

Responses to Union Gas Questions

23 November 2007

- 1. With respect to the “noteworthy methodological changes” listed on page ii of the Executive Summary, prepare an impact analysis of each item showing how each change has an impact on the values in the Price Cap Index Details table on pages iii/iv of the Executive Summary. If possible, break out points 3 to 9 separately but if this is too difficult, they may be combined. Please break out the second and the first items so that the impact of using Union’s estimates of weather normalized volumes, etc. is shown separately and the effect of including 2006 data on input price and productivity trends is shown separately.**

Our research since June 20 raised the PCI X factor for Union Gas 49 basis points, from 0.52 to 1.01. The attached table (excel file named “Union Question 1 Table.xls”) sheds some light on how the various changes in the research contributed to the elevation. It should be noted that the table only estimates the impact of each methodological change from the 2000-2006 base COS run in the latest version of the report. This proved to be far less time consuming than trying to gauge the impact of methodological changes on the June 20 base runs.

We estimate that

- X would have been lower by 18 basis points had we used 2000-2005 data for the study.
- The X factor would have been 12 basis points *higher* had we used the previous specification of the econometric model, which decomposed the delivery volume and did not include line miles.
- Eliminating gas from Union’s input price index would lower X by 8 basis points.
- Not employing the more accurate adjustment for DSM volumes would lower X by 16 basis points.
- Using 2005 data to weight the revenue-weighted output index rather than 2007 data would lower X by 13 basis points.
- X would have been 34 basis points lower had we stuck with econometric projections as the basis for setting X rather than going to peer group results.
- We did not have time before the technical conference to flesh out the exact change in X due to using Union’s normalization data versus PEG’s. However, we examined the 2000-2005 estimated growth rates in residential and commercial volumes to anticipate the sign of expected effect of this change. After correcting for other methodological changes, such as the upgrade in DSM volume savings, we find that the residential and commercial volumes in the

November report grow more slowly than in the June report by around 30 basis points. This leads us to believe that using Union's normalization estimates would cause X to be 10 to 15 basis points higher.

- We believe that all other changes, such as updated company-specific data, Stats Canada updates, new methods for weather normalizing U.S. volumes, changing the weights for calculating the rate of return, put downward pressure on the X factor on balance. We come to this conclusion on the basis that the itemized methodological changes presented in the table sum to a change in X of 0.77, whereas the actual change in X is 0.49. Thus, those changes not itemized in the table are believed to be lowering the X for Union by 28 basis points. .

In summary, most of the improvements in our methods since the June report have coincidentally, tended to raise the Union Gas X factor. These same improvements have, again coincidentally, tended to lower the Enbridge X factor. The average of the X factors for the two companies has changed little as a result of the methodological upgrades.

3. With respect to the Service Group PCI table at pages iv and v of the Executive Summary, please provide quantitative support (numbers and formulas and the source of the numbers and formulas) for the five service group PCI's for Union within each of the cost of service and geometric decay capital cost categories.

The trends in the service group specific PCIs are computed by adding the group specific total X factor and the recent trend in the GDPIPI. The X factor for each service is the sum of the ADJ term and the common X-factor, whose derivation is explained and presented in PEG's Gas IRM Report of November 20, 2007. The ADJ calculations can be found in the attached excel file named "Service Specific ADJs Union.xls." The econometric estimates used in the calculations are found in the attached files labeled "OEB Gas – Final COS model (final errata version) " and "OEB Gas – Final GD Model (final errata version)".

7. With respect to the use of the line miles output, Dr. Lowry indicated that the addition of this index to the econometric cost model required consolidating residential/commercial volumes with volumes for other services. Please provide the impact of combining the residential/commercial and other services volumes. If this is not reasonably possible, at least please provide the combined impact of the line miles index and the consolidation of the two volume variables, as per question 1 above.

Please see our answer to question 1.

How Union's X Factors for PCIs Have Been Effected by Recent Methodological Changes¹

Estimated Results if Methodological Change Had Not Been Incorporated

	20-Jun	20-Nov	If no 2006 update then:	If model without line miles then:	If system gas included in analysis then:	If DSM volume savings treated as in June then:	If 2005 fixed revenue weights 2007 then:	If econometric projections used rather than peer groups to set TFP target then:
TFP ^{Industry} [A]	1.73	1.84	1.91	1.77	1.84	1.84	1.84	1.50
TFP ^{Economy} [B]	1.21	0.47	0.54	0.47	0.47	0.47	0.47	0.47
PD [C=A-B]	0.52	1.37	1.37	1.30	1.37	1.37	1.37	1.03
Input Prices ^{Economy} [D]	2.99	2.22	2.32	2.22	2.22	2.22	2.22	2.22
Input Prices ^{Industry} [E]	2.77	2.36	2.62	2.36	2.44	2.36	2.36	2.36
IPD [F=D-E]	0.22	-0.14	-0.30	-0.14	-0.22	-0.14	-0.14	-0.14
IPD + PD [G=C+F]	0.74	1.23	1.07	1.16	1.15	1.23	1.23	0.89
Output ^{Revenue-Weighted} [H]	1.20	1.05	1.13	1.05	1.05	0.88	0.92	1.05
Output ^{Elasticity-Weighted} [I]	1.92	1.77	1.87	1.58	1.77	1.76	1.77	1.77
AU [J=H-I]	-0.72	-0.72	-0.74	-0.53	-0.72	-0.88	-0.85	-0.72
Stretch [K]	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
X [L=G+J+K]	0.52	1.01	0.83	1.13	0.93	0.85	0.88	0.67
Implied Effect of New Method on X			0.18	-0.12	0.08	0.16	0.13	0.34
Sum of the Itemized Methodological Changes	0.77							

¹All numbers are for COS capital costing method

OEB Gas - Final GD Model (final errata version).txt
» run C:\Work\oebgas\Specification\DR_TC;

GAUSS Data Export Facility

Begin export...

Export completed

Number of cases in GAUSS data set: 410.000

Number of cases written to foreign file : 410.000

Number of variables written to foreign file : 39.000

Date: 11/16/07 **** STANDARD SUR ESTIMATION RESULTS **** Time: 13:32:11

OUTPUT FILE:C:\work\Oebgas\results\out

DATA FILE:C:\work\Oebgas\oebgas52.xls

DEFINITIONS OF OUTPUT VARIABLES:

Y1 is number of customers.

Y2 is Total deliveries.

Y3 is miles of Dx and Tx main

DEFINITIONS OF BUSINESS CONDITION VARIABLES:

Z1 is % of non-iron miles in Dx miles

Z2 is Number of Electric Customers

Model includes time trend.

Time period used: 1994 through 2004

GAUSS Data Import Facility

Begin import...

Import completed

Number of rows in input file: 423

Number of cases written to GAUSS data set: 422

Number of missing elements: 312

Number of variables written to GAUSS data set: 26

1
410

=====

SEEMINGLY UNRELATED REGRESSION WITH HETEROSKEDASTICITY	11/16/2007	1:32 pm
--	------------	---------

=====

Data Set: C:\work\Oebgas\Temp_3.dat

DIVISOR USING N IN EFFECT
RESTRICTIONS IN EFFECT

ITER. # =	0	LOG OF DETERMINANT OF SIGMA =	5.64221876
ITER. # =	1	LOG OF DETERMINANT OF SIGMA =	5.46894162
ITER. # =	2	LOG OF DETERMINANT OF SIGMA =	5.46554777
ITER. # =	3	LOG OF DETERMINANT OF SIGMA =	5.46547385

OEB Gas - Final GD Model (final errata version).txt
 ITER. # = 4 LOG OF DETERMINANT OF SIGMA = 5.46547159
 ITER. # = 5 LOG OF DETERMINANT OF SIGMA = 5.46547152
 ITER. # = 6 LOG OF DETERMINANT OF SIGMA = 5.46547151
 ITER. # = 7 LOG OF DETERMINANT OF SIGMA = 5.46547151

 Equation: 1
 Dependent variable: C

Total cases:	396	Valid cases:	396
Total SS:	316.947	Degrees of freedom:	----
R-squared:	0.969	Rbar-squared:	0.969
Residual SS:	9.677	Std error of est:	2.536
Durbin-Watson:	0.090		

Variable	Estimated Coefficient	Standard Error	t-ratio	Prob > t
CONST	8.19776979	0.01556952	526.527	0.0000
WL	0.20884959	0.01409960	14.812	0.0000
WK	0.55317746	0.00628522	88.012	0.0000
Y1	0.55504601	0.04560957	12.170	0.0000
Y2	0.11908252	0.04135958	2.879	0.0042
Y3	0.21915512	0.03220895	6.804	0.0000
WLWL	-0.58202966	0.12627680	-4.609	0.0000
WLWK	-0.13074463	0.01506566	-8.678	0.0000
WKWK	0.17028728	0.01714396	9.933	0.0000
Y1Y1	-0.00400174	0.05408218	-0.074	0.9411
Y2Y2	-0.04342109	0.03944792	-1.101	0.2717
Y3Y3	0.05877654	0.04826551	1.218	0.2241
WLY1	-0.03263643	0.01301373	-2.508	0.0126
WLY2	0.03087144	0.01127155	2.739	0.0064
WLY3	-0.00078816	0.00893100	-0.088	0.9297
WKY1	-0.06965050	0.01076191	-6.472	0.0000
WKY2	0.03895910	0.01021983	3.812	0.0002
WKY3	0.03945261	0.01070039	3.687	0.0003
Z1	-0.95886284	0.07354064	-13.039	0.0000
Z2	-0.00668575	0.00102446	-6.526	0.0000
TREND	-0.00957030	0.00208587	-4.588	0.0000
WLTREND	0.00575597	0.00264039	2.180	0.0299
WKTREND	0.00608999	0.00098159	6.204	0.0000

 Equation: 2
 Dependent variable: SL

Total cases:	396	Valid cases:	396
Total SS:	1.919	Degrees of freedom:	----
R-squared:	-0.013	Rbar-squared:	0.007
Residual SS:	1.944	Std error of est:	2.771
Durbin-Watson:	0.241		

Variable	Estimated Coefficient	Standard Error	t-ratio	Prob > t
CONST	0.20884959	0.01409960	14.812	0.0000
WL	-0.58202966	0.12627680	-4.609	0.0000
WK	-0.13074463	0.01506566	-8.678	0.0000
Y1	-0.03263643	0.01301373	-2.508	0.0125
Y2	0.03087144	0.01127155	2.739	0.0064
Y3	-0.00078816	0.00893100	-0.088	0.9297
TREND	0.00575597	0.00264039	2.180	0.0298

 Equation: 3
 Dependent variable: SK

OEB Gas - Final GD Model (final errata version).txt

Total cases:	396	Valid cases:	396
Total SS:	2.409	Degrees of freedom:	----
R-squared:	0.205	Rbar-squared:	0.221
Residual SS:	1.916	Std error of est:	3.444
Durbin-Watson:	0.156		

Variable	Estimated Coefficient	Standard Error	t-ratio	Prob > t
CONST	0.55317746	0.00628522	88.012	0.0000
WL	-0.13074463	0.01506566	-8.678	0.0000
WK	0.17028728	0.01714396	9.933	0.0000
Y1	-0.06965050	0.01076191	-6.472	0.0000
Y2	0.03895910	0.01021983	3.812	0.0002
Y3	0.03945261	0.01070039	3.687	0.0003
TREND	0.00608999	0.00098159	6.204	0.0000

Equation: 4
Dependent variable: SM

			Valid cases:	396
			Degrees of freedom:	----
Variable	Estimated Coefficient	Standard Error	t-ratio	Prob > t
CONST	0.23797295	0.01426007	16.688	0.0000
WL	0.71277429	0.12774759	5.580	0.0000
WK	-0.03954265	0.01417735	-2.789	0.0058
Y1	0.10228693	0.00996175	10.268	0.0000
Y2	-0.06983054	0.00905365	-7.713	0.0000
Y3	-0.03866446	0.00831932	-4.648	0.0000

MEASURES OF GOODNESS-OF-FIT

AN UNCENTERED SYSTEM R-SQUARE	0.976
A CENTERED SYSTEM R-SQUARE	0.979

The results from the test of the null hypothesis that all slope coefficients in all equations are simultaneously equal to zero.

Test statistic	Prob > t
1523.926	+DEN

VALIDATION OF REGULARITY CONDITIONS

Monotonicity of the Estimated Cost Function

The number of observations for which each of the following predicted cost share is nonpositive is listed below

Labor	Capital	Materials
0	0	0
(0.00 %)	(0.00 %)	(0.00 %)

OEB Gas - Final GD Model (final errata version).txt
Concavity of the Estimated Cost Function

The number of the observations for which the condition that the matrix of second order partial derivatives of the cost function with respect to input wages is negative semi-definite holds:

396 (100.00 %)

Quasi-Concavity of the Estimated Cost Function

The number of observations for which the condition that the cost function is strictly quasi-concave in input prices holds:

396 (100.00 %)

Second Order Condition for Cost Minimization

The number of the observations for which the condition that the bordered Hessian is negative definite holds:

396 (100.00 %)

RTS (sum of output elasticities) calculated at all data points

sum	yn	yv	ymdm	utility
0.829	0.523	0.125	0.181	Consolidated Edison
0.833	0.540	0.119	0.174	Peoples Gas Light
0.854	0.540	0.043	0.271	UNION GAS
0.863	0.552	0.193	0.118	Orange & Rockland Utilities
0.864	0.553	0.189	0.122	Connecticut Natural Gas
0.866	0.579	0.167	0.121	Pg Energy (Penn Gas & Water)
0.868	0.554	0.142	0.172	Cascade Natural Gas
0.874	0.550	0.228	0.097	Central Hudson Gas
0.874	0.558	0.174	0.142	COMMONWEALTH GAS
0.875	0.559	0.190	0.126	Connecticut Energy
0.876	0.555	0.118	0.203	Niagra Mohawk
0.878	0.549	0.196	0.132	North Shore Gas
0.879	0.567	0.136	0.177	BALTIMORE GAS & ELECTRIC CO
0.883	0.544	0.091	0.248	Public Service Electric & Gas
0.886	0.554	0.136	0.195	SAN DIEGO GAS & ELECTRIC
0.887	0.576	0.201	0.111	Madison Gas & Electric
0.888	0.537	0.091	0.260	ENBRIDGE
0.890	0.579	0.161	0.150	Louisville Gas and Electric
0.891	0.564	0.147	0.181	Peco (Philadelphia Electric)
0.896	0.573	0.182	0.142	Wisconsin Power & Light
0.897	0.561	0.123	0.214	Washington Gas Light
0.899	0.553	0.048	0.298	Pacific Gas & Electric
0.899	0.555	0.175	0.169	Rochester Gas and Electric
0.899	0.544	0.047	0.309	SOUTHERN CALIFORNIA GAS
0.900	0.548	0.075	0.277	NICOR
0.900	0.566	0.130	0.205	Wisconsin Gas
0.904	0.565	0.078	0.262	Consumers Power
0.908	0.539	0.107	0.262	East Ohio Gas
0.909	0.543	0.173	0.194	new Jersey Natural Gas
0.910	0.565	0.158	0.187	People's Natural Gas
0.911	0.559	0.142	0.210	Alabama Gas
0.913	0.564	0.150	0.199	Illinois Power
0.913	0.581	0.116	0.216	Questar (Mountain Fuel Supply)
0.915	0.553	0.146	0.216	Washington Natural Gas
0.917	0.558	0.138	0.222	Northwest Natural Gas
0.919	0.582	0.150	0.186	Public Service of North Carolina
0.923	0.579	0.097	0.247	Southwest Gas
0.927	0.574	0.092	0.262	Atlanta Gas Light

Firm and Year-by-Year elasticities

ID	Year	YN	YV	YM	sum
1.00000	1994.00000	0.55409	0.14615	0.20918	0.90942
1.00000	1995.00000	0.56054	0.14091	0.20650	0.90795
1.00000	1996.00000	0.55684	0.13902	0.20948	0.90534
1.00000	1997.00000	0.56139	0.13774	0.20777	0.90689
1.00000	1998.00000	0.56222	0.13718	0.20757	0.90698
1.00000	1999.00000	0.55921	0.14018	0.20968	0.90907
1.00000	2000.00000	0.55882	0.14047	0.21072	0.91000
1.00000	2001.00000	0.55652	0.14721	0.21306	0.91678
1.00000	2002.00000	0.56087	0.14384	0.21114	0.91585
1.00000	2003.00000	0.55300	0.14952	0.21593	0.91845
1.00000	2004.00000	0.56475	0.14477	0.20929	0.91880
2.00000	1994.00000	0.57410	0.09417	0.25732	0.92560
2.00000	1995.00000	0.57639	0.09119	0.25713	0.92471
2.00000	1996.00000	0.56833	0.09152	0.26276	0.92262
2.00000	1997.00000	0.57288	0.09062	0.26123	0.92473
2.00000	1998.00000	0.57579	0.08459	0.26019	0.92057
2.00000	1999.00000	0.57256	0.09409	0.26177	0.92842
2.00000	2000.00000	0.57353	0.08727	0.26311	0.92390
2.00000	2001.00000	0.57252	0.09631	0.26410	0.93292
2.00000	2002.00000	0.57067	0.09575	0.26449	0.93090
2.00000	2003.00000	0.56459	0.10011	0.26901	0.93372
2.00000	2004.00000	0.58863	0.08841	0.25606	0.93309
3.00000	1994.00000	0.57382	0.13012	0.16385	0.86780
3.00000	1995.00000	0.57159	0.13063	0.16785	0.87007
3.00000	1996.00000	0.56385	0.13369	0.17483	0.87238
3.00000	1997.00000	0.56900	0.12809	0.17440	0.87149
3.00000	1998.00000	0.57009	0.13730	0.17451	0.88190
3.00000	1999.00000	0.56390	0.13653	0.17881	0.87924
3.00000	2000.00000	0.56430	0.13613	0.17974	0.88017
3.00000	2001.00000	0.56404	0.14374	0.18084	0.88862
3.00000	2002.00000	0.56241	0.14059	0.18224	0.88524
3.00000	2003.00000	0.55761	0.14228	0.18702	0.88691
3.00000	2004.00000	0.57313	0.13472	0.17855	0.88640
6.00000	1994.00000	0.56134	0.14786	0.16209	0.87129
6.00000	1995.00000	0.56173	0.14532	0.16373	0.87078
6.00000	1996.00000	0.55814	0.14032	0.16738	0.86584
6.00000	1997.00000	0.56320	0.14175	0.16606	0.87101
6.00000	1998.00000	0.56334	0.13643	0.16707	0.86685
6.00000	1999.00000	0.55544	0.13476	0.17280	0.86300
6.00000	2000.00000	0.53267	0.14199	0.18643	0.86109
6.00000	2001.00000	0.54995	0.13326	0.17827	0.86149
6.00000	2002.00000	0.54733	0.14785	0.18024	0.87542
6.00000	2003.00000	0.54742	0.14755	0.18074	0.87570
6.00000	2004.00000	0.55361	0.14705	0.16275	0.86340
7.00000	1994.00000	0.54883	0.22947	0.09520	0.87349
7.00000	1995.00000	0.55176	0.22039	0.09401	0.86616
7.00000	1996.00000	0.54745	0.23096	0.09694	0.87535
7.00000	1997.00000	0.54854	0.22202	0.09680	0.86736
7.00000	1998.00000	0.55364	0.22140	0.09413	0.86916
7.00000	1999.00000	0.54885	0.21991	0.09705	0.86581
7.00000	2000.00000	0.55137	0.22564	0.09597	0.87297
7.00000	2001.00000	0.54613	0.23527	0.09927	0.88066
7.00000	2002.00000	0.54801	0.23096	0.09829	0.87727
7.00000	2003.00000	0.54451	0.23709	0.10024	0.88184
7.00000	2004.00000	0.55615	0.23104	0.09387	0.88106
9.00000	1994.00000	0.56505	0.16962	0.13697	0.87164
9.00000	1995.00000	0.56090	0.17095	0.13955	0.87139
9.00000	1996.00000	0.55775	0.17209	0.14158	0.87141
9.00000	1997.00000	0.56028	0.17290	0.14044	0.87362
9.00000	1998.00000	0.56302	0.17416	0.13847	0.87565
9.00000	1999.00000	0.55891	0.17868	0.14127	0.87886
9.00000	2000.00000	0.55243	0.17620	0.14492	0.87355
9.00000	2001.00000	0.55401	0.18128	0.14436	0.87965
9.00000	2002.00000	0.55554	0.17683	0.14328	0.87565
9.00000	2003.00000	0.54683	0.17650	0.14771	0.87105
9.00000	2004.00000	0.56542	0.16824	0.13832	0.87197
10.00000	1994.00000	0.56228	0.18958	0.12288	0.87473

OEB Gas - Final GD Model (final errata version).txt

10.000000	1995.000000	0.56194	0.19242	0.12347	0.87784
10.000000	1996.000000	0.55790	0.19108	0.12618	0.87516
10.000000	1997.000000	0.56215	0.19449	0.12422	0.88086
10.000000	1998.000000	0.56791	0.19832	0.12115	0.88738
10.000000	1999.000000	0.54506	0.20817	0.13417	0.88740
10.000000	2000.000000	0.55693	0.19996	0.12724	0.88414
10.000000	2001.000000	0.55871	0.20303	0.12619	0.88794
10.000000	2002.000000	0.56053	0.17148	0.12451	0.85653
10.000000	2003.000000	0.55330	0.17933	0.12846	0.86109
10.000000	2004.000000	0.56454	0.16132	0.12228	0.84814
11.000000	1994.000000	0.56132	0.17456	0.11643	0.85231
11.000000	1995.000000	0.55873	0.17219	0.11815	0.84907
11.000000	1996.000000	0.55100	0.17517	0.12280	0.84898
11.000000	1997.000000	0.55088	0.18862	0.12315	0.86264
11.000000	1998.000000	0.55603	0.18758	0.12013	0.86373
11.000000	1999.000000	0.55214	0.18952	0.12240	0.86406
11.000000	2000.000000	0.55065	0.19087	0.12332	0.86484
11.000000	2001.000000	0.55087	0.19509	0.12348	0.86944
11.000000	2002.000000	0.55436	0.19882	0.12130	0.87448
11.000000	2003.000000	0.54628	0.20503	0.12568	0.87699
11.000000	2004.000000	0.55473	0.20639	0.12089	0.88201
12.000000	1994.000000	0.52243	0.12805	0.18228	0.83276
12.000000	1995.000000	0.52540	0.12218	0.18048	0.82806
12.000000	1996.000000	0.52096	0.13081	0.18290	0.83468
12.000000	1997.000000	0.52205	0.12046	0.18219	0.82470
12.000000	1998.000000	0.52404	0.12070	0.18093	0.82567
12.000000	1999.000000	0.52151	0.12073	0.18223	0.82447
12.000000	2000.000000	0.52536	0.12190	0.17980	0.82706
12.000000	2001.000000	0.52326	0.12643	0.18077	0.83047
12.000000	2002.000000	0.52253	0.12465	0.18070	0.82787
12.000000	2003.000000	0.51980	0.13148	0.18193	0.83322
12.000000	2004.000000	0.52948	0.12376	0.17637	0.82962
13.000000	1994.000000	0.56126	0.07794	0.25924	0.89845
13.000000	1995.000000	0.56123	0.07843	0.26011	0.89977
13.000000	1996.000000	0.56069	0.07472	0.26112	0.89653
13.000000	1997.000000	0.56375	0.07556	0.26003	0.89934
13.000000	1998.000000	0.56792	0.08017	0.25856	0.90666
13.000000	1999.000000	0.56116	0.08029	0.26341	0.90486
13.000000	2000.000000	0.56705	0.07419	0.26050	0.90174
13.000000	2001.000000	0.56707	0.08082	0.26098	0.90887
13.000000	2002.000000	0.56256	0.08220	0.26761	0.91237
13.000000	2003.000000	0.55975	0.08293	0.26847	0.91115
13.000000	2004.000000	0.57841	0.07316	0.25679	0.90836
15.000000	1994.000000	0.53000	0.11128	0.26257	0.90385
15.000000	1995.000000	0.53662	0.10590	0.26183	0.90435
15.000000	1996.000000	0.54498	0.10094	0.25968	0.90559
15.000000	1997.000000	0.53552	0.10499	0.26755	0.90805
15.000000	1998.000000	0.55184	0.10136	0.25909	0.91229
15.000000	1999.000000	0.54093	0.10509	0.25924	0.90525
15.000000	2000.000000	0.53508	0.10768	0.26215	0.90491
15.000000	2001.000000	0.53973	0.11154	0.25917	0.91044
15.000000	2002.000000	0.53510	0.11343	0.26170	0.91024
15.000000	2003.000000	0.52991	0.11229	0.26839	0.91059
15.000000	2004.000000	0.55105	0.10490	0.25652	0.91247
17.000000	1994.000000	0.56828	0.14696	0.19521	0.91045
17.000000	1995.000000	0.57045	0.14204	0.19502	0.90751
17.000000	1996.000000	0.56206	0.14297	0.20063	0.90566
17.000000	1997.000000	0.56306	0.14607	0.20088	0.91000
17.000000	1998.000000	0.56533	0.14972	0.19842	0.91347
17.000000	1999.000000	0.56353	0.14962	0.20064	0.91380
17.000000	2000.000000	0.56556	0.14849	0.19801	0.91206
17.000000	2001.000000	0.56176	0.15311	0.20029	0.91516
17.000000	2002.000000	0.56224	0.15403	0.19990	0.91617
17.000000	2003.000000	0.55518	0.15820	0.20374	0.91712
17.000000	2004.000000	0.56305	0.15733	0.19955	0.91993
21.000000	1994.000000	0.55045	0.12369	0.20326	0.87740
21.000000	1995.000000	0.55198	0.11049	0.20332	0.86579
21.000000	1996.000000	0.55229	0.11292	0.20406	0.86928
21.000000	1997.000000	0.55326	0.11011	0.20440	0.86777
21.000000	1998.000000	0.55674	0.11633	0.20514	0.87820
21.000000	1999.000000	0.55334	0.11516	0.20482	0.87332

OEB Gas - Final GD Model (final errata version).txt

21.000000	2000.000000	0.55779	0.11214	0.20202	0.87194
21.000000	2001.000000	0.56210	0.11480	0.19993	0.87683
21.000000	2002.000000	0.56166	0.11890	0.20010	0.88066
21.000000	2003.000000	0.54893	0.13193	0.20729	0.88815
21.000000	2004.000000	0.55995	0.12966	0.20107	0.89068
22.000000	1994.000000	0.54877	0.19442	0.12959	0.87278
22.000000	1995.000000	0.55383	0.19369	0.12769	0.87522
22.000000	1996.000000	0.54743	0.19141	0.13211	0.87095
22.000000	1997.000000	0.55038	0.19291	0.13121	0.87450
22.000000	1998.000000	0.55592	0.19688	0.12839	0.88119
22.000000	1999.000000	0.54869	0.19735	0.13296	0.87900
22.000000	2000.000000	0.55137	0.19496	0.13162	0.87795
22.000000	2001.000000	0.54672	0.20255	0.13468	0.88396
22.000000	2002.000000	0.54584	0.19910	0.13499	0.87994
22.000000	2003.000000	0.53937	0.20044	0.13830	0.87811
22.000000	2004.000000	0.55112	0.19602	0.13197	0.87911
23.000000	1994.000000	0.54739	0.07649	0.27722	0.90110
23.000000	1995.000000	0.55106	0.07242	0.27496	0.89845
23.000000	1996.000000	0.54666	0.07294	0.27724	0.89685
23.000000	1997.000000	0.54798	0.07012	0.27621	0.89431
23.000000	1998.000000	0.55537	0.06970	0.27222	0.89729
23.000000	1999.000000	0.54823	0.07411	0.27662	0.89896
23.000000	2000.000000	0.55581	0.06469	0.27311	0.89362
23.000000	2001.000000	0.54487	0.08158	0.27991	0.90635
23.000000	2002.000000	0.54518	0.07783	0.27968	0.90269
23.000000	2003.000000	0.53945	0.08360	0.28245	0.90550
23.000000	2004.000000	0.55041	0.07716	0.27777	0.90534
24.000000	1994.000000	0.55636	0.14286	0.21698	0.91620
24.000000	1995.000000	0.56083	0.14154	0.21593	0.91829
24.000000	1996.000000	0.55691	0.13981	0.21940	0.91611
24.000000	1997.000000	0.56400	0.13507	0.21656	0.91563
24.000000	1998.000000	0.56461	0.13043	0.21815	0.91319
24.000000	1999.000000	0.55822	0.13321	0.22313	0.91456
24.000000	2000.000000	0.55593	0.13099	0.22505	0.91197
24.000000	2001.000000	0.55498	0.13138	0.22620	0.91256
24.000000	2002.000000	0.55199	0.14361	0.22743	0.92303
24.000000	2003.000000	0.55184	0.14550	0.22743	0.92477
24.000000	2004.000000	0.55911	0.14003	0.22486	0.92400
26.000000	1994.000000	0.54605	0.18585	0.12033	0.85224
26.000000	1995.000000	0.54806	0.17853	0.11979	0.84638
26.000000	1996.000000	0.53933	0.20044	0.12532	0.86510
26.000000	1997.000000	0.54880	0.18779	0.12053	0.85712
26.000000	1998.000000	0.55397	0.17491	0.11711	0.84599
26.000000	1999.000000	0.54985	0.18411	0.11938	0.85334
26.000000	2000.000000	0.55486	0.20034	0.11647	0.87167
26.000000	2001.000000	0.55372	0.20600	0.11727	0.87698
26.000000	2002.000000	0.56742	0.19878	0.10961	0.87582
26.000000	2003.000000	0.54397	0.20896	0.12269	0.87562
26.000000	2004.000000	0.56288	0.19933	0.11209	0.87429
27.000000	1994.000000	0.54857	0.04552	0.29840	0.89249
27.000000	1995.000000	0.55017	0.04634	0.29826	0.89477
27.000000	1996.000000	0.55858	0.04127	0.29407	0.89392
27.000000	1997.000000	0.55113	0.04887	0.29883	0.89884
27.000000	1998.000000	0.55691	0.04847	0.29559	0.90097
27.000000	1999.000000	0.55086	0.05086	0.30079	0.90251
27.000000	2000.000000	0.54804	0.04936	0.30162	0.89902
27.000000	2001.000000	0.54892	0.04793	0.30068	0.89754
27.000000	2002.000000	0.54878	0.05406	0.30100	0.90384
27.000000	2003.000000	0.55288	0.05213	0.29880	0.90381
27.000000	2004.000000	0.56569	0.04132	0.29183	0.89884
28.000000	1994.000000	0.56143	0.14405	0.17787	0.88335
28.000000	1995.000000	0.56278	0.13973	0.17826	0.88078
28.000000	1996.000000	0.55751	0.14826	0.18239	0.88817
28.000000	1997.000000	0.56019	0.14923	0.18198	0.89140
28.000000	1998.000000	0.56643	0.15164	0.17895	0.89702
28.000000	1999.000000	0.55046	0.15567	0.18861	0.89474
28.000000	2000.000000	0.55827	0.14784	0.18488	0.89099
28.000000	2001.000000	0.56725	0.14808	0.18046	0.89579
28.000000	2002.000000	0.56678	0.14659	0.18093	0.89431
28.000000	2003.000000	0.56403	0.14706	0.18272	0.89380
28.000000	2004.000000	0.58377	0.13682	0.17188	0.89247

OEB Gas - Final GD Model (final errata version).txt

29.000000	1994.000000	0.53522	0.11615	0.17833	0.82969
29.000000	1995.000000	0.54131	0.11516	0.17469	0.83116
29.000000	1996.000000	0.53522	0.11315	0.17783	0.82619
29.000000	1997.000000	0.54241	0.11453	0.17338	0.83032
29.000000	1998.000000	0.55184	0.11635	0.16756	0.83575
29.000000	1999.000000	0.54161	0.11947	0.17309	0.83417
29.000000	2000.000000	0.53773	0.12124	0.17489	0.83386
29.000000	2001.000000	0.53519	0.12859	0.17635	0.84013
29.000000	2002.000000	0.54147	0.11982	0.17225	0.83354
29.000000	2003.000000	0.53334	0.12382	0.17623	0.83339
29.000000	2004.000000	0.54440	0.12505	0.16981	0.83926
30.000000	1994.000000	0.55368	0.15726	0.19272	0.90366
30.000000	1995.000000	0.56226	0.15222	0.18809	0.90257
30.000000	1996.000000	0.55281	0.15563	0.19368	0.90212
30.000000	1997.000000	0.55660	0.16117	0.19178	0.90955
30.000000	1998.000000	0.56334	0.16825	0.18793	0.91951
30.000000	1999.000000	0.56409	0.16225	0.18767	0.91402
30.000000	2000.000000	0.57082	0.15672	0.18386	0.91140
30.000000	2001.000000	0.57225	0.16080	0.18317	0.91623
30.000000	2002.000000	0.56810	0.15792	0.18533	0.91136
30.000000	2003.000000	0.56478	0.15564	0.18715	0.90757
30.000000	2004.000000	0.58114	0.14807	0.17995	0.90916
31.000000	1994.000000	0.57095	0.17350	0.12147	0.86592
31.000000	1995.000000	0.57206	0.17358	0.12158	0.86723
31.000000	1996.000000	0.56937	0.17149	0.12386	0.86472
31.000000	1997.000000	0.56924	0.17172	0.12467	0.86563
31.000000	1998.000000	0.57474	0.17115	0.12209	0.86799
31.000000	1999.000000	0.56645	0.17255	0.12916	0.86816
31.000000	2000.000000	0.57565	0.16556	0.12425	0.86545
31.000000	2001.000000	0.59299	0.15863	0.11464	0.86626
31.000000	2002.000000	0.58928	0.15895	0.11664	0.86487
31.000000	2003.000000	0.58411	0.16104	0.11940	0.86455
31.000000	2004.000000	0.59913	0.15542	0.11084	0.86538
34.000000	1994.000000	0.52972	0.09873	0.25430	0.88275
34.000000	1995.000000	0.53140	0.09662	0.25389	0.88190
34.000000	1996.000000	0.53058	0.09649	0.25494	0.88200
34.000000	1997.000000	0.53031	0.09545	0.25564	0.88140
34.000000	1998.000000	0.55654	0.08504	0.24100	0.88259
34.000000	1999.000000	0.55035	0.08304	0.24492	0.87831
34.000000	2000.000000	0.55369	0.08581	0.24316	0.88266
34.000000	2001.000000	0.55454	0.08831	0.24286	0.88572
34.000000	2002.000000	0.54944	0.09052	0.24569	0.88565
34.000000	2003.000000	0.54417	0.09029	0.24861	0.88307
34.000000	2004.000000	0.55548	0.08995	0.24222	0.88764
36.000000	1994.000000	0.57757	0.15797	0.17896	0.91450
36.000000	1995.000000	0.57491	0.15733	0.18283	0.91508
36.000000	1996.000000	0.57269	0.15350	0.18632	0.91251
36.000000	1997.000000	0.57716	0.15298	0.18584	0.91598
36.000000	1998.000000	0.58276	0.15169	0.18395	0.91840
36.000000	1999.000000	0.57709	0.15273	0.18848	0.91829
36.000000	2000.000000	0.57964	0.14531	0.19043	0.91538
36.000000	2001.000000	0.58672	0.14975	0.18812	0.92459
36.000000	2002.000000	0.58810	0.14536	0.18859	0.92205
36.000000	2003.000000	0.58052	0.15003	0.19392	0.92446
36.000000	2004.000000	0.60088	0.13844	0.18314	0.92246
37.000000	1994.000000	0.55418	0.17466	0.16921	0.89805
37.000000	1995.000000	0.55218	0.17587	0.17024	0.89828
37.000000	1996.000000	0.54871	0.17461	0.17212	0.89544
37.000000	1997.000000	0.55572	0.17224	0.16807	0.89604
37.000000	1998.000000	0.56176	0.17512	0.16419	0.90107
37.000000	1999.000000	0.55138	0.17745	0.16892	0.89775
37.000000	2000.000000	0.55387	0.17340	0.17095	0.89821
37.000000	2001.000000	0.55460	0.17811	0.17053	0.90324
37.000000	2002.000000	0.56457	0.17107	0.16493	0.90057
37.000000	2003.000000	0.54653	0.17906	0.17501	0.90060
37.000000	2004.000000	0.56529	0.16999	0.16446	0.89974
38.000000	1994.000000	0.54120	0.14666	0.20066	0.88852
38.000000	1995.000000	0.55368	0.13991	0.19416	0.88774
38.000000	1996.000000	0.55425	0.13847	0.19421	0.88693
38.000000	1997.000000	0.55791	0.13450	0.19249	0.88490
38.000000	1998.000000	0.55765	0.13058	0.19286	0.88109

OEB Gas - Final GD Model (final errata version).txt

38.000000	1999.000000	0.55526	0.13422	0.19476	0.88424
38.000000	2000.000000	0.55283	0.13147	0.19621	0.88051
38.000000	2001.000000	0.55185	0.13372	0.19758	0.88315
38.000000	2002.000000	0.55645	0.13729	0.19504	0.88878
38.000000	2003.000000	0.54819	0.14341	0.20008	0.89168
38.000000	2004.000000	0.56878	0.12725	0.19128	0.88731
40.000000	1994.000000	0.53746	0.04763	0.31167	0.89676
40.000000	1995.000000	0.54764	0.04678	0.30614	0.90056
40.000000	1996.000000	0.54522	0.04950	0.30756	0.90229
40.000000	1997.000000	0.54655	0.04747	0.30685	0.90087
40.000000	1998.000000	0.55107	0.04401	0.30400	0.89907
40.000000	1999.000000	0.54259	0.04688	0.30903	0.89850
40.000000	2000.000000	0.54139	0.04269	0.30981	0.89390
40.000000	2001.000000	0.54180	0.04135	0.30971	0.89285
40.000000	2002.000000	0.53857	0.05022	0.31137	0.90016
40.000000	2003.000000	0.53952	0.05308	0.31084	0.90344
40.000000	2004.000000	0.54746	0.04730	0.30657	0.90133
41.000000	1994.000000	0.57258	0.10749	0.24124	0.92131
41.000000	1995.000000	0.58551	0.09963	0.23669	0.92184
41.000000	1996.000000	0.58059	0.10330	0.24190	0.92578
41.000000	1997.000000	0.58472	0.09868	0.24184	0.92524
41.000000	1998.000000	0.58533	0.09506	0.24164	0.92203
41.000000	1999.000000	0.57759	0.09763	0.24719	0.92241
41.000000	2000.000000	0.58239	0.08827	0.24576	0.91642
41.000000	2001.000000	0.57193	0.09504	0.25302	0.91998
41.000000	2002.000000	0.56816	0.09754	0.25679	0.92249
41.000000	2003.000000	0.56709	0.09994	0.25992	0.92695
41.000000	2004.000000	0.58934	0.08728	0.24907	0.92569
42.000000	1994.000000	0.56034	0.12386	0.20485	0.88905
42.000000	1995.000000	0.55920	0.12604	0.20846	0.89370
42.000000	1996.000000	0.55543	0.12589	0.21325	0.89456
42.000000	1997.000000	0.55815	0.12420	0.21420	0.89655
42.000000	1998.000000	0.56443	0.12561	0.21223	0.90227
42.000000	1999.000000	0.55850	0.12433	0.21663	0.89946
42.000000	2000.000000	0.55642	0.12045	0.21646	0.89333
42.000000	2001.000000	0.56105	0.12393	0.21471	0.89969
42.000000	2002.000000	0.56070	0.12075	0.21836	0.89981
42.000000	2003.000000	0.54943	0.12730	0.22466	0.90139
42.000000	2004.000000	0.58191	0.10842	0.20521	0.89554
43.000000	1994.000000	0.55781	0.14704	0.20882	0.91366
43.000000	1995.000000	0.56030	0.14644	0.20887	0.91560
43.000000	1996.000000	0.55166	0.14535	0.21497	0.91198
43.000000	1997.000000	0.56142	0.14273	0.21064	0.91479
43.000000	1998.000000	0.55736	0.14492	0.21305	0.91533
43.000000	1999.000000	0.54946	0.14627	0.21849	0.91422
43.000000	2000.000000	0.54004	0.15190	0.22518	0.91712
43.000000	2001.000000	0.54769	0.13955	0.22031	0.90755
43.000000	2002.000000	0.54927	0.14941	0.21871	0.91739
43.000000	2003.000000	0.54841	0.15022	0.22202	0.92065
43.000000	2004.000000	0.55489	0.14719	0.21894	0.92103
44.000000	1994.000000	0.55902	0.13456	0.20201	0.89558
44.000000	1995.000000	0.56584	0.12717	0.19969	0.89270
44.000000	1996.000000	0.56361	0.12673	0.20233	0.89267
44.000000	1997.000000	0.56774	0.12664	0.20127	0.89566
44.000000	1998.000000	0.57481	0.12744	0.19861	0.90086
44.000000	1999.000000	0.56688	0.12927	0.20464	0.90079
44.000000	2000.000000	0.56809	0.12817	0.20507	0.90133
44.000000	2001.000000	0.56227	0.13638	0.20974	0.90838
44.000000	2002.000000	0.56148	0.13398	0.21150	0.90696
44.000000	2003.000000	0.55933	0.13384	0.21225	0.90542
44.000000	2004.000000	0.57423	0.12724	0.20345	0.90492
45.000000	1994.000000	0.58403	0.18003	0.12779	0.89186
45.000000	1995.000000	0.57500	0.18141	0.13569	0.89210
45.000000	1996.000000	0.56903	0.18113	0.14151	0.89167
45.000000	1997.000000	0.57275	0.18393	0.14168	0.89836
45.000000	1998.000000	0.58678	0.18127	0.13405	0.90210
45.000000	1999.000000	0.57336	0.18260	0.14224	0.89820
45.000000	2000.000000	0.57679	0.17870	0.14089	0.89638
45.000000	2001.000000	0.58458	0.17657	0.13621	0.89736
45.000000	2002.000000	0.56492	0.18222	0.14660	0.89375
45.000000	2003.000000	0.55188	0.19025	0.15824	0.90038

OEB Gas - Final GD Model (final errata version).txt

45.000000	2004.000000	0.55964	0.18518	0.15398	0.89879
46.000000	1994.000000	0.58949	0.11127	0.20755	0.90831
46.000000	1995.000000	0.58325	0.11232	0.21119	0.90677
46.000000	1996.000000	0.57784	0.11662	0.21418	0.90864
46.000000	1997.000000	0.58236	0.11424	0.21152	0.90813
46.000000	1998.000000	0.58349	0.11338	0.21212	0.90900
46.000000	1999.000000	0.57857	0.11813	0.21669	0.91339
46.000000	2000.000000	0.57955	0.11632	0.21806	0.91393
46.000000	2001.000000	0.58200	0.11508	0.21904	0.91612
46.000000	2002.000000	0.57592	0.11950	0.22235	0.91777
46.000000	2003.000000	0.57655	0.12461	0.22269	0.92385
46.000000	2004.000000	0.58713	0.11734	0.21812	0.92259
49.000000	1994.000000	0.54429	0.17506	0.18908	0.90843
49.000000	1995.000000	0.54211	0.17280	0.19132	0.90623
49.000000	1996.000000	0.53987	0.17272	0.19358	0.90617
49.000000	1997.000000	0.54376	0.17434	0.19234	0.91044
49.000000	1998.000000	0.54675	0.17635	0.19125	0.91435
49.000000	1999.000000	0.54247	0.17551	0.19418	0.91217
49.000000	2000.000000	0.54585	0.16950	0.19263	0.90799
49.000000	2001.000000	0.54255	0.17249	0.19517	0.91021
49.000000	2002.000000	0.53931	0.17515	0.19749	0.91196
49.000000	2003.000000	0.53429	0.17409	0.20049	0.90888
49.000000	2004.000000	0.55045	0.16521	0.19170	0.90737
53.000000	1994.000000	0.57751	0.16319	0.14606	0.88676
53.000000	1995.000000	0.57523	0.16120	0.14869	0.88511
53.000000	1996.000000	0.57449	0.15937	0.15034	0.88420
53.000000	1997.000000	0.57895	0.15861	0.14900	0.88656
53.000000	1998.000000	0.59104	0.15854	0.14278	0.89237
53.000000	1999.000000	0.58146	0.15789	0.14899	0.88834
53.000000	2000.000000	0.57446	0.15820	0.15342	0.88608
53.000000	2001.000000	0.57424	0.16802	0.15448	0.89674
53.000000	2002.000000	0.57600	0.16065	0.15288	0.88953
53.000000	2003.000000	0.57138	0.16626	0.15677	0.89442
53.000000	2004.000000	0.59132	0.15829	0.14619	0.89579
57.000000	1994.000000	0.57692	0.20275	0.10382	0.88349
57.000000	1995.000000	0.57835	0.19784	0.10496	0.88116
57.000000	1996.000000	0.58025	0.19687	0.10566	0.88277
57.000000	1997.000000	0.58063	0.19091	0.10710	0.87864
57.000000	1998.000000	0.58653	0.19934	0.10274	0.88862
57.000000	1999.000000	0.57726	0.20144	0.10907	0.88776
57.000000	2000.000000	0.57427	0.20282	0.11134	0.88843
57.000000	2001.000000	0.57385	0.20553	0.11486	0.89425
57.000000	2002.000000	0.56653	0.20549	0.11972	0.89175
57.000000	2003.000000	0.56256	0.20702	0.12119	0.89078
57.000000	2004.000000	0.57692	0.20104	0.11555	0.89350
58.000000	2000.000000	0.53550	0.09129	0.25756	0.88436
58.000000	2001.000000	0.53285	0.09435	0.25902	0.88622
58.000000	2002.000000	0.53897	0.09063	0.25755	0.88715
58.000000	2003.000000	0.53060	0.09509	0.26318	0.88887
58.000000	2004.000000	0.54150	0.08872	0.25719	0.88741
58.000000	2005.000000	0.53879	0.08940	0.26086	0.88905
58.000000	2006.000000	0.54076	0.08840	0.26151	0.89068
59.000000	2000.000000	0.53545	0.04488	0.27312	0.85346
59.000000	2001.000000	0.53999	0.04611	0.27118	0.85728
59.000000	2002.000000	0.53525	0.04341	0.27401	0.85267
59.000000	2003.000000	0.52998	0.04924	0.27686	0.85608
59.000000	2004.000000	0.55103	0.03617	0.26503	0.85223
59.000000	2005.000000	0.54404	0.03854	0.26913	0.85170
59.000000	2006.000000	0.54718	0.04095	0.26811	0.85624

OEB Gas - Final COS Model (final errata version).txt
» run C:\Work\oebgas\Specification\DR_TC;

GAUSS Data Export Facility

Begin export...

Export completed

Number of cases in GAUSS data set: 410.000

Number of cases written to foreign file : 410.000

Number of variables written to foreign file : 39.000

Date: 11/16/07 **** STANDARD SUR ESTIMATION RESULTS **** Time: 13:36:13

OUTPUT FILE:C:\work\Oebgas\results\out

DATA FILE:C:\work\Oebgas\oebgasCS2.xls

DEFINITIONS OF OUTPUT VARIABLES:

Y1 is number of customers.

Y2 is Total deliveries.

Y3 is miles of Dx and Tx main

DEFINITIONS OF BUSINESS CONDITION VARIABLES:

Z1 is % of non-iron miles in Dx miles

Z2 is Number of Electric Customers

Model includes time trend.

Time period used: 1994 through 2004

GAUSS Data Import Facility

Begin import...

Import completed

Number of rows in input file: 4903

Number of cases written to GAUSS data set: 4902

Number of missing elements: 285376

Number of variables written to GAUSS data set: 64

1
410

=====

SEEMINGLY UNRELATED REGRESSION WITH HETEROSKEDASTICITY	11/16/2007	1:36 pm
--	------------	---------

=====

Data Set: C:\work\Oebgas\Temp_3.dat

DIVISOR USING N IN EFFECT
RESTRICTIONS IN EFFECT

ITER. # =	0	LOG OF DETERMINANT OF SIGMA =	5.65663982
ITER. # =	1	LOG OF DETERMINANT OF SIGMA =	5.54862741
ITER. # =	2	LOG OF DETERMINANT OF SIGMA =	5.54746222
ITER. # =	3	LOG OF DETERMINANT OF SIGMA =	5.54745323

OEB Gas - Final COS Model (final errata version).txt
 ITER. # = 4 LOG OF DETERMINANT OF SIGMA = 5.54745314
 ITER. # = 5 LOG OF DETERMINANT OF SIGMA = 5.54745313
 ITER. # = 6 LOG OF DETERMINANT OF SIGMA = 5.54745313

 Equation: 1
 Dependent variable: C

Total cases:	396	Valid cases:	396
Total SS:	316.604	Degrees of freedom:	----
R-squared:	0.968	Rbar-squared:	0.968
Residual SS:	10.011	Std error of est:	2.614
Durbin-Watson:	0.097		

Variable	Estimated Coefficient	Standard Error	t-ratio	Prob > t
CONST	8.13587899	0.01584053	513.612	0.0000
WL	0.21535870	0.01539398	13.990	0.0000
WK	0.52182341	0.00623464	83.697	0.0000
Y1	0.60966551	0.04474078	13.627	0.0000
Y2	0.08466352	0.04186917	2.022	0.0439
Y3	0.19353268	0.03066509	6.311	0.0000
WLWL	-0.70150442	0.13902408	-5.046	0.0000
WLWK	-0.12456132	0.01469492	-8.476	0.0000
WKWK	0.17508883	0.01595689	10.973	0.0000
Y1Y1	0.03638829	0.05633949	0.646	0.5187
Y2Y2	-0.03907610	0.04110370	-0.951	0.3424
Y3Y3	-0.00069562	0.05081285	-0.014	0.9891
WLY1	-0.05524677	0.01386599	-3.984	0.0001
WLY2	0.05048280	0.01188188	4.249	0.0000
WLY3	0.00523528	0.00924716	0.566	0.5716
WKY1	-0.05645730	0.01145502	-4.929	0.0000
WKY2	0.01754151	0.01043071	1.682	0.0934
WKY3	0.04237063	0.01019408	4.156	0.0000
Z1	-0.94928165	0.07802541	-12.166	0.0000
Z2	-0.00747265	0.00105631	-7.074	0.0000
TREND	-0.01186595	0.00199872	-5.937	0.0000
WLTREND	0.00794496	0.00287843	2.760	0.0061
WKTREND	0.00652344	0.00094787	6.882	0.0000

 Equation: 2
 Dependent variable: SL

Total cases:	396	Valid cases:	396
Total SS:	2.231	Degrees of freedom:	----
R-squared:	0.042	Rbar-squared:	0.061
Residual SS:	2.138	Std error of est:	2.699
Durbin-Watson:	0.246		

Variable	Estimated Coefficient	Standard Error	t-ratio	Prob > t
CONST	0.21535870	0.01539398	13.990	0.0000
WL	-0.70150442	0.13902408	-5.046	0.0000
WK	-0.12456132	0.01469492	-8.476	0.0000
Y1	-0.05524677	0.01386599	-3.984	0.0001
Y2	0.05048280	0.01188188	4.249	0.0000
Y3	0.00523528	0.00924716	0.566	0.5716
TREND	0.00794496	0.00287843	2.760	0.0060

 Equation: 3
 Dependent variable: SK

OEB Gas - Final COS Model (final errata version).txt

Total cases:	396	Valid cases:	396
Total SS:	2.605	Degrees of freedom:	----
R-squared:	0.251	Rbar-squared:	0.266
Residual SS:	1.952	Std error of est:	3.173
Durbin-Watson:	0.159		

Variable	Estimated Coefficient	Standard Error	t-ratio	Prob > t
CONST	0.52182341	0.00623464	83.697	0.0000
WL	-0.12456132	0.01469492	-8.476	0.0000
WK	0.17508883	0.01595689	10.973	0.0000
Y1	-0.05645730	0.01145502	-4.929	0.0000
Y2	0.01754151	0.01043071	1.682	0.0934
Y3	0.04237063	0.01019408	4.156	0.0000
TREND	0.00652344	0.00094787	6.882	0.0000

Equation: 4
Dependent variable: SM

Valid cases:	396
Degrees of freedom:	----

Variable	Estimated Coefficient	Standard Error	t-ratio	Prob > t
CONST	0.26281790	0.01566194	16.781	0.0000
WL	0.82606574	0.14046612	5.881	0.0000
WK	-0.05052751	0.01450798	-3.483	0.0006
Y1	0.11170407	0.01135560	9.837	0.0000
Y2	-0.06802431	0.01010114	-6.734	0.0000
Y3	-0.04760591	0.00900908	-5.284	0.0000

MEASURES OF GOODNESS-OF-FIT

AN UNCENTERED SYSTEM R-SQUARE	0.976
A CENTERED SYSTEM R-SQUARE	0.979

The results from the test of the null hypothesis that all slope coefficients in all equations are simultaneously equal to zero.

Test statistic	Prob > t
1521.644	+DEN

VALIDATION OF REGULARITY CONDITIONS

Monotonicity of the Estimated Cost Function

The number of observations for which each of the following predicted cost share is nonpositive is listed below

Labor	Capital	Materials
0	0	0
(0.00 %)	(0.00 %)	(0.00 %)

Concavity of the Estimated Cost Function

OEB Gas - Final COS Model (final errata version).txt

The number of the observations for which the condition that the matrix of second order partial derivatives of the cost function with respect to input wages is negative semi-definite holds:

396 (100.00 %)

Quasi-Concavity of the Estimated Cost Function

The number of observations for which the condition that the cost function is strictly quasi-concave in input prices holds:

396 (100.00 %)

Second Order Condition for Cost Minimization

The number of the observations for which the condition that the bordered Hessian is negative definite holds:

396 (100.00 %)

RTS (sum of output elasticities) calculated at all data points

sum	yn	yv	ydm	utility
0.826	0.606	0.017	0.203	UNION GAS
0.851	0.549	0.104	0.199	Cascade Natural Gas
0.872	0.593	0.083	0.195	Niagra Mohawk
0.877	0.639	0.044	0.194	NICOR
0.878	0.565	0.131	0.183	Pg Energy (Penn Gas & Water)
0.880	0.616	0.060	0.204	ENBRIDGE
0.880	0.644	0.051	0.185	Consumers Power
0.880	0.530	0.149	0.202	Orange & Rockland Utilities
0.881	0.671	0.021	0.189	Pacific Gas & Electric
0.883	0.597	0.082	0.204	Peoples Gas Light
0.884	0.628	0.057	0.198	Public Service Electric & Gas
0.884	0.610	0.071	0.203	East Ohio Gas
0.886	0.674	0.018	0.194	SOUTHERN CALIFORNIA GAS
0.886	0.540	0.146	0.200	Connecticut Natural Gas
0.886	0.592	0.101	0.193	Northwest Natural Gas
0.887	0.602	0.097	0.188	Wisconsin Gas
0.888	0.504	0.179	0.206	Central Hudson Gas
0.889	0.593	0.082	0.214	Consolidated Edison
0.889	0.589	0.106	0.194	Alabama Gas
0.890	0.628	0.087	0.175	Questar (Mountain Fuel Supply)
0.890	0.558	0.145	0.188	Wisconsin Power & Light
0.890	0.535	0.152	0.204	North Shore Gas
0.892	0.592	0.111	0.190	Peco (Philadelphia Electric)
0.893	0.589	0.114	0.189	Illinois Power
0.893	0.550	0.148	0.196	Connecticut Energy
0.894	0.565	0.134	0.195	COMMONWEALTH GAS
0.894	0.645	0.071	0.178	Southwest Gas
0.894	0.648	0.065	0.181	Atlanta Gas Light
0.895	0.595	0.119	0.181	Public Service of North Carolina
0.896	0.585	0.121	0.190	People's Natural Gas
0.896	0.616	0.089	0.191	Washington Gas Light
0.896	0.607	0.102	0.188	BALTIMORE GAS & ELECTRIC CO
0.897	0.551	0.161	0.185	Madison Gas & Electric
0.897	0.592	0.108	0.196	Washington Natural Gas
0.898	0.589	0.127	0.182	Louisville Gas and Electric
0.899	0.569	0.133	0.196	Rochester Gas and Electric
0.900	0.607	0.100	0.194	SAN DIEGO GAS & ELECTRIC
0.904	0.571	0.130	0.204	new Jersey Natural Gas

Firm and Year-by-Year elasticities

ID	Year	YN	YV	YM	sum
1.00000	1994.00000	0.58718	0.10521	0.19734	0.88973
1.00000	1995.00000	0.59426	0.10199	0.19222	0.88847
1.00000	1996.00000	0.59240	0.09956	0.19367	0.88563
1.00000	1997.00000	0.59564	0.10012	0.19103	0.88679
1.00000	1998.00000	0.59487	0.10089	0.19070	0.88646
1.00000	1999.00000	0.59038	0.10381	0.19377	0.88796
1.00000	2000.00000	0.58926	0.10482	0.19411	0.88819
1.00000	2001.00000	0.58272	0.11205	0.19828	0.89305
1.00000	2002.00000	0.58881	0.10986	0.19257	0.89125
1.00000	2003.00000	0.58444	0.11278	0.19536	0.89257
1.00000	2004.00000	0.58309	0.11521	0.19552	0.89382
2.00000	1994.00000	0.64615	0.06444	0.18158	0.89217
2.00000	1995.00000	0.65222	0.06207	0.17844	0.89272
2.00000	1996.00000	0.64698	0.06063	0.18271	0.89031
2.00000	1997.00000	0.65125	0.06138	0.17961	0.89224
2.00000	1998.00000	0.65380	0.05765	0.17764	0.88908
2.00000	1999.00000	0.64932	0.06645	0.18099	0.89676
2.00000	2000.00000	0.64887	0.06167	0.18111	0.89165
2.00000	2001.00000	0.64258	0.07164	0.18530	0.89951
2.00000	2002.00000	0.64575	0.06970	0.18167	0.89712
2.00000	2003.00000	0.64344	0.07172	0.18295	0.89811
2.00000	2004.00000	0.64860	0.07216	0.17842	0.89919
3.00000	1994.00000	0.61520	0.09516	0.18191	0.89227
3.00000	1995.00000	0.61178	0.09601	0.18452	0.89231
3.00000	1996.00000	0.60767	0.09660	0.18774	0.89201
3.00000	1997.00000	0.61220	0.09315	0.18440	0.88975
3.00000	1998.00000	0.61349	0.10230	0.18293	0.89872
3.00000	1999.00000	0.60438	0.10187	0.18972	0.89598
3.00000	2000.00000	0.60320	0.10282	0.19033	0.89636
3.00000	2001.00000	0.59828	0.11148	0.19360	0.90337
3.00000	2002.00000	0.60311	0.10726	0.18930	0.89967
3.00000	2003.00000	0.59976	0.10814	0.19123	0.89914
3.00000	2004.00000	0.60308	0.10875	0.18827	0.90010
6.00000	1994.00000	0.55026	0.10626	0.19397	0.85049
6.00000	1995.00000	0.55064	0.10504	0.19522	0.85090
6.00000	1996.00000	0.55177	0.09948	0.19538	0.84662
6.00000	1997.00000	0.55645	0.10294	0.19276	0.85215
6.00000	1998.00000	0.55891	0.09918	0.19161	0.84970
6.00000	1999.00000	0.54871	0.09741	0.19893	0.84505
6.00000	2000.00000	0.53178	0.09956	0.21306	0.84440
6.00000	2001.00000	0.54417	0.09748	0.20368	0.84533
6.00000	2002.00000	0.54724	0.10945	0.20091	0.85760
6.00000	2003.00000	0.54811	0.11012	0.20013	0.85836
6.00000	2004.00000	0.54644	0.11414	0.20131	0.86188
7.00000	1994.00000	0.50287	0.17756	0.20714	0.88757
7.00000	1995.00000	0.50516	0.17049	0.20522	0.88087
7.00000	1996.00000	0.50342	0.17871	0.20646	0.88860
7.00000	1997.00000	0.50480	0.17118	0.20549	0.88146
7.00000	1998.00000	0.51016	0.17218	0.20087	0.88321
7.00000	1999.00000	0.50332	0.17100	0.20573	0.88005
7.00000	2000.00000	0.50445	0.17781	0.20462	0.88687
7.00000	2001.00000	0.49711	0.18685	0.21038	0.89433
7.00000	2002.00000	0.50329	0.18290	0.20497	0.89116
7.00000	2003.00000	0.50188	0.18788	0.20558	0.89534
7.00000	2004.00000	0.50333	0.18854	0.20417	0.89604
9.00000	1994.00000	0.57276	0.12826	0.19117	0.89220
9.00000	1995.00000	0.56823	0.12910	0.19437	0.89170
9.00000	1996.00000	0.56857	0.12875	0.19400	0.89133
9.00000	1997.00000	0.57114	0.13027	0.19197	0.89338
9.00000	1998.00000	0.57429	0.13243	0.18894	0.89565
9.00000	1999.00000	0.56718	0.13702	0.19388	0.89808
9.00000	2000.00000	0.55922	0.13469	0.19949	0.89339
9.00000	2001.00000	0.55702	0.14123	0.20088	0.89913
9.00000	2002.00000	0.56379	0.13670	0.19487	0.89536
9.00000	2003.00000	0.55580	0.13513	0.20009	0.89102
9.00000	2004.00000	0.56224	0.13566	0.19474	0.89263
10.00000	1994.00000	0.55321	0.14534	0.19464	0.89319

OEB Gas - Final COS Model (final errata version).txt

10.000000	1995.000000	0.55215	0.14844	0.19534	0.89593
10.000000	1996.000000	0.55153	0.14576	0.19580	0.89308
10.000000	1997.000000	0.55512	0.15006	0.19277	0.89795
10.000000	1998.000000	0.56074	0.15521	0.18775	0.90370
10.000000	1999.000000	0.53681	0.16046	0.20546	0.90273
10.000000	2000.000000	0.54640	0.15703	0.19847	0.90190
10.000000	2001.000000	0.54476	0.16177	0.19961	0.90614
10.000000	2002.000000	0.55192	0.13297	0.19347	0.87836
10.000000	2003.000000	0.54603	0.13883	0.19709	0.88195
10.000000	2004.000000	0.54608	0.12879	0.19639	0.87126
11.000000	1994.000000	0.54908	0.13148	0.19547	0.87603
11.000000	1995.000000	0.54563	0.12939	0.19776	0.87278
11.000000	1996.000000	0.54084	0.12989	0.20103	0.87175
11.000000	1997.000000	0.54028	0.14236	0.20122	0.88385
11.000000	1998.000000	0.54557	0.14300	0.19661	0.88517
11.000000	1999.000000	0.53948	0.14514	0.20095	0.88557
11.000000	2000.000000	0.53646	0.14717	0.20271	0.88633
11.000000	2001.000000	0.53297	0.15264	0.20507	0.89068
11.000000	2002.000000	0.54092	0.15610	0.19816	0.89518
11.000000	2003.000000	0.53465	0.16037	0.20246	0.89749
11.000000	2004.000000	0.53319	0.16679	0.20281	0.90279
12.000000	1994.000000	0.59559	0.08220	0.21455	0.89234
12.000000	1995.000000	0.59764	0.07805	0.21270	0.88840
12.000000	1996.000000	0.59496	0.08460	0.21432	0.89388
12.000000	1997.000000	0.59529	0.07597	0.21383	0.88509
12.000000	1998.000000	0.59701	0.07724	0.21179	0.88603
12.000000	1999.000000	0.59205	0.07793	0.21514	0.88512
12.000000	2000.000000	0.59380	0.08087	0.21309	0.88776
12.000000	2001.000000	0.58801	0.08608	0.21696	0.89105
12.000000	2002.000000	0.59185	0.08361	0.21292	0.88838
12.000000	2003.000000	0.58940	0.08970	0.21383	0.89293
12.000000	2004.000000	0.58857	0.08823	0.21342	0.89021
13.000000	1994.000000	0.64434	0.04602	0.18549	0.87585
13.000000	1995.000000	0.64367	0.04705	0.18626	0.87698
13.000000	1996.000000	0.64399	0.04386	0.18601	0.87387
13.000000	1997.000000	0.64737	0.04568	0.18338	0.87643
13.000000	1998.000000	0.64962	0.05208	0.18118	0.88288
13.000000	1999.000000	0.64223	0.05153	0.18678	0.88054
13.000000	2000.000000	0.64608	0.04869	0.18336	0.87812
13.000000	2001.000000	0.64239	0.05627	0.18606	0.88472
13.000000	2002.000000	0.64346	0.05594	0.18455	0.88396
13.000000	2003.000000	0.64079	0.05696	0.18554	0.88330
13.000000	2004.000000	0.64539	0.05663	0.18188	0.88390
15.000000	1994.000000	0.60307	0.06940	0.20904	0.88150
15.000000	1995.000000	0.60878	0.06642	0.20481	0.88001
15.000000	1996.000000	0.61962	0.06408	0.19820	0.88190
15.000000	1997.000000	0.61093	0.06625	0.20463	0.88181
15.000000	1998.000000	0.62328	0.06761	0.19361	0.88450
15.000000	1999.000000	0.61346	0.06908	0.20135	0.88390
15.000000	2000.000000	0.60629	0.07169	0.20644	0.88442
15.000000	2001.000000	0.60677	0.07748	0.20535	0.88960
15.000000	2002.000000	0.60513	0.07803	0.20516	0.88832
15.000000	2003.000000	0.60015	0.07676	0.20758	0.88449
15.000000	2004.000000	0.61046	0.07789	0.19933	0.88768
17.000000	1994.000000	0.59812	0.10865	0.18527	0.89204
17.000000	1995.000000	0.59936	0.10505	0.18406	0.88848
17.000000	1996.000000	0.59154	0.10454	0.18978	0.88587
17.000000	1997.000000	0.59272	0.10786	0.18841	0.88899
17.000000	1998.000000	0.59310	0.11297	0.18756	0.89363
17.000000	1999.000000	0.59016	0.11307	0.18925	0.89248
17.000000	2000.000000	0.58988	0.11383	0.18851	0.89222
17.000000	2001.000000	0.58273	0.11864	0.19360	0.89496
17.000000	2002.000000	0.58682	0.11912	0.18913	0.89507
17.000000	2003.000000	0.57939	0.12219	0.19291	0.89449
17.000000	2004.000000	0.57846	0.12668	0.19450	0.89965
21.000000	1994.000000	0.59063	0.08440	0.19831	0.87334
21.000000	1995.000000	0.59109	0.07348	0.19779	0.86236
21.000000	1996.000000	0.59359	0.07544	0.19592	0.86495
21.000000	1997.000000	0.59471	0.07352	0.19530	0.86353
21.000000	1998.000000	0.59818	0.08043	0.19204	0.87064
21.000000	1999.000000	0.59296	0.07981	0.19586	0.86862

OEB Gas - Final COS Model (final errata version).txt

21.000000	2000.000000	0.59486	0.07935	0.19392	0.86813
21.000000	2001.000000	0.59410	0.08458	0.19412	0.87280
21.000000	2002.000000	0.59966	0.08710	0.18895	0.87572
21.000000	2003.000000	0.58909	0.09640	0.19624	0.88172
21.000000	2004.000000	0.58882	0.10054	0.19583	0.88520
22.000000	1994.000000	0.53361	0.14682	0.20437	0.88480
22.000000	1995.000000	0.53901	0.14759	0.20090	0.88750
22.000000	1996.000000	0.53509	0.14436	0.20448	0.88394
22.000000	1997.000000	0.53872	0.14671	0.20182	0.88725
22.000000	1998.000000	0.54294	0.15262	0.19817	0.89374
22.000000	1999.000000	0.53591	0.15210	0.20361	0.89161
22.000000	2000.000000	0.53680	0.15187	0.20234	0.89100
22.000000	2001.000000	0.52991	0.15887	0.20728	0.89606
22.000000	2002.000000	0.53286	0.15527	0.20406	0.89219
22.000000	2003.000000	0.52729	0.15585	0.20712	0.89025
22.000000	2004.000000	0.52959	0.15750	0.20506	0.89215
23.000000	1994.000000	0.64005	0.04185	0.19429	0.87620
23.000000	1995.000000	0.64430	0.03945	0.19208	0.87583
23.000000	1996.000000	0.63986	0.03937	0.19493	0.87416
23.000000	1997.000000	0.64129	0.03757	0.19366	0.87252
23.000000	1998.000000	0.64716	0.03989	0.18867	0.87573
23.000000	1999.000000	0.63974	0.04302	0.19429	0.87705
23.000000	2000.000000	0.64534	0.03748	0.18950	0.87232
23.000000	2001.000000	0.63198	0.05178	0.19948	0.88324
23.000000	2002.000000	0.63629	0.04818	0.19543	0.87991
23.000000	2003.000000	0.63150	0.05300	0.19816	0.88266
23.000000	2004.000000	0.63196	0.05314	0.19772	0.88282
24.000000	1994.000000	0.58739	0.10138	0.19348	0.88225
24.000000	1995.000000	0.59072	0.10219	0.19211	0.88502
24.000000	1996.000000	0.59171	0.09936	0.19218	0.88325
24.000000	1997.000000	0.59908	0.09747	0.18759	0.88414
24.000000	1998.000000	0.60041	0.09459	0.18659	0.88160
24.000000	1999.000000	0.59254	0.09737	0.19321	0.88311
24.000000	2000.000000	0.59175	0.09568	0.19397	0.88140
24.000000	2001.000000	0.58741	0.09797	0.19745	0.88283
24.000000	2002.000000	0.59116	0.10747	0.19428	0.89292
24.000000	2003.000000	0.59533	0.11009	0.19327	0.89869
24.000000	2004.000000	0.58990	0.11031	0.19500	0.89521
26.000000	1994.000000	0.52644	0.13779	0.20596	0.87020
26.000000	1995.000000	0.52723	0.13225	0.20507	0.86455
26.000000	1996.000000	0.52139	0.14972	0.20937	0.88048
26.000000	1997.000000	0.53072	0.14056	0.20235	0.87362
26.000000	1998.000000	0.53597	0.13069	0.19802	0.86469
26.000000	1999.000000	0.52878	0.13936	0.20270	0.87084
26.000000	2000.000000	0.53241	0.15638	0.20029	0.88907
26.000000	2001.000000	0.52669	0.16311	0.20424	0.89404
26.000000	2002.000000	0.54540	0.15857	0.18937	0.89334
26.000000	2003.000000	0.52430	0.16313	0.20449	0.89193
26.000000	2004.000000	0.53144	0.16240	0.19868	0.89252
27.000000	1994.000000	0.66750	0.01482	0.19358	0.87590
27.000000	1995.000000	0.66747	0.01667	0.19373	0.87787
27.000000	1996.000000	0.67977	0.01299	0.18422	0.87698
27.000000	1997.000000	0.67201	0.01897	0.18973	0.88070
27.000000	1998.000000	0.67794	0.02059	0.18434	0.88287
27.000000	1999.000000	0.66898	0.02307	0.19080	0.88285
27.000000	2000.000000	0.66642	0.02159	0.19144	0.87945
27.000000	2001.000000	0.66374	0.02267	0.19373	0.88014
27.000000	2002.000000	0.67030	0.02693	0.18780	0.88503
27.000000	2003.000000	0.67395	0.02686	0.18402	0.88483
27.000000	2004.000000	0.67398	0.02434	0.18365	0.88197
28.000000	1994.000000	0.59003	0.10455	0.19104	0.88562
28.000000	1995.000000	0.59094	0.10159	0.19056	0.88309
28.000000	1996.000000	0.58980	0.10748	0.19168	0.88896
28.000000	1997.000000	0.59276	0.10934	0.18986	0.89196
28.000000	1998.000000	0.59984	0.11331	0.18435	0.89751
28.000000	1999.000000	0.58171	0.11516	0.19808	0.89495
28.000000	2000.000000	0.58804	0.11073	0.19287	0.89164
28.000000	2001.000000	0.58811	0.11601	0.19273	0.89685
28.000000	2002.000000	0.59557	0.11314	0.18662	0.89533
28.000000	2003.000000	0.59514	0.11309	0.18647	0.89470
28.000000	2004.000000	0.60002	0.11300	0.18249	0.89551

OEB Gas - Final COS Model (final errata version).txt

29.000000	1994.000000	0.59754	0.07462	0.20695	0.87912
29.000000	1995.000000	0.60251	0.07536	0.20292	0.88079
29.000000	1996.000000	0.59678	0.07254	0.20671	0.87603
29.000000	1997.000000	0.60367	0.07568	0.20116	0.88051
29.000000	1998.000000	0.61082	0.08041	0.19472	0.88596
29.000000	1999.000000	0.59988	0.08177	0.20269	0.88434
29.000000	2000.000000	0.59439	0.08381	0.20589	0.88409
29.000000	2001.000000	0.58927	0.09108	0.20946	0.88980
29.000000	2002.000000	0.59740	0.08444	0.20184	0.88368
29.000000	2003.000000	0.58891	0.08709	0.20629	0.88228
29.000000	2004.000000	0.58962	0.09377	0.20501	0.88839
30.000000	1994.000000	0.57938	0.11454	0.19624	0.89016
30.000000	1995.000000	0.58684	0.11231	0.19039	0.88955
30.000000	1996.000000	0.57793	0.11368	0.19692	0.88853
30.000000	1997.000000	0.58164	0.11970	0.19394	0.89528
30.000000	1998.000000	0.58622	0.12863	0.18978	0.90462
30.000000	1999.000000	0.58623	0.12400	0.18938	0.89961
30.000000	2000.000000	0.59083	0.12154	0.18532	0.89769
30.000000	2001.000000	0.58780	0.12725	0.18711	0.90215
30.000000	2002.000000	0.58846	0.12306	0.18543	0.89694
30.000000	2003.000000	0.58582	0.12072	0.18651	0.89305
30.000000	2004.000000	0.58813	0.12191	0.18401	0.89405
31.000000	1994.000000	0.55937	0.13197	0.18720	0.87854
31.000000	1995.000000	0.55972	0.13296	0.18703	0.87972
31.000000	1996.000000	0.56041	0.12992	0.18659	0.87692
31.000000	1997.000000	0.55959	0.13078	0.18739	0.87776
31.000000	1998.000000	0.56530	0.13200	0.18265	0.87995
31.000000	1999.000000	0.55485	0.13310	0.19087	0.87882
31.000000	2000.000000	0.56163	0.13009	0.18557	0.87730
31.000000	2001.000000	0.57094	0.13006	0.17807	0.87907
31.000000	2002.000000	0.57649	0.12756	0.17296	0.87700
31.000000	2003.000000	0.57295	0.12856	0.17485	0.87636
31.000000	2004.000000	0.57158	0.13203	0.17524	0.87886
34.000000	1994.000000	0.61559	0.05827	0.20886	0.88272
34.000000	1995.000000	0.61672	0.05730	0.20804	0.88206
34.000000	1996.000000	0.61802	0.05657	0.20671	0.88131
34.000000	1997.000000	0.61775	0.05596	0.20693	0.88064
34.000000	1998.000000	0.64437	0.05247	0.18694	0.88379
34.000000	1999.000000	0.63408	0.05087	0.19373	0.87868
34.000000	2000.000000	0.63603	0.05534	0.19235	0.88372
34.000000	2001.000000	0.63260	0.05990	0.19532	0.88782
34.000000	2002.000000	0.63371	0.05956	0.19310	0.88637
34.000000	2003.000000	0.62982	0.05853	0.19524	0.88359
34.000000	2004.000000	0.62942	0.06466	0.19506	0.88915
36.000000	1994.000000	0.58740	0.12110	0.18408	0.89258
36.000000	1995.000000	0.58814	0.11982	0.18453	0.89249
36.000000	1996.000000	0.58780	0.11603	0.18508	0.88891
36.000000	1997.000000	0.59295	0.11725	0.18223	0.89243
36.000000	1998.000000	0.59830	0.11850	0.17861	0.89541
36.000000	1999.000000	0.59284	0.11925	0.18367	0.89576
36.000000	2000.000000	0.59489	0.11440	0.18280	0.89208
36.000000	2001.000000	0.59641	0.12212	0.18162	0.90016
36.000000	2002.000000	0.60260	0.11761	0.17609	0.89630
36.000000	2003.000000	0.60034	0.11946	0.17802	0.89781
36.000000	2004.000000	0.60279	0.11939	0.17631	0.89848
37.000000	1994.000000	0.57028	0.13024	0.19713	0.89765
37.000000	1995.000000	0.56738	0.13159	0.19918	0.89816
37.000000	1996.000000	0.56675	0.12922	0.19954	0.89551
37.000000	1997.000000	0.57324	0.12890	0.19454	0.89667
37.000000	1998.000000	0.57966	0.13324	0.18923	0.90213
37.000000	1999.000000	0.56607	0.13452	0.19865	0.89924
37.000000	2000.000000	0.56694	0.13261	0.19771	0.89726
37.000000	2001.000000	0.56335	0.13875	0.20002	0.90212
37.000000	2002.000000	0.57766	0.13379	0.18831	0.89977
37.000000	2003.000000	0.56039	0.13790	0.20053	0.89882
37.000000	2004.000000	0.56831	0.13727	0.19395	0.89954
38.000000	1994.000000	0.59640	0.10238	0.20340	0.90218
38.000000	1995.000000	0.60544	0.10003	0.19667	0.90214
38.000000	1996.000000	0.60907	0.09839	0.19371	0.90117
38.000000	1997.000000	0.61170	0.09633	0.19146	0.89949
38.000000	1998.000000	0.61185	0.09365	0.19062	0.89612

OEB Gas - Final COS Model (final errata version).txt

38.000000	1999.000000	0.60732	0.09789	0.19412	0.89934
38.000000	2000.000000	0.60543	0.09553	0.19476	0.89572
38.000000	2001.000000	0.60034	0.09939	0.19816	0.89789
38.000000	2002.000000	0.61077	0.10266	0.18958	0.90300
38.000000	2003.000000	0.60304	0.10730	0.19467	0.90500
38.000000	2004.000000	0.61156	0.10118	0.18774	0.90048
40.000000	1994.000000	0.67023	0.01390	0.19887	0.88300
40.000000	1995.000000	0.67794	0.01613	0.19315	0.88722
40.000000	1996.000000	0.67891	0.01747	0.19204	0.88842
40.000000	1997.000000	0.67895	0.01676	0.19168	0.88740
40.000000	1998.000000	0.68350	0.01545	0.18737	0.88632
40.000000	1999.000000	0.67294	0.01765	0.19507	0.88566
40.000000	2000.000000	0.67240	0.01425	0.19482	0.88148
40.000000	2001.000000	0.66845	0.01515	0.19721	0.88081
40.000000	2002.000000	0.67090	0.02170	0.19457	0.88716
40.000000	2003.000000	0.67142	0.02541	0.19333	0.89016
40.000000	2004.000000	0.66911	0.02563	0.19455	0.88929
41.000000	1994.000000	0.63206	0.07600	0.18447	0.89253
41.000000	1995.000000	0.64747	0.07133	0.17380	0.89259
41.000000	1996.000000	0.64838	0.07298	0.17413	0.89548
41.000000	1997.000000	0.65332	0.07046	0.17135	0.89512
41.000000	1998.000000	0.65538	0.06832	0.16994	0.89364
41.000000	1999.000000	0.64698	0.07042	0.17699	0.89440
41.000000	2000.000000	0.64861	0.06522	0.17613	0.88997
41.000000	2001.000000	0.63643	0.07143	0.18658	0.89444
41.000000	2002.000000	0.64029	0.07142	0.18262	0.89432
41.000000	2003.000000	0.64067	0.07418	0.18232	0.89717
41.000000	2004.000000	0.64917	0.07259	0.17655	0.89832
42.000000	1994.000000	0.61377	0.08678	0.19123	0.89179
42.000000	1995.000000	0.61192	0.08910	0.19258	0.89361
42.000000	1996.000000	0.61258	0.08772	0.19276	0.89306
42.000000	1997.000000	0.61645	0.08731	0.19066	0.89442
42.000000	1998.000000	0.62316	0.09055	0.18526	0.89897
42.000000	1999.000000	0.61715	0.08949	0.19124	0.89788
42.000000	2000.000000	0.61227	0.08675	0.19379	0.89281
42.000000	2001.000000	0.61316	0.09288	0.19373	0.89976
42.000000	2002.000000	0.61976	0.08888	0.18873	0.89737
42.000000	2003.000000	0.61079	0.09247	0.19533	0.89860
42.000000	2004.000000	0.62917	0.08688	0.18147	0.89752
43.000000	1994.000000	0.59363	0.10622	0.19356	0.89341
43.000000	1995.000000	0.59497	0.10720	0.19348	0.89566
43.000000	1996.000000	0.59173	0.10387	0.19669	0.89229
43.000000	1997.000000	0.60081	0.10440	0.19022	0.89542
43.000000	1998.000000	0.59853	0.10637	0.19183	0.89673
43.000000	1999.000000	0.58960	0.10736	0.19909	0.89605
43.000000	2000.000000	0.58294	0.11094	0.20417	0.89804
43.000000	2001.000000	0.58602	0.10364	0.20180	0.89146
43.000000	2002.000000	0.59297	0.11224	0.19607	0.90127
43.000000	2003.000000	0.59264	0.11375	0.19603	0.90242
43.000000	2004.000000	0.59138	0.11578	0.19729	0.90444
44.000000	1994.000000	0.59684	0.09622	0.19236	0.88543
44.000000	1995.000000	0.60319	0.09146	0.18793	0.88259
44.000000	1996.000000	0.60213	0.09079	0.18868	0.88160
44.000000	1997.000000	0.60702	0.09185	0.18495	0.88381
44.000000	1998.000000	0.61231	0.09524	0.18029	0.88785
44.000000	1999.000000	0.60376	0.09607	0.18688	0.88672
44.000000	2000.000000	0.60309	0.09674	0.18676	0.88659
44.000000	2001.000000	0.59439	0.10436	0.19323	0.89198
44.000000	2002.000000	0.59873	0.10141	0.18911	0.88925
44.000000	2003.000000	0.59763	0.10149	0.18892	0.88803
44.000000	2004.000000	0.59847	0.10330	0.18813	0.88991
45.000000	1994.000000	0.56912	0.14159	0.17957	0.89028
45.000000	1995.000000	0.55948	0.14141	0.18650	0.88738
45.000000	1996.000000	0.55559	0.14009	0.18983	0.88551
45.000000	1997.000000	0.56049	0.14370	0.18635	0.89053
45.000000	1998.000000	0.57274	0.14548	0.17683	0.89505
45.000000	1999.000000	0.55915	0.14470	0.18727	0.89112
45.000000	2000.000000	0.56052	0.14336	0.18568	0.88957
45.000000	2001.000000	0.56311	0.14503	0.18373	0.89187
45.000000	2002.000000	0.55211	0.14489	0.19176	0.88876
45.000000	2003.000000	0.54136	0.14980	0.19868	0.88984

OEB Gas - Final COS Model (final errata version).txt

45.000000	2004.000000	0.54001	0.15006	0.19951	0.88958
46.000000	1994.000000	0.63216	0.08086	0.17030	0.88332
46.000000	1995.000000	0.62994	0.07998	0.17278	0.88270
46.000000	1996.000000	0.62866	0.08238	0.17425	0.88529
46.000000	1997.000000	0.63264	0.08215	0.17177	0.88656
46.000000	1998.000000	0.63390	0.08277	0.17048	0.88715
46.000000	1999.000000	0.62861	0.08706	0.17473	0.89040
46.000000	2000.000000	0.62588	0.08808	0.17711	0.89106
46.000000	2001.000000	0.62215	0.09037	0.18002	0.89255
46.000000	2002.000000	0.62336	0.09172	0.17800	0.89307
46.000000	2003.000000	0.62409	0.09744	0.17701	0.89853
46.000000	2004.000000	0.62185	0.09783	0.17861	0.89829
49.000000	1994.000000	0.56791	0.12926	0.20467	0.90184
49.000000	1995.000000	0.56672	0.12718	0.20607	0.89997
49.000000	1996.000000	0.56815	0.12616	0.20551	0.89983
49.000000	1997.000000	0.57348	0.12865	0.20225	0.90438
49.000000	1998.000000	0.57744	0.13169	0.19930	0.90842
49.000000	1999.000000	0.57171	0.13127	0.20387	0.90686
49.000000	2000.000000	0.57430	0.12773	0.20213	0.90416
49.000000	2001.000000	0.56798	0.13136	0.20692	0.90626
49.000000	2002.000000	0.57100	0.13230	0.20432	0.90762
49.000000	2003.000000	0.56798	0.13060	0.20625	0.90483
49.000000	2004.000000	0.57393	0.12957	0.20143	0.90493
53.000000	1994.000000	0.58919	0.12496	0.18262	0.89676
53.000000	1995.000000	0.58897	0.12267	0.18322	0.89485
53.000000	1996.000000	0.58931	0.12108	0.18299	0.89338
53.000000	1997.000000	0.59355	0.12190	0.17987	0.89532
53.000000	1998.000000	0.60464	0.12543	0.17134	0.90141
53.000000	1999.000000	0.59351	0.12395	0.17963	0.89709
53.000000	2000.000000	0.58493	0.12404	0.18573	0.89470
53.000000	2001.000000	0.57950	0.13504	0.18970	0.90424
53.000000	2002.000000	0.58670	0.12789	0.18376	0.89835
53.000000	2003.000000	0.58565	0.13147	0.18428	0.90140
53.000000	2004.000000	0.58614	0.13479	0.18353	0.90446
57.000000	1994.000000	0.55258	0.15907	0.18303	0.89468
57.000000	1995.000000	0.55403	0.15549	0.18256	0.89207
57.000000	1996.000000	0.55769	0.15501	0.17991	0.89261
57.000000	1997.000000	0.55860	0.15018	0.17921	0.88799
57.000000	1998.000000	0.56321	0.16019	0.17535	0.89874
57.000000	1999.000000	0.55351	0.16102	0.18297	0.89750
57.000000	2000.000000	0.54846	0.16325	0.18631	0.89802
57.000000	2001.000000	0.54512	0.16717	0.18912	0.90140
57.000000	2002.000000	0.54509	0.16501	0.18954	0.89965
57.000000	2003.000000	0.54110	0.16689	0.19217	0.90016
57.000000	2004.000000	0.54289	0.16880	0.19085	0.90253
58.000000	2000.000000	0.61460	0.05685	0.20491	0.87636
58.000000	2001.000000	0.61058	0.06026	0.20848	0.87932
58.000000	2002.000000	0.62021	0.05817	0.20083	0.87920
58.000000	2003.000000	0.61379	0.06123	0.20526	0.88028
58.000000	2004.000000	0.61596	0.06107	0.20398	0.88101
58.000000	2005.000000	0.61676	0.06106	0.20312	0.88094
58.000000	2006.000000	0.61883	0.06093	0.20242	0.88218
59.000000	2000.000000	0.60285	0.01518	0.20631	0.82434
59.000000	2001.000000	0.60446	0.01860	0.20520	0.82826
59.000000	2002.000000	0.60383	0.01502	0.20502	0.82386
59.000000	2003.000000	0.59952	0.02002	0.20748	0.82701
59.000000	2004.000000	0.61066	0.01604	0.19922	0.82592
59.000000	2005.000000	0.60747	0.01647	0.20121	0.82515
59.000000	2006.000000	0.60989	0.01968	0.19981	0.82937