754	934	13011.8283					
			-4.24%								

-	The second secon			رسین موجود دوجود	in and the second	برود. درخی		
-	Billing		DAYS		HDD		SUMMED	
<del>-</del>	Month		Adjustment		Adjustment	-	Adjustment	
	Jan		0		5,554		5,554	
	Feb		0	,,,,,,,,	-8,736		-8,736	1
	Mar		0		-22,914	1	-22,914	<u></u>
3	Apr		0	4	-9,373	1	<b>-</b> 9,373	
	May		0	نخۇد سىر	-4,686	<del></del>	-4,686	
-344	Jun		0		729	يد. إيديد	729	***
	Jul		188	-	421		609	
-5	Aug		161	-	66	Ť	227	
	Sep		282		-1,935		-1,653	
-4	Oct		0		5,183		5,183	
	Nov		0	يونند پښود	-896		-896	÷,
EL	Dec	$\Box$	0	4	-8,847	1	<u>-8,847</u>	F
	س مداد می مدارد از در بازی می از در در در در در در در در در در در در در	-,[	630		-45,432		-44,802	<u></u>
- <del>), - </del> -			0.06%		-4.30%		-4.24%	]_
				مبر آ	PROFESSION AND ADDRESS.	ميت.		

	DISTRICT:	NORTHWES	7		CLASS: S	S <b>VF</b>
		^	lormalized Sa	les per Custo	omer	*
-	Billing	Ccf	Ccf	Ccf		Normal Usage
ő	Month	Actual	Adjustment	Normal	Customers	per Customer
	Jan	119,846	-7,019	112,827	60	1880.4574
	Feb	105,656	-9,009	96,647	56	1725.8466
3	Mar	92,578	-18,118	74,460	51	1459.9934
7	Apr	71,472	-11,575	59,897	61	981.9236
,,	May	35,726	-7,734	27,992	56	499.8570
į.	Jun	24,733	-1,518	23,215	52	446.4484
y 2	Jul	22,586	668	23,254	48	484.4658
6 H	Aug	23,275	1,118	24,393	48	508.1808
	Sep	22,388	-1,320	21,068	49	429.9503
ij.	Oct	29,961	3,265	33,226	58	572.8661
	Nov	58,907	-3,670	55,237	58	952.3660
:	Dec	100,004	-9,988	90,016	60	1500.2612
'		707,132	-64,899	642,233	657	11730.2812
	-		-9.18%		*	

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	Billing	DAYS /	HDD	SUMMED	
-	Month	Adjustment	Adjustment	Adjustment	n 1
1	Jan	0	-7,019	-7,019	
	Feb	0	-9,009	-9,009	
١.	Mar	0	-18,118	-18,118	
'	Apr	0	-11,575	-11,575	٠
	May	0	-7,734	-7,734	í.
l	Jun	o	-1,518	-1,518	,
	Jul	551	117	668	
1	Aug	961	156	1,118	i.
	Sep	1,325	-2,645	-1,320	
	Oct	·	3,265	3,265	
	Nov	0	-3,670	-3,670	*
l	Dec	0	-9,988	-9,988	
		2,837	-67,737	-64,899	•
		0.40%	-9.58%	-9.18%	1

DISTRICT: SOUTH			CLASS: SVF							
	Normalized Sales per Customer									
Billing	Ccf	Ccf	Ccf		Normal Usage					
Month_	Actual	Adjustment	Normal	Customers	per Customer					
Jan	561,022	-1,002	560,020	315	1777.8410					
Feb	623,764	-9,139	614,625	322	1908.7727					
Mar	543,887	-68,628	475,259	306	1553.1339					
Apr	412,271	-31,594	380,677	330	1153.5661					
May	249,295	-17,759	231,536	311	744.4888					
Jun	151,089	-1,379	149,710	318	470.7875					
Jul	126,139	2,179	128,318	309	415.2696					
Aug	123,697	-292	123,405	282	437.6053					
Sep	127,963	-4,970	122,993	285	431.5543					
Oct	220,314	12,074	232,388	300	774.6276					
Nov	211,517	-4,360	207,157	312	663.9658					
Dec	391,485	-20,986	370,499	319	1161.4375					
	3,742,443	-145,856	3,596,587	3,709	11636.3023					
		-3.90%	, ,							

Billing	DAYS	HDD	SUMMED
		i i	
Month	Adjustment	Adjustment -	Adjustment
Jan	] 0] ]	-1,002	-1,002
Feb		-9,139	-9,139
Mar	0	-68,628	-68,628
Apr	0	-31,594	-31,594
May	·   0	-17,759	-17,759
Jun [	-231	-1,147	-1,379
Jul	599	1,581	2,179
Aug	-531	238	-292
Sep	-1,837	-3,133	-4,970
Oct	0	12,074	12,074
Nov	0	-4,360 °	-4,360
Dec		-20,986	-20,986
	-2,000	-143,855	-145,856
	-0.05%	-3.84%	-3.90%

L	DISTRICT:	ALL		-	CLASS: S	CF
		^	Iormalized Sa	les per Custo	mer	
	Billing	Ccf	Ccf	Ccf		Normal Usage
L	Month	Actual	Adjustment	Normal	Customers	per Customer
١٢	Jan	835,442	-2,466	832,976	457	1822.7039
	Feb	902,054	-26,883	875,171	460	1902.5449
	Mar	807,831	-109,661	698,170	443	1576.0050
-	Apr	584,170	-52,542	531,628	474	1121.5788
	May	337,791	-30,179	307,612	448	686.6345
•	Jun	207,107	-2,167	204,940	447	458.4786
	Jul	181,576	3,456	185,032	427	433.3308
	Aug	173,435	1,053	174,488	398	438.4112
•	Sep	181,709	-7,943	173,766	405	429.0509
H	Oct	296,435	20,523	316,958	432	733.6984
	Nov	356,901	-8,925	347,976	448	776.7320
	Dec	642,680	-39,822	602,858		1307.7175
[		5,507,131	-255,557	5,251,574	442	11890.3562
			-4.64%	·	, ,	-> <u> </u>
<u> </u>		<u> · · · · _                  </u>				

:			
. Billing	DAYS	DOH	SUMMED
- Month	Adjustment	Adjustment	Adjustment
Jan	0	-2,466	-2,466
Feb	·   o	-26,883	-26,883
Mar	0	-109,661	-109,661
Apr	o	-52,542	-52,542
May	0	-30,179	-30,179
Jun	-231	-1,936	-2,167
Jul	1,338	2,119	3,456
Aug	592	461	1,053
Sep	-231	-7,713	-7,943
Oct	0	20,523	20,523
Nov	0	-8,925 ·	-8,925
Dec	0	-39,822	-39,822
	1,467	-257,024	-255,557
	0.03%	-4.67%	-4.64%
4		4 T 4	

# STATION: KANSAS\_CITY\_WSMO\_AP, MO (Station ID: 234358) Actual Heating Degree-Days (HDD) and Normal Heating Degree-Days (NHDD) For The 12 Calendar Months Beginning January 01, 2008 And Ending December 31, 2008

		ТОТ	AL HDD BY M	IONTH		PEAK DAY HE	DD
 				ADJUSTMENT			
ļ				,	OBSERVED	NORMAL	ADJUSTMENT,
		OBSERVED	NORMAL	ACTUAL	COLDEST	COLDEST	ACTUAL
Ì		TOTALS	TOTALS	TO	DAY	DAY	TO
	MONT						
YEAR_	H	HDD	NHDD	NORMAL	HDD	NHDD	NORMAL
2008	1	1164	1182	18	61.50	65.99	4.49
2008	2	1081	905	(176)	50.00	62.57	12.57
2008	3	726	661	(65)	44.50	48.08	3.58
2008	4	408	340	(68)	27.00	31.17	4.17
2008	5	116	106	(10)	13.50	16.98	3.48
2008	6	0	8	8	0.00	5.66	5.66
2008	7	0	1	1	0.00	0.82	0.82
2008	8	0	2	2	0.00	1.73	1.73
2008	9	57	72	15	7.50	16.83	9.33
2008	10	313	282	(31)	27.00	28.57	1.57
2008	11	658	669	11	41.00	45.86	4.86
2008	12	1125	1047	(78)	60.00	66.63	6.63
12 MO	NTHS	5647	5273	(374)	61.50	66.63	5.13

# STATION: CONCEPTION, MO (Station ID: 231822) Actual Heating Degree-Days (HDD) and Normal Heating Degree-Days (NHDD) For The 12 Calendar Months Beginning January 01, 2008 And Ending December 31, 2008

L							
		TOT	AL HDD BY M	ONTH		PEAK DAY HE	DD
				ADJUSTMENT			
				,	OBSERVED	NORMAL	ADJUSTMENT,
		OBSERVED	NORMAL	ACTUAL	COLDEST	COLDEST	ACTUAL
		TOTALS	TOTALS	TO	DAY	DAY	TO
	MONT						
YEAR	Н	HDD	NHDD	NORMAL	HDD	NHDD	NORMAL
2008	1	1398	1303	(95)	66.50	69.78	3.28
2008	2	1316	1023	(293)	63.50	67.93	4.43
2008	3	921	771	(150)	57.00	52.56	(4.44)
2008	4	578	414	(164)	32.00	34.82	2.82
2008	5	220	144	(76)	18.50	19.99	1.49
2008	6	2	16	14	1.50	8.09	6.59
2008	7	2	2	(0)	2.00	1.81	(0.19)
2008	8	0	5	5	0.00	4.21	4.21
2008	9	100	98	(2)	17.50	20.07	2.57
2008	10	412	349	(63)	32.00	32.07	0.07
2008	11	776	761	(15)	46.50	50.09	3.59
2008	12	1337	1168	(168)	68.50	70.60	2.10
2000	12-	1007		(,,,,,			
12 MO	NTHS	7059	6054	(1005)	68.50	70.60	2.10

#### MISSOURI PUBLIC SERVICE COMMISSION

# STAFF REPORT COST OF SERVICE

## APPENDIX 4 Staff Recommended Depreciation Rates

**EMPIRE DISTRICT GAS COMPANY** 

CASE NO. GR-2009-0434

MISSOURI PUBLIC SERVICE COMMISSION

## The Empire District Gas Company Case No. GR-2009-0434

#### **Recommended Annual Depreciation Rates**

		Recommended					
Acct. No.	Account	Average	Net	Whole Life			
71001. 140.	Account	Service	Salvage	Depreciation			
	[	Life	%	Rate			
		Years					
	Transmission Plant						
366	Structures	45	0.00%	2.22%			
367	Mains	65	0.00%	1.54%			
369	Measuring & Reg. Stations	45	0.00%	2.22%			
	Distribution Plant						
375	Structures	45	0.00%	2.22%			
376	Mains	45	-104.42%	4.54%			
378	Measuring & Reg. Stations	50	0.00%	2.00%			
379	City Gale Stations	50	0.00%	2.00%			
380	Services	43	-42.47%	3.31%			
381	Meters	40	-2.61%	2.57%			
383	Regulators	40	-81.09%	4.53%			
385	Industrial Meas./Reg. Equip.	45	-21.21%	2.69%			
387	Other Equipment		0.00%	0.00%			
	General Plant						
390	Structures & Improvements	45	-4.24%	2.32%			
391	Furniture & Equipment	15	0.00%	6.67%			
391	Computer Equipment	7	0.00%	14.29%			
392	Transportation Equipment	12	30.69%	5.78%			
393	Stores Equipment	25	0.00%	4.00%			
394	Tools Shop & Garage Equip.	30	0.00%	3.33%			
395	Laboratory Equipment	30	0.00%	3.33%			
396	Power Operated Equipment	16	14.35%	5.35%			
397	Communication Equipment	25	0.00%	4.00%			
398	Miscellaneous Equipment	23	0.00%	4.35%			

#### The Empire District Gas Company Case No. GR-2009-0434

### Recommended Life Rates, Cost of Removal Rates and Depreciation Rates

[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]	[1]	[J]
		Depreciable				Recommen	ded		
Acct. No.	Account	Plant 12/31/2008	Average Service Life	Life Accrual Rate	5 Year Average Retirements	5 Year Average Net Salvage	Net Salvage Rate	Whole Life Depr. Rate	Depreciation Expense
		\$	Years	1 / [D]			[G]/[F]/[D]	[E] + [H]	[C] x [l]
	Transmission Plant								
366	Structures	10,880	45	2.22%	0	0	0.00%	2.22%	\$242
367	Mains	6,803,691	65	1.54%	ő	0	0.00%	1.54%	۶۲42 \$104,672
369	Measuring & Reg. Stations	412,130	45	2.22%	729	0	0.00%	2.22%	\$104,672 \$9,158
	Distribution Plant								
375	Structures	98,669	45	2.22%	0		0.00%	2.22%	\$2,193
376	Mains	40,882,215	45	2.22%	31,509	-32,900	-2.32%	4.54%	\$1,857,106
378	Measuring & Reg. Stations	636,217	50	2.00%	73	02,000	0.00%	2.00%	\$1,657,106
379	City Gale Stations	932,939	50	2.00%	0	0	0.00%	2.00%	\$18,659
380	Services	23,733,563	43	2.33%	306,783	-130,300	-0.99%	3.31%	\$786,371
381	Meters	5,233,634	40	2.50%	49,860	-1,300	-0.07%	2.57%	\$134,252
383	Regulators	3,111,493	40	2.50%	25,403	-20,600	-2.03%	4.53%	\$140,868
385	Industrial Meas./Reg. Equip.	583,501	45	2.22%	2,828	-600	-0.47%	2.69%	\$15,717
387	Other Equipment	5,472		0.00%	0	0	0.00%	0.00%	\$0
	General Plant								
390	Structures & Improvements	653,583	45	2.22%	21,210	-900	-0.09%	2.32%	\$15,140
	Furniture & Equipment	153,532	15	6.67%	20,405	0	0.00%	6.67%	\$10,235
	Computer Equipment	304,345	7	14,29%	18,151	Ō	0.00%	14.29%	\$43,478
392	Transportation Equipment	1,213,917	12	8.33%	3,259	1,000	2.56%	5.78%	\$70,116
	Stores Equipment	29,019	25	4.00%	. 0	0	0.00%	4.00%	\$1,161
	Tools Shop & Garage Equip.	761,155	30	3.33%	10,567	Ö	0.00%	3.33%	\$25,372
	Laboratory Equipment	98,267	30	3.33%	4,572	Ö	0.00%	3.33%	\$3,276
	Power Operated Equipment	425,081	16	6.25%	13,934	2,000	0.90%	5.35%	\$22,754
	Communication Equipment	410334	25	4.00%	6,135	0	0.00%	4.00%	\$16,413
398	Miscellaneous Equipment	82,094	23	4.35%	3,735	0	0.00%	4.35%	\$3,569
	Total	86,165,397			3,071,493	183,600			\$3,293,477

## The Empire District Gas Company Case No. GR-2009-0434

#### Previously Ordered Versus Recommended Annual Depreciation Rates

Acct. No.	Account	GR-2004-0072 Whole Life Depreciation Rate with Net Salvage Expensed	Recommended Whole Life Depreciation Rate Net Salvage Included				
	Transmission Plant						
366	Structures	2.22%	2.22%				
367	Mains	1.67%	1.54%				
369	Measuring & Reg. Stations	2.27%	2.22%				
	Distribution Plant						
375	Structures	2.22%	2.22%				
376	Mains	2.22%	4.54%				
378	Measuring & Reg. Stations	2.27%	2.00%				
379	City Gale Stations	2.27%	2.00%				
380	Services	2.22%	3.31%				
381	Meters	2.50%	2.57%				
383	Regulators	2.50%	4.53%				
385	Industrial Meas./Reg. Equip.	2.27%	2.69%				
387	Other Equipment	0.00%	0.00%				
	General Plant						
390	Structures & Improvements	2.22%	2.32%				
391	Furniture & Equipment	4.55%	6.67%				
391	Computer Equipment	14.29%	14.29%				
392	Transportation Equipment	8.33%	5.78%				
393	Stores Equipment	3.70%	4.00%				
394	Tools Shop & Garage Equip.	3.70%	3.33%				
395	Laboratory Equipment	3.45%	3.33%				
396	Power Operated Equipment	6.25%	5.35%				
397	Communication Equipment	3.45%	4.00%				
398	Miscellaneous Equipment	4.35%	4.35%				

#### The Empire District Gas Company Case No. GR-2009-0434

#### **Analysis of Accumulated Depreciation Reserve**

[A]	[B]	[C]	[NS]	[RA]	[D]	[E]	(F)	[G]	[H]	[1]	[1]
Acct. No.	Account	Depreciable Plant 12/31/2008	% Net Salvage	Recoverable Amount	Accumulated Depreciation Reserve 12/31/2008	Reserve Ratio	Recommended Average Service Life	Weighted Age	Calculated Reserve Ratio Based On Weighted Age	Calculation Depreciation Reserve	Reserve Deficiency
		\$	%		\$	%	Years	Years	%	\$	\$
				[C]x[1-NS%]		[D] / [C]			[G] / [F]	[H] * [C]	[i] - [D]
	Transmission Plant										
366	Structures	10,880	0.00%	10,880	9,595	88.19%	45	24.79	55.09%	5,994	-3,601
367	Mains	6,803,691	0.00%	6,803,691	5.014.628	73.70%		38.37	59.03%	4,016,271	-998,357
369	Measuring & Reg. Stations	412,130	0.00%	412,130	155,020	37.61%		16.81	37.36%	153,953	-1.067
	Total Transmission Plant	7,226,701		7,226,701	5,179,243	71.67%			57.79%	4,176,218	-1,003,025
	Distribution Plant										
375	Structures	98,669	0.00%	98,669	64,727	65.60%	45	30.22	67.16%	66,262	1,535
376	Mains	40,882,215	-104.42%	83,569,763	15,056,283	18.02%	45	19.73	43.84%	36,640,698	21,584,415
378	Measuring & Reg. Stations	636,217	0.00%	636,217	332,581	52.27%	50	20.94	41.88%	266,448	-66,133
379	City Gate Stations	932,939	0.00%	932,939	436,162	46.75%	50	20.54	41.08%	383,251	-52,911
380	Services	23,733,563	-42.47%	33,813,937	12,276,976	36.31%	43	19.79	46.02%	15,562,275	3,285,299
381	Meters	5,233,634	-2.61%	5,370,090	2,292,624	42.69%	40	22.72	56.80%	3,050,211	757,587
383	Regulators	3,111,493	-81.09%	5,634,709	845,249	15.00%	40	17.39	43.48%	2,449,690	1,604,441
365	Industrial MeasJReg Equip	583,501	-21.21%	707,281	164,180	23.21%	45	13.07	29.04%	205,426	41,246
387	Other Equipment	5,472	0.00%	5,472	5,472	100.00%				·	
	Total Distribution Plant	75,217,703		130,769,077	31,474,254	24.07%			45.28%	58,624,261	27,155,479
	General Plant										
390	Structures & Improvements	653,583	-4.24%	681,316	28,446	4.18%	45	8.23	18.29%	124,605	96,159
391	Furniture & Equipment	153,532	0.00%	153,532	32,545	21.20%	15	3.45	23.00%	35,312	2,767
391	Computer Equipment	304,345	0.00%	304,345	185,107	60.82%	7	5.66	80.86%	246,085	60,978
392	Transportation Equipment	1,213,917	30.69%	841,390	575,635	68.41%	12	5.54	46.17%	388,442	-187,193
393	Stores Equipment	29,019	0.00%	29,019	9,715	33.48%	25	8.68	34.72%	10,075	360
394	Tools Shop & Garage Equip.	761,155	0.00%	761,155	649,673	85.35%	30	16.33	54.43%	414,322	-235,351
395	Laboratory Equipment	98,267	0.00%	98,267	89,299	90.87%	30	22.54	75.13%	73,831	-15,468
396	Power Operated Equipment	425,081	14.35%	364,069	369,963	101.62%	16	11.45	71.56%	260,537	-109,426
397	Communication Equipment	410334	0.00%	410,334	0	0.00%	25				•
398	Miscellaneous Equipment	82,094	0.00%	82,094	43,687	53.22%	23	12.40	53.91%	44,260	573
	Total General Plant	4,131,327		3,725,521	1,984,070	53.26%			48.60%	1,597,470	-386,600
	Total Depreciable Plant	86,575,731		141,721,300	38,637,567	27.26%			46.47%	64,397,948	25,765,853
										Sche	dule DCW-4

Schedule DCW-4

## The Empire District Electric Company Case No. GR-2009-0434

#### Staff Depreciation Accrual Versus Empire Depreciation Accrual

Acct. No.	Account	Staff Recommended Depreciation Expense Annual Accrual	Empire Recommended Depreciation Expense Annual Accrual	Staff less Empire Difference in Depreciation Expense Annual Accrual
	Transmission Plant			
366	Structures '	\$242	\$242	\$0
367	Mains	\$104,672	•	\$0
369	Measuring & Reg. Stations	\$9,158	\$9,158	\$0
	Distribution Plant			
375	Structures	\$2,193	\$2,193	\$0
376	Mains	\$1,857,106	\$941,394	\$915,712
378	Measuring & Reg. Stations	\$12,724	\$12,724	\$0
379	City Gale Stations	\$18,659	\$18,659	\$0
380	Services	\$786,371	\$682,243	\$104,127
381	Meters	\$134,252	\$132,141	\$2,111
383	Regulators	\$140,868	\$98,387	\$42,480
385	Industrial Meas./Reg. Equip.	\$15,717	\$13,567	\$2,151
387	Other Equipment	\$0	\$0	\$0
	General Plant			
390	Structures & Improvements	\$15,140	\$15,424	-\$284
391	Furniture & Equipment	\$10,235	\$10,235	\$0
391	Computer Equipment	\$43,478	\$43,478	\$0
392	Transportation Equipment	\$70,116	\$100,160	-\$30,044
393	Stores Equipment	\$1,161	\$1,161	\$0
394	Tools Shop & Garage Equip.	\$25,372	\$25,372	\$0
395	Laboratory Equipment	\$3,276	\$3,276	\$0
396	Power Operated Equipment	\$22,754	\$24,568	-\$1,813
397	Communication Equipment	\$16,413		
398	Miscellaneous Equipment	\$3,569	\$3,569	\$0
	Total Difference	\$3,293,477	\$2,242,531	\$1,050,946

# STAFF REPORT COST OF SERVICE

APPENDIX 5
The Empire Electric
Organizational Chart

**EMPIRE DISTRICT GAS COMPANY** 

CASE NO. GR-2009-0434

The Empire District Electric Company, Inc., a Kansas