

Residential Rate Design

Empire District Gas Company			
Residential (RS)			
Rate Design Workpaper			
Revenues			
Target Revenues	13,470,397		
Current Revenues	12,261,766		
\$ Difference	1,208,631		
% Difference	9.9%		
Total Use			
Annual Usage (CCF)	24,773,367		
Number of Bills	455,794		
Average Annual Use (CCF)	652		
Residential (RS)	Rate	Units	Revenues
Proposed Rates			
Customer Charge	\$ 18.10	455,794	\$ 8,249,871
Consumption Charge	\$ 0.21073	24,773,367	5,220,526
Revenue at Proposed Rates			\$ 13,470,397
Current Rates			
Customer Charge	\$ 16.50	455,794	\$ 7,520,601
Consumption Charge	0.20721	24,773,367	5,133,289
TCJA Credit			(392,044)
Revenue at Current Rates			\$ 12,261,847
PGA Rates (South)	\$ 0.39040		
TCJA Credit	\$ (0.01699)		

Residential Bill Impact

Bill Impact Analysis - RS Rate											
Annual Use	Cumulative Bills	Cumulative Use	Annual Bill (w/o PGA)				Annual Bill (w/ PGA)				
			Proposed Annual Bill	Current Annual Bill	Difference (\$)	Difference (%)	Proposed Annual Bill	Current Annual Bill	Difference (\$)	Difference (%)	
100	2.6%	0.2%	\$ 238	\$ 217	\$ 21	9.8%	\$ 277	\$ 256	\$ 21	8.3%	
200	7.0%	1.3%	\$ 259	\$ 236	\$ 23	9.9%	\$ 337	\$ 314	\$ 23	7.4%	
300	14.2%	4.3%	\$ 280	\$ 255	\$ 25	9.9%	\$ 398	\$ 372	\$ 25	6.8%	
400	24.6%	10.2%	\$ 301	\$ 274	\$ 27	10.0%	\$ 458	\$ 430	\$ 27	6.4%	
500	38.2%	20.1%	\$ 323	\$ 293	\$ 29	10.0%	\$ 518	\$ 488	\$ 29	6.0%	
600	52.7%	33.0%	\$ 344	\$ 312	\$ 32	10.1%	\$ 578	\$ 546	\$ 32	5.8%	
700	66.4%	47.2%	\$ 365	\$ 331	\$ 34	10.1%	\$ 638	\$ 604	\$ 34	5.6%	
800	76.9%	59.9%	\$ 386	\$ 350	\$ 36	10.2%	\$ 698	\$ 662	\$ 36	5.4%	
900	84.3%	70.1%	\$ 407	\$ 369	\$ 38	10.2%	\$ 758	\$ 721	\$ 38	5.2%	
1,000	89.5%	77.9%	\$ 428	\$ 388	\$ 40	10.2%	\$ 818	\$ 779	\$ 40	5.1%	

Small General Service Rate Design

Empire District Gas Company				
Small General Service (SGS)				
Rate Design Workpaper				
Revenues				
Target Revenues		3,189,812		
Current Revenues		3,128,128		
\$ Difference		61,684		
% Difference		2.0%		
Total Use				
Annual Usage (CCF)		6,901,303		
Number of Bills		57,356		
Average Annual Use (CCF)		1,444		
Small General Service (SGS)		Rate	Units	Revenues
Proposed Rates				
Customer Charge		\$ 25.00	57,356	\$ 1,433,897
Consumption Charge		\$ 0.25443	6,901,303	1,755,915
Revenue at Proposed Rates				\$ 3,189,812
Current Rates				
Customer Charge		\$ 25.00	57,356	\$ 1,433,897
Consumption Charge		0.26078	6,901,303	1,799,722
TCJA Credit				(105,483)
Revenue at Current Rates				\$ 3,128,136
PGA Rates		\$ 0.39040		
TCJA Credit		\$ (0.01629)		

Small General Service Bill Impact

Bill Impact Analysis - Small General Service											
Annual Use	Cumulative Bills	Cumulative Use	Annual Bill (w/o PGA)				Annual Bill (w/ PGA)				
			Proposed Annual Bill	Current Annual Bill	Difference (\$)	Difference (%)	Proposed Annual Bill	Current Annual Bill	Difference (\$)	Difference (%)	
100	3.9%	0.1%	\$ 325	\$ 324	\$ 1	0.3%	\$ 364	\$ 363	\$ 1	0.3%	
200	9.0%	0.7%	\$ 351	\$ 349	\$ 2	0.6%	\$ 429	\$ 427	\$ 2	0.5%	
300	15.0%	1.8%	\$ 376	\$ 373	\$ 3	0.8%	\$ 493	\$ 490	\$ 3	0.6%	
400	22.5%	3.6%	\$ 402	\$ 398	\$ 4	1.0%	\$ 558	\$ 554	\$ 4	0.7%	
500	29.5%	5.9%	\$ 427	\$ 422	\$ 5	1.2%	\$ 622	\$ 617	\$ 5	0.8%	
750	45.3%	12.9%	\$ 491	\$ 483	\$ 7	1.5%	\$ 784	\$ 776	\$ 7	1.0%	
1,000	57.6%	20.5%	\$ 554	\$ 544	\$ 10	1.8%	\$ 945	\$ 935	\$ 10	1.1%	
1,500	72.7%	33.7%	\$ 682	\$ 667	\$ 15	2.2%	\$ 1,267	\$ 1,252	\$ 15	1.2%	
2,500	86.4%	52.5%	\$ 936	\$ 911	\$ 25	2.7%	\$ 1,912	\$ 1,887	\$ 25	1.3%	
5,000	96.8%	77.9%	\$ 1,572	\$ 1,522	\$ 50	3.3%	\$ 3,524	\$ 3,474	\$ 50	1.4%	

Medium General Service Rate Design

Empire District Gas Company			
Medium General Service (MGS)			
Rate Design Workpaper			
Revenues			
Target Revenues	2,306,807		
Current Revenues	2,274,024		
\$ Difference	32,782		
% Difference	1.4%		
		Total Use	Medium Use
Annual Usage (CCF)	7,186,729	4,979,267	2,207,462
Number of Bills	8,164	7,076	1,088
Average Annual Use (CCF)	10,563	8,444	24,344
Medium General Service	Rate	Units	Revenues
Proposed Rates			
Customer Charge	\$ 120.00	8,164	\$ 979,709
Consumption Charge	\$ 0.18466	7,186,729	1,327,098
Revenue at Proposed Rates			\$ 2,306,807
Former Small Commercial Service Medium	Rate	Units	Revenues
Current Rates			
Customer Charge	\$ 85.00	7,076	\$ 601,469
Consumption Charge	0.21960	4,979,267	1,093,447
TCJA Credit			(54,014)
Revenue at Current Rates			\$ 1,640,902
Former Small Commercial Service Large	Rate	Units	Revenues
Current Rates			
Customer Charge	\$ 200.00	1,088	\$ 217,627
Consumption Charge	0.19766	2,207,462	436,327
TCJA Credit			(20,832)
Revenue at Current Rates			\$ 633,121
PGA Rates	\$ 0.39040		
TCJA Credit (SCFM)	\$ (0.01159)		
TCJA Credit (SCFL)	\$ (0.00986)		

Medium General Service Bill Impact

Bill Impact Analysis - Former Small Commercial Service Medium											
Annual Use	Cumulative Bills	Cumulative Use	Annual Bill (w/o PGA)				Annual Bill (w/ PGA)				
			Proposed Annual Bill	Current Annual Bill	Difference (\$)	Difference (%)	Proposed Annual Bill	Current Annual Bill	Difference (\$)	Difference (%)	
500	2.2%	0.1%	\$ 1,532	\$ 1,124	\$ 408	36.3%	\$ 1,728	\$ 1,319	\$ 408	31.0%	
1,500	4.7%	0.4%	\$ 1,717	\$ 1,332	\$ 385	28.9%	\$ 2,303	\$ 1,918	\$ 385	20.1%	
3,000	11.8%	2.5%	\$ 1,994	\$ 1,644	\$ 350	21.3%	\$ 3,165	\$ 2,815	\$ 350	12.4%	
6,000	41.8%	19.6%	\$ 2,548	\$ 2,268	\$ 280	12.3%	\$ 4,890	\$ 4,610	\$ 280	6.1%	
7,000	52.2%	28.0%	\$ 2,733	\$ 2,476	\$ 257	10.4%	\$ 5,465	\$ 5,209	\$ 257	4.9%	
8,000	60.1%	35.4%	\$ 2,917	\$ 2,684	\$ 233	8.7%	\$ 6,040	\$ 5,807	\$ 233	4.0%	
9,000	68.1%	43.8%	\$ 3,102	\$ 2,892	\$ 210	7.3%	\$ 6,616	\$ 6,406	\$ 210	3.3%	
10,000	74.1%	50.8%	\$ 3,287	\$ 3,100	\$ 186	6.0%	\$ 7,191	\$ 7,004	\$ 186	2.7%	
15,000	90.0%	74.8%	\$ 4,210	\$ 4,140	\$ 70	1.7%	\$ 10,066	\$ 9,996	\$ 70	0.7%	
20,000	97.6%	90.7%	\$ 5,133	\$ 5,180	\$ (47)	-0.9%	\$ 12,941	\$ 12,988	\$ (47)	-0.4%	

Bill Impact Analysis - Former Small Commercial Service Large											
Annual Use	Cumulative Bills	Cumulative Use	Annual Bill (w/o PGA)				Annual Bill (w/ PGA)				
			Proposed Annual Bill	Current Annual Bill	Difference (\$)	Difference (%)	Proposed Annual Bill	Current Annual Bill	Difference (\$)	Difference (%)	
500	1.2%	0.0%	\$ 1,532	\$ 2,494	\$ (962)	-38.6%	\$ 1,728	\$ 2,689	\$ (962)	-35.8%	
1,500	2.4%	0.1%	\$ 1,717	\$ 2,682	\$ (965)	-36.0%	\$ 2,303	\$ 3,267	\$ (965)	-29.5%	
3,000	3.7%	0.2%	\$ 1,994	\$ 2,963	\$ (969)	-32.7%	\$ 3,165	\$ 4,135	\$ (969)	-23.4%	
5,000	3.7%	0.2%	\$ 2,363	\$ 3,339	\$ (976)	-29.2%	\$ 4,315	\$ 5,291	\$ (976)	-18.4%	
10,000	14.6%	4.3%	\$ 3,287	\$ 4,278	\$ (991)	-23.2%	\$ 7,191	\$ 8,182	\$ (991)	-12.1%	
15,000	30.5%	13.2%	\$ 4,210	\$ 5,217	\$ (1,007)	-19.3%	\$ 10,066	\$ 11,073	\$ (1,007)	-9.1%	
20,000	45.1%	24.2%	\$ 5,133	\$ 6,156	\$ (1,023)	-16.6%	\$ 12,941	\$ 13,964	\$ (1,023)	-7.3%	
30,000	79.3%	60.5%	\$ 6,980	\$ 8,034	\$ (1,054)	-13.1%	\$ 18,692	\$ 19,746	\$ (1,054)	-5.3%	
40,000	92.7%	80.6%	\$ 8,826	\$ 9,912	\$ (1,086)	-11.0%	\$ 24,442	\$ 25,528	\$ (1,086)	-4.3%	
65,000	98.8%	95.0%	\$ 13,443	\$ 14,607	\$ (1,164)	-8.0%	\$ 38,819	\$ 39,983	\$ (1,164)	-2.9%	

Large General Service Rate Design

Empire District Gas Company			
Large General Service (LGS)			
Rate Design Workpaper			
Revenues			
Target Revenues		2,676,669	
Current Revenues		2,617,415	
\$ Difference		59,254	
% Difference		2.3%	
Total Use			
Annual Usage (CCF)		37,999,768	
Billed Demand		2,410,373	
Number of Bills		1,053	
Average Annual Use (CCF)		432,977	
Large General Service (LGS)	Rate	Units	Revenues
Proposed Rates			
Customer Charge	\$ 400.00	1,053	\$ 421,267
Consumption Charge	\$ 0.02210	37,999,768	839,609
Demand Charge	\$ 0.58738	2,410,373	1,415,794
Revenue at Proposed Rates			\$ 2,676,669
Current Rates			
Customer Charge	\$ 400.00	1,053	\$ 421,267
Consumption Charge	0.02257	37,999,768	857,655
Demand Charge	0.60000	2,410,373	1,446,224
TCJA Credit			(118,916)
Revenue at Current Rates			\$ 2,606,229
PGA Rates	\$ 0.39040		
TCJA Credit	\$ (0.00467)		

Large General Service Bill Impact Analysis

Bill Impact Analysis - Large General Service											
Annual Use	Cumulative Bills	Cumulative Use	Annual Bill (w/o PGA)				Annual Bill (w/ PGA)				
			Proposed Annual Bill	Current Annual Bill	Difference (\$)	Difference (%)	Proposed Annual Bill	Current Annual Bill	Difference (\$)	Difference (%)	
5,000	11.0%	0.5%	\$ 4,910	\$ 4,890	\$ 21	0.4%	\$ 6,862	\$ 6,842	\$ 21	0.3%	
10,000	26.0%	2.3%	\$ 5,021	\$ 4,979	\$ 42	0.8%	\$ 8,925	\$ 8,883	\$ 42	0.5%	
50,000	67.1%	18.3%	\$ 5,905	\$ 5,695	\$ 210	3.7%	\$ 25,425	\$ 25,215	\$ 210	0.8%	
100,000	86.3%	38.8%	\$ 7,010	\$ 6,590	\$ 420	6.4%	\$ 46,050	\$ 45,630	\$ 420	0.9%	
500,000	98.6%	79.7%	\$ 15,848	\$ 13,750	\$ 2,098	15.3%	\$ 211,048	\$ 208,950	\$ 2,098	1.0%	

Customer Cost Workpapers

Empire District Gas Company Customer-related Costs	Total Company	Residential Service RS	Small General Service SGS	Medium General Service MGS (SCFM)	Medium General Service MGS (SCFL)	Large General Service
Fully Allocated Customer Costs						
Rate Base	\$ 41,673,004	\$ 33,211,152	\$ 4,907,645	\$ 1,627,583	\$ 455,299	\$ 1,471,326
Net Income after taxes	3,546,067	2,826,026	417,605	138,495	38,743	125,199
Add: Income Taxes	1,110,016	884,624	130,722	43,353	12,127	39,191
Net income before taxes & interest	\$ 4,656,084	\$ 3,710,649	\$ 548,326	\$ 181,848	\$ 50,870	\$ 164,390
Add: O&M	\$ 9,679,832	\$ 7,784,502	\$ 1,242,715	\$ 356,721	\$ 94,515	\$ 201,377
Add: Depreciation	1,129,317	912,762	131,643	45,821	13,159	25,932
Add: Amortization	14,918	12,174	1,693	505	139	408
Add: Taxes other than income	1,141,185	928,464	133,005	39,312	10,768	29,635
Required Customer Revenues	\$ 16,621,335	\$ 13,348,551	\$ 2,057,382	\$ 624,207	\$ 169,452	\$ 421,742
Number of Customers	44,014	38,442	4,800	592	93	88
Monthly cost per customer	\$ 31.47	\$ 28.94	\$ 35.72	\$ 87.87	\$ 152.66	\$ 398.62
Consolidated (Medium & Large)				\$ 96.62		
Basic Customer Costs						
Plant						
(376) Mains	\$ 25,564,012	\$ 22,327,497	\$ 2,787,743	\$ 343,840	\$ 53,725	\$ 51,208
(380) Services	32,579,545	27,175,652	3,677,396	1,070,993	307,210	348,294
(381) Meters	12,783,494	9,470,867	1,716,579	961,884	287,948	346,217
(383) House Regulators	3,249,823	2,577,684	376,324	174,324	56,372	65,119
(385) Industrial measuring and regulating sta	1,249,561	-	-	-	-	1,249,561
Total	75,426,435	61,551,699	8,558,042	2,551,041	705,255	2,060,399
Accumulated Depreciation						
(376) Mains	\$ (17,475,618)	\$ (15,263,129)	\$ (1,905,707)	\$ (235,049)	\$ (36,726)	\$ (35,006)
(380) Services	(18,367,933)	(15,321,287)	(2,073,269)	(603,812)	(173,201)	(196,364)
(381) Meters	(3,503,221)	(2,595,420)	(470,416)	(263,597)	(78,910)	(94,878)
(383) House Regulators	(2,576,150)	(2,043,342)	(298,314)	(138,187)	(44,686)	(51,620)
(385) Industrial measuring and regulating sta	(426,922)	-	-	-	-	(426,922)
Total	(42,349,844)	(35,223,178)	(4,747,706)	(1,240,646)	(333,524)	(804,790)
Net income before taxes & interest						
Net Plant	\$ 33,076,591	\$ 26,328,521	\$ 3,810,336	\$ 1,310,394	\$ 371,731	\$ 1,255,609
Net Income after taxes	2,814,575	2,240,364	324,232	111,505	31,632	106,843
Add: Income Taxes	881,039	701,295	101,493	34,904	9,902	33,445
Net income before taxes & interest	\$ 3,695,615	\$ 2,941,660	\$ 425,725	\$ 146,409	\$ 41,533	\$ 140,288
O&M Expenses						
(874) Mains & Service Expenses	\$ 792,658	\$ 674,865	\$ 88,138	\$ 19,288	\$ 4,921	\$ 5,446
(878) Meter & House Reg. Expenses	950,625	714,705	123,970	67,226	20,381	24,343
(879) Customer Installations Expenses	523,214	429,221	60,712	20,474	5,946	6,860
(887) Mains	244,056	213,158	26,614	3,283	513	489
(892) Services	135,324	112,878	15,275	4,449	1,276	1,447
(893) Meter & House Regulators	34,238	25,741	4,465	2,421	734	877
Total Customer Account Expenses	1,183,838	1,007,644	137,181	28,765	6,000	4,248
Total Customer Service Expenses	379,971	230,440	94,001	11,594	1,812	42,124
Total	\$ 4,243,923	\$ 3,408,652	\$ 550,355	\$ 157,500	\$ 41,582	\$ 85,834
Depreciation Expense						
(376) Mains	\$ 483,160	\$ 421,990	\$ 52,688	\$ 6,499	\$ 1,015	\$ 968
(380) Services	980,644	817,987	110,690	32,237	9,247	10,484
(381) Meters	425,690	315,380	57,162	32,031	9,589	11,529
(383) House Regulators	81,246	64,442	9,408	4,358	1,409	1,628
(385) Industrial measuring and regulating sta	24,991	-	-	-	-	24,991
Total	\$ 1,995,731	\$ 1,619,799	\$ 229,948	\$ 75,124	\$ 21,260	\$ 49,600
Basic customer-related costs	9,935,270	7,970,111	1,206,028	379,034	104,376	275,722
Number of customers	44,014	38,442	4,800	592	93	88
Monthly basic cost per customer	\$ 18.81	\$ 17.28	\$ 20.94	\$ 53.35	\$ 94.03	\$ 260.61