

Residential Use Per Customer

Variable	Description	Definition
Res_UPC_AS	Historic residential Natural Gas Average Usage (Therms/cust)	from company records
XHeat	Residential Heating Statistically Adjusted End-use variable	HeatUse * NGHeating
XOther	Residential Other Statistically Adjusted End-use variable	OtherUse * OtherEqpIndex
Jan	Monthly seasonal variable for the month of January	= 1 if month is January, = 0 for all other months
Feb	Monthly seasonal variable for the month of February	= 1 if month is February, = 0 for all other months
Mar	Monthly seasonal variable for the month of March	= 1 if month is March, = 0 for all other months
Nov	Monthly seasonal variable for the month of November	= 1 if month is November, = 0 for all other months
Dec	Monthly seasonal variable for the month of December	= 1 if month is December, = 0 for all other months
Jan-06	Monthly variable for January 2006	= 1 if month is January and Year is 2006, 0 for all other months
MA(1)	First order moving average autoregressive error correction term	developed in regression
SMA(1)	First order seasonal moving average autoregressive error correction term	developed in regression
HeatUse	residential heating utilization variable	$HHSIZEIndex^{0.3} * HHIncomeIndex^{0.05} * NGPriceIndex^{-0.12} * BillingDays/30.5 * HDD_Index$
HDD_Index	Heating degree days indexed to 2015	$(0.75 * HDD + 0.25 * Lag(HDD, 1)) / HDD(2015)$
NGHeating	residential saturation/efficiency index for natural gas heating	from Itron, Inc. updated with PSCo customer saturations
OtherUse	residential water heating, cook and dryer utilization variable	$HHSIZEIndex^{0.6} * HHIncomeIndex^{0.05} * NGPriceIndex^{-0.12} * BillingDays/30.5$
	residential saturation/efficiency index for natural gas water heating	from Itron, Inc. updated with PSCo customer saturations
NGWHeat		from Itron, Inc. updated with PSCo customer saturations
NGCook	residential saturation/efficiency index for natural gas cooking	from Itron, Inc. updated with PSCo customer saturations
NGDryer	residential saturation/efficiency index for natural gas dryer	from Itron, Inc. updated with PSCo customer saturations
Population	Colorado Population (000)	from IHS Markit
Households	Colorado Households (000)	from IHS Markit
Household_Size	average population per household	population/households
Real_Personal_Income	Colorado personal income (\$million)	from IHS Markit
HH_Income	Income per household (000)	Real_Personal_Income/Households
NGPrice	natural gas price	from company records
HDD	actual and forecasted heating degree days	2004-May 2021 actual HDD, June 2021 and beyond are normal HDD
HH_Income	Income per household	Real_Personal_Income/Households
HHSIZEIndex	households indexed to July 2005	Households/Households(July, 2015)
HHIncomeIndex	household income indexed to July 2005	HH_Income/HH_Income(July, 2015)
NGPriceIndex	natural gas price indexed to July 2005	NGPrice/NGPrice(July,2015)
Billing_Days	average number of consumption days billed for statistically adjusted end-use	from company records
SAE		

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Variable	Coefficient	StdErr	T-Stat	P-Value	Units	Definition
XHeat	0.854	0.026	32.491	0.00%	Therm/cust	Residential Heating Component (Actual History with Normal Weather Forecast)
XOther	0.844	0.060	14.120	0.00%	Therm/cust	Residential NonHVAC Component (Actual History with Normal Weather Forecast)
Jan	3.310	0.268	12.339	0.00%		
Feb	2.755	0.222	12.410	0.00%		
Mar	1.645	0.203	8.109	0.00%		
Nov	1.307	0.158	8.262	0.00%		
Dec	2.506	0.210	11.908	0.00%		
Jan-06	-2.363	0.481	-4.914	0.00%		
MA(1)	0.234	0.071	3.286	0.12%		
SMA(1)	0.235	0.072	3.281	0.12%		

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Model Statistics		Forecast Statistics	
Iterations	18	Forecast Observations	0
Adjusted Observations	209	Mean Abs. Dev. (MAD)	0.00
Deg. of Freedom for Error	199	Mean Abs. % Err. (MAPE)	0.00%
R-Squared	0.989	Avg. Forecast Error	0.00
Adjusted R-Squared	0.989	Mean % Error	0.00%
AIC	-1.386	Root Mean-Square Error	0.00
BIC	-1.226	Theil's Inequality Coefficient	0.0000
F-Statistic		-- Bias Proportion	0.00%
Prob (F-Statistic)		-- Variance Proportion	0.00%
Log-Likelihood	-141.76	-- Covariance Proportion	0.00%
Model Sum of Squares	4,288.55		
Sum of Squared Errors	47.51		
Mean Squared Error	0.24		
Std. Error of Regression	0.49		
Mean Abs. Dev. (MAD)	0.38		
Mean Abs. % Err. (MAPE)	8.22%		
Durbin-Watson Statistic	1.961		
Durbin-H Statistic			
Ljung-Box Statistic	30.97		
Prob (Ljung-Box)	0.1548		
Skewness	-0.401		
Kurtosis	3.095		
Jarque-Bera	5.686		
Prob (Jarque-Bera)	0.0582		

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Line No.	Year	Month	Actual	Pred	Resid	%Resid	StdResid
1	2004	1	14.601	14.213	0.388	2.66%	0.794
2	2004	2	13.694	12.859	0.834	6.09%	1.707
3	2004	3	11.568	10.984	0.584	5.05%	1.195
4	2004	4	5.791	6.181	-0.391	-6.75%	-0.800
5	2004	5	5.556	6.148	-0.592	-10.65%	-1.211
6	2004	6	3.063	3.290	-0.227	-7.40%	-0.464
7	2004	7	2.141	1.852	0.288	13.46%	0.590
8	2004	8	1.917	1.503	0.414	21.61%	0.848
9	2004	9	2.225	1.793	0.432	19.43%	0.884
10	2004	10	3.473	3.181	0.293	8.43%	0.599
11	2004	11	6.584	6.254	0.330	5.02%	0.676
12	2004	12	12.111	11.638	0.473	3.91%	0.969
13	2005	1	14.679	15.172	-0.494	-3.36%	-1.010
14	2005	2	10.842	11.904	-1.062	-9.80%	-2.174
15	2005	3	10.830	10.596	0.234	2.16%	0.479
16	2005	4	8.156	7.670	0.486	5.96%	0.994
17	2005	5	5.612	5.790	-0.178	-3.18%	-0.365
18	2005	6	2.990	3.687	-0.697	-23.29%	-1.426
19	2005	7	1.838	1.548	0.290	15.77%	0.593
20	2005	8	1.904	1.530	0.374	19.66%	0.766
21	2005	9	1.857	1.636	0.222	11.94%	0.454
22	2005	10	3.082	2.920	0.163	5.28%	0.333
23	2005	11	5.575	6.042	-0.468	-8.39%	-0.957
24	2005	12	12.517	11.613	0.903	7.22%	1.848
25	2006	1	12.351	12.214	0.137	1.11%	0.280
26	2006	2	11.005	11.494	-0.488	-4.44%	-0.999
27	2006	3	11.932	12.065	-0.133	-1.12%	-0.273
28	2006	4	6.687	6.821	-0.134	-2.00%	-0.273
29	2006	5	4.149	5.010	-0.861	-20.76%	-1.763
30	2006	6	2.310	2.307	0.003	0.13%	0.006
31	2006	7	1.755	1.311	0.445	25.33%	0.910
32	2006	8	1.736	1.407	0.329	18.97%	0.674
33	2006	9	1.934	1.893	0.041	2.11%	0.083
34	2006	10	3.812	3.740	0.072	1.89%	0.147
35	2006	11	6.957	6.970	-0.012	-0.18%	-0.026
36	2006	12	9.960	11.004	-1.044	-10.49%	-2.137
37	2007	1	17.883	16.910	0.973	5.44%	1.990
38	2007	2	13.777	14.200	-0.423	-3.07%	-0.866

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39	2007	3	10.484	11.381	-0.897	-8.55%	-1.835
40	2007	4	6.568	6.445	0.122	1.86%	0.250
41	2007	5	4.905	5.188	-0.283	-5.78%	-0.580
42	2007	6	2.638	3.082	-0.444	-16.84%	-0.909
43	2007	7	1.847	1.564	0.282	15.28%	0.578
44	2007	8	1.768	1.367	0.401	22.65%	0.820
45	2007	9	1.602	1.367	0.235	14.68%	0.481
46	2007	10	3.017	2.961	0.055	1.84%	0.113
47	2007	11	5.441	5.922	-0.481	-8.84%	-0.984
48	2007	12	10.574	10.196	0.378	3.57%	0.773
49	2008	1	17.272	17.236	0.035	0.20%	0.072
50	2008	2	14.172	13.451	0.721	5.09%	1.476
51	2008	3	10.173	9.704	0.469	4.61%	0.961
52	2008	4	8.684	8.296	0.388	4.47%	0.795
53	2008	5	4.796	5.561	-0.764	-15.93%	-1.564
54	2008	6	2.654	3.044	-0.390	-14.68%	-0.797
55	2008	7	1.987	1.678	0.308	15.52%	0.631
56	2008	8	1.498	1.334	0.164	10.94%	0.335
57	2008	9	2.065	1.877	0.189	9.14%	0.386
58	2008	10	3.361	3.094	0.267	7.95%	0.547
59	2008	11	4.941	5.175	-0.233	-4.72%	-0.478
60	2008	12	11.453	10.748	0.704	6.15%	1.441
61	2009	1	14.532	14.649	-0.117	-0.80%	-0.239
62	2009	2	10.586	10.910	-0.324	-3.06%	-0.664
63	2009	3	9.051	9.433	-0.382	-4.22%	-0.782
64	2009	4	8.130	7.162	0.968	11.91%	1.981
65	2009	5	4.572	4.816	-0.245	-5.35%	-0.500
66	2009	6	2.586	2.945	-0.359	-13.87%	-0.734
67	2009	7	1.927	1.606	0.320	16.63%	0.656
68	2009	8	1.669	1.289	0.380	22.76%	0.777
69	2009	9	1.909	1.582	0.327	17.11%	0.668
70	2009	10	4.830	3.990	0.841	17.40%	1.720
71	2009	11	7.084	6.488	0.596	8.42%	1.220
72	2009	12	13.477	12.559	0.918	6.81%	1.879
73	2010	1	15.438	14.716	0.722	4.68%	1.477
74	2010	2	12.667	11.737	0.931	7.35%	1.905
75	2010	3	12.206	11.537	0.669	5.48%	1.368
76	2010	4	7.237	7.479	-0.242	-3.34%	-0.495

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77	2010	5	4.857	4.768	0.089	1.84%	0.182
78	2010	6	2.893	3.263	-0.370	-12.77%	-0.756
79	2010	7	1.790	1.521	0.270	15.06%	0.552
80	2010	8	1.622	1.289	0.334	20.56%	0.683
81	2010	9	1.655	1.475	0.180	10.88%	0.368
82	2010	10	2.259	2.233	0.026	1.16%	0.054
83	2010	11	5.429	5.664	-0.235	-4.32%	-0.480
84	2010	12	10.927	10.810	0.116	1.07%	0.238
85	2011	1	14.473	15.337	-0.864	-5.97%	-1.769
86	2011	2	13.145	12.415	0.729	5.55%	1.493
87	2011	3	10.783	11.783	-0.999	-9.27%	-2.045
88	2011	4	5.928	5.795	0.133	2.24%	0.272
89	2011	5	5.360	5.508	-0.149	-2.77%	-0.304
90	2011	6	3.208	3.674	-0.466	-14.51%	-0.953
91	2011	7	1.653	1.521	0.132	8.01%	0.271
92	2011	8	1.715	1.334	0.382	22.25%	0.781
93	2011	9	1.692	1.687	0.005	0.30%	0.010
94	2011	10	2.682	2.591	0.091	3.38%	0.186
95	2011	11	6.815	6.549	0.266	3.90%	0.544
96	2011	12	11.555	11.720	-0.164	-1.42%	-0.336
97	2012	1	14.107	14.909	-0.802	-5.68%	-1.641
98	2012	2	12.168	12.692	-0.523	-4.30%	-1.071
99	2012	3	10.066	10.490	-0.424	-4.22%	-0.869
100	2012	4	4.451	5.316	-0.865	-19.43%	-1.770
101	2012	5	3.259	3.867	-0.608	-18.65%	-1.244
102	2012	6	2.123	2.302	-0.180	-8.46%	-0.368
103	2012	7	1.599	1.406	0.193	12.09%	0.396
104	2012	8	1.633	1.383	0.250	15.29%	0.511
105	2012	9	1.476	1.406	0.069	4.70%	0.142
106	2012	10	3.583	3.668	-0.085	-2.37%	-0.174
107	2012	11	6.034	6.723	-0.689	-11.42%	-1.410
108	2012	12	9.161	9.752	-0.591	-6.45%	-1.210
109	2013	1	16.578	16.090	0.488	2.94%	0.999
110	2013	2	11.656	12.053	-0.397	-3.40%	-0.812
111	2013	3	11.158	10.199	0.958	8.59%	1.962
112	2013	4	9.130	9.373	-0.243	-2.66%	-0.497
113	2013	5	6.156	6.466	-0.310	-5.04%	-0.634
114	2013	6	2.213	2.899	-0.686	-31.00%	-1.404

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115	2013	7	1.784	1.443	0.341	19.09%	0.697
116	2013	8	1.605	1.357	0.248	15.45%	0.508
117	2013	9	1.577	1.452	0.125	7.93%	0.256
118	2013	10	3.771	3.685	0.086	2.29%	0.177
119	2013	11	6.581	6.148	0.433	6.58%	0.886
120	2013	12	12.000	11.813	0.187	1.56%	0.383
121	2014	1	15.341	15.883	-0.542	-3.53%	-1.109
122	2014	2	12.541	11.712	0.829	6.61%	1.696
123	2014	3	10.869	11.010	-0.141	-1.30%	-0.289
124	2014	4	7.385	7.019	0.366	4.96%	0.750
125	2014	5	4.392	4.744	-0.352	-8.01%	-0.720
126	2014	6	2.654	2.640	0.014	0.52%	0.028
127	2014	7	1.814	1.647	0.167	9.22%	0.342
128	2014	8	1.590	1.279	0.312	19.61%	0.638
129	2014	9	1.880	1.712	0.168	8.93%	0.344
130	2014	10	2.996	2.944	0.052	1.74%	0.107
131	2014	11	5.568	5.248	0.320	5.74%	0.654
132	2014	12	11.978	11.599	0.379	3.16%	0.775
133	2015	1	15.179	15.147	0.032	0.21%	0.065
134	2015	2	9.048	10.429	-1.381	-15.26%	-2.826
135	2015	3	11.530	10.575	0.955	8.29%	1.955
136	2015	4	5.452	6.702	-1.250	-22.93%	-2.559
137	2015	5	4.484	4.101	0.383	8.55%	0.784
138	2015	6	3.286	3.670	-0.384	-11.69%	-0.786
139	2015	7	1.797	1.689	0.107	5.98%	0.220
140	2015	8	1.565	1.251	0.314	20.06%	0.643
141	2015	9	1.593	1.481	0.112	7.04%	0.230
142	2015	10	2.201	2.146	0.055	2.48%	0.112
143	2015	11	4.956	5.207	-0.250	-5.05%	-0.512
144	2015	12	12.256	11.923	0.333	2.72%	0.681
145	2016	1	14.973	15.092	-0.120	-0.80%	-0.245
146	2016	2	11.292	11.630	-0.338	-2.99%	-0.692
147	2016	3	9.250	10.574	-1.324	-14.31%	-2.709
148	2016	4	6.908	6.118	0.790	11.43%	1.616
149	2016	5	5.145	5.764	-0.619	-12.03%	-1.267
150	2016	6	2.796	3.320	-0.524	-18.73%	-1.072
151	2016	7	1.562	1.332	0.230	14.74%	0.471
152	2016	8	1.648	1.357	0.292	17.69%	0.597

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153	2016	9	1.694	1.619	0.074	4.40%	0.152
154	2016	10	2.462	2.453	0.008	0.34%	0.017
155	2016	11	3.881	4.797	-0.916	-23.60%	-1.875
156	2016	12	10.433	10.692	-0.260	-2.49%	-0.531
157	2017	1	15.399	15.612	-0.213	-1.38%	-0.436
158	2017	2	10.038	10.698	-0.660	-6.57%	-1.350
159	2017	3	8.816	9.613	-0.797	-9.04%	-1.630
160	2017	4	5.108	5.239	-0.131	-2.56%	-0.268
161	2017	5	4.610	4.850	-0.239	-5.19%	-0.490
162	2017	6	2.867	3.152	-0.285	-9.95%	-0.584
163	2017	7	1.573	1.493	0.079	5.04%	0.162
164	2017	8	1.677	1.362	0.314	18.73%	0.643
165	2017	9	1.631	1.472	0.159	9.75%	0.325
166	2017	10	3.777	3.431	0.346	9.17%	0.708
167	2017	11	6.235	6.294	-0.059	-0.94%	-0.120
168	2017	12	8.515	9.590	-1.075	-12.63%	-2.200
169	2018	1	14.117	13.957	0.160	1.14%	0.328
170	2018	2	10.880	10.890	-0.010	-0.09%	-0.020
171	2018	3	11.129	11.034	0.095	0.85%	0.194
172	2018	4	6.633	6.969	-0.336	-5.07%	-0.688
173	2018	5	4.366	4.756	-0.390	-8.93%	-0.798
174	2018	6	2.000	2.286	-0.286	-14.32%	-0.586
175	2018	7	1.597	1.272	0.325	20.33%	0.664
176	2018	8	1.592	1.359	0.233	14.64%	0.477
177	2018	9	1.445	1.312	0.133	9.20%	0.272
178	2018	10	4.013	3.718	0.295	7.35%	0.604
179	2018	11	7.135	6.951	0.184	2.58%	0.377
180	2018	12	10.892	10.965	-0.073	-0.67%	-0.148
181	2019	1	14.234	14.337	-0.103	-0.72%	-0.210
182	2019	2	11.960	11.401	0.559	4.68%	1.144
183	2019	3	13.030	12.191	0.839	6.44%	1.716
184	2019	4	7.581	8.021	-0.440	-5.81%	-0.901
185	2019	5	5.126	5.424	-0.298	-5.82%	-0.610
186	2019	6	3.283	3.383	-0.100	-3.05%	-0.205
187	2019	7	1.896	1.961	-0.065	-3.41%	-0.132
188	2019	8	1.536	1.222	0.314	20.46%	0.643
189	2019	9	1.429	1.316	0.113	7.89%	0.231
190	2019	10	3.580	3.349	0.230	6.44%	0.471

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191	2019	11	7.954	7.040	0.914	11.49%	1.870
192	2019	12	12.005	13.026	-1.021	-8.51%	-2.090
193	2020	1	14.063	14.058	0.005	0.03%	0.009
194	2020	2	11.558	11.483	0.076	0.65%	0.155
195	2020	3	11.343	11.644	-0.302	-2.66%	-0.618
196	2020	4	7.448	7.676	-0.229	-3.07%	-0.468
197	2020	5	4.070	4.570	-0.500	-12.29%	-1.023
198	2020	6	2.521	2.714	-0.192	-7.63%	-0.394
199	2020	7	1.786	1.450	0.336	18.81%	0.688
200	2020	8	1.502	1.232	0.270	17.96%	0.552
201	2020	9	2.075	1.763	0.312	15.04%	0.639
202	2020	10	3.346	3.067	0.279	8.34%	0.571
203	2020	11	6.387	6.191	0.196	3.07%	0.401
204	2020	12	11.187	11.480	-0.293	-2.62%	-0.601
205	2021	1	13.366	13.169	0.197	1.47%	0.403
206	2021	2	11.934	11.256	0.677	5.68%	1.386
207	2021	3	13.142	12.687	0.456	3.47%	0.932
208	2021	4	8.006	7.933	0.072	0.90%	0.148
209	2021	5	5.197	4.850	0.347	6.68%	0.711
210	2021	6		3.282			
211	2021	7		1.566			
212	2021	8		1.212			
213	2021	9		1.483			
214	2021	10		2.720			
215	2021	11		6.120			
216	2021	12		11.319			
217	2022	1		14.463			
218	2022	2		11.418			
219	2022	3		12.242			
220	2022	4		6.876			
221	2022	5		5.054			
222	2022	6		3.268			
223	2022	7		1.432			
224	2022	8		1.176			
225	2022	9		1.410			
226	2022	10		2.759			
227	2022	11		6.350			
228	2022	12		11.859			

Commercial/Transport Sales

Variable	Description	Definition
CI_Trans_Sales	historical commercial and transport sales	from company records
XHeat	commercial heating SAE variable	Com_Heat * Heat_Use
XOther	commercial base SAE variable	Com_Base * Base_Use
XHeatJan	Commercial heating SAE variable for month of January	Heating * Jan
XHeatFeb	Commercial heating SAE variable for month of February	Heating * Feb
XHeatMar	Commercial heating SAE variable for month of March	Heating * Mar
XHeatApr	Commercial heating SAE variable for month of April	Heating * Apr
XHeatMay	Commercial heating SAE variable for month of May	Heating * May
XHeatSep	Commercial heating SAE variable for month of September	Heating * September
XHeatOct	Commercial heating SAE variable for month of October	Heating * Oct
XHeatNov	Commercial heating SAE variable for month of November	Heating * Nov
XHeatDec	Commercial heating SAE variable for month of December	Heating * Dec
Aft2019	Load change after 2019	= 1 if month is January 2019 forward, = 0 for all other months
Trend_1	Trend variable	Trend variable
Jun-19	Monthly variable for June 2019	= 1 if month is June and year is 2019, = 0 for all other months
Winter_Bin	Winter variable	= 1 if month is April, = 0 for all other months
SAR(1)	SAR(1)	First order seasonal autoregressive term
SAR(2)	SAR(2)	Second order seasonal autoregressive term
MAPrice	Weighted Average of Small and Large commercial rates	from company records and forecast model
Output	Commercial Gross State Product	from Global Insight, Inc.
HDD	actual and forecasted heating degree days	Actual HDD 2006 - May 2021, Normal HDD Jun 2021 forward
HDD_Index	indexed actual and forecasted heating degree days	(0.75 * HDD + 0.25 * Lag (HDD, 1)) / HDD(2013)
Com_Heat	residential saturation/efficiency index for electric heating	from Itron, Inc. updated with PSCo customer saturations
Com_Base	residential saturation/efficiency index for electric base uses	from Itron, Inc. updated with PSCo customer saturations
Heat_Use	residential heating utilization variable	(ComPrice_Index^-0.10) * (ComOutput_Index^0.55) * Billing_Days/30.5* HDD_Index
Base_Use	residential base utilization variable	(ComPrice_Index^-0.10) * (ComOutput_Index^0.55) * Billing_Days/30.5
ComPrice_Index	Commercial price indexed to July 2004	MAPrice/MAPrice(July, 2004)
ComOutput_Index	Commercial output indexed to July 2004	Output/Output(July, 2004)
Billing_Days	average number of consumption days billed for	from company records
SAE	statistically adjusted end-use	

Commercial/Transport Sales

Variable	Coefficient	StdErr	T-Stat	P-Value
XHeatJan	0.140	0.014	9.779	0.00%
XHeatFeb	0.147	0.013	11.571	0.00%
XHeatMar	0.159	0.012	13.057	0.00%
XHeatApr	0.142	0.011	13.374	0.00%
XHeatMay	0.118	0.014	8.172	0.00%
XHeatSep	0.226	0.079	2.837	0.52%
XHeatOct	0.100	0.019	5.176	0.00%
XHeatNov	0.164	0.015	10.851	0.00%
XHeatDec	0.146	0.013	11.043	0.00%
XOther	0.015	0.001	10.303	0.00%
Aft2019	200366.993	92383.766	2.169	3.17%
Trend_1	756924.974	127597.101	5.932	0.00%
Jun-19	1222175.115	285500.062	4.281	0.00%
Winter_Bin	1606741.825	794642.034	2.022	4.50%
SAR(1)	0.487	0.073	6.689	0.00%
SAR(2)	0.399	0.072	5.535	0.00%

Commercial/Transport Sales

Model Statistics

Iterations	30
Adjusted Observations	161
Deg. of Freedom for Error	145
R-Squared	0.991
Adjusted R-Squared	0.990
AIC	25.525
BIC	25.832
F-Statistic	
Prob (F-Statistic)	
Log-Likelihood	-2,267.25
Model Sum of Squares	1,744,984,493,375,900.00
Sum of Squared Errors	16,071,446,430,568.40
Mean Squared Error	110,837,561,590.13
Std. Error of Regression	332,922.76
Mean Abs. Dev. (MAD)	236,808.37
Mean Abs. % Err. (MAPE)	4.32%
Durbin-Watson Statistic	1.797
Durbin-H Statistic	
Ljung-Box Statistic	49.73
Prob (Ljung-Box)	0.0015
Skewness	-0.409
Kurtosis	4.637
Jarque-Bera	22.464
Prob (Jarque-Bera)	0.0000

Forecast Statistics

Forecast Observations	0
Mean Abs. Dev. (MAD)	0.00
Mean Abs. % Err. (MAPE)	0.00%
Avg. Forecast Error	0.00
Mean % Error	0.00%
Root Mean-Square Error	0.00
Theil's Inequality Coefficient	0.0000
-- Bias Proportion	0.00%
-- Variance Proportion	0.00%
-- Covariance Proportion	0.00%

I/Transport Sales

Line No.	Year	Month	Actual	Pred	Resid	%Resid	StdResid
1	2006	1	10,595,389.300				
2	2006	2	9,148,378.900				
3	2006	3	9,851,133.300				
4	2006	4	7,418,466.400				
5	2006	5	5,024,172.921				
6	2006	6	3,943,985.587				
7	2006	7	2,829,381.532				
8	2006	8	2,962,185.404				
9	2006	9	2,977,653.262				
10	2006	10	4,050,823.197				
11	2006	11	6,332,202.061				
12	2006	12	8,199,499.892				
13	2007	1	12,854,436.487				
14	2007	2	11,628,840.456				
15	2007	3	9,747,533.297				
16	2007	4	6,496,001.000				
17	2007	5	5,687,784.386				
18	2007	6	3,857,583.001				
19	2007	7	3,019,542.000				
20	2007	8	2,720,792.896				
21	2007	9	2,418,874.266				
22	2007	10	3,382,814.127				
23	2007	11	6,556,131.696				
24	2007	12	8,181,386.705				
25	2008	1	12,818,583.870	13032153.85	-213569.9831	-0.016660965	-0.641500105
26	2008	2	11,488,828.210	11185665.14	303163.0729	0.026387641	0.910610847
27	2008	3	9,274,850.511	9299523.201	-24672.69005	-0.002660171	-0.074109353
28	2008	4	8,095,450.000	7904406.172	191043.8283	0.023598914	0.5738383
29	2008	5	5,811,818.000	6009215.406	-197397.4065	-0.033964829	-0.592922541
30	2008	6	4,016,214.000	3777244.45	238969.55	0.059501199	0.717792778
31	2008	7	3,034,060.752	2912278.344	121782.408	0.040138421	0.365797789
32	2008	8	2,765,270.436	2801759.981	-36489.54544	-0.013195652	-0.109603639
33	2008	9	3,171,382.448	3047807.205	123575.2427	0.038965733	0.371182926
34	2008	10	3,487,739.457	3558578.488	-70839.03064	-0.020310872	-0.212779179
35	2008	11	5,198,402.509	5610044.735	-411642.2265	-0.079186293	-1.236449653
36	2008	12	8,523,084.586	8247770.336	275314.2503	0.032302184	0.826961345
37	2009	1	11,604,612.647	11420822.34	183790.3069	0.015837694	0.552050899
38	2009	2	9,366,713.683	9072493.314	294220.3687	0.03141127	0.883749648
39	2009	3	8,285,084.903	8223799.972	61284.93143	0.007397019	0.184081533
40	2009	4	7,302,752.022	7237316.295	65435.7268	0.00896042	0.196549276
41	2009	5	5,511,333.202	5414325.878	97007.32416	0.017601426	0.291380875
42	2009	6	3,681,899.844	3709551.756	-27651.91211	-0.007510229	-0.083058042
43	2009	7	2,959,110.809	2909890.397	49220.41157	0.016633514	0.147843338
44	2009	8	2,580,140.150	2669883.062	-89742.91193	-0.034782185	-0.269560762
45	2009	9	2,808,229.000	2630603.602	177625.3977	0.06325175	0.533533363
46	2009	10	3,939,862.767	4055801.004	-115938.2368	-0.029426973	-0.348243653
47	2009	11	6,620,933.066	6949116.457	-328183.3909	-0.049567544	-0.98576437
48	2009	12	9,582,906.473	9391271.382	191635.091	0.019997596	0.575614275

I/Transport Sales

Line No.	Year	Month	Actual	Pred	Resid	%Resid	StdResid
49	2010	1	12,458,329.321	12003680.96	454648.3617	0.036493526	1.365627171
50	2010	2	10,401,437.455	10400551.02	886.4341583	8.52223E-05	0.002662582
51	2010	3	10,132,255.351	10203929.56	-71674.20984	-0.007073865	-0.215287806
52	2010	4	7,256,301.478	7354613.508	-98312.03016	-0.013548504	-0.295299821
53	2010	5	5,323,771.032	5607648.115	-283877.0833	-0.053322557	-0.852681525
54	2010	6	4,068,471.211	3704212.574	364258.6368	0.089532067	1.094123577
55	2010	7	2,666,128.883	2963025.713	-296896.8301	-0.111358769	-0.891788935
56	2010	8	2,386,660.872	2693294.098	-306633.2262	-0.128477921	-0.921034145
57	2010	9	2,427,299.626	2648749.827	-221450.2011	-0.091233154	-0.665169914
58	2010	10	2,646,928.000	2973521.272	-326593.2718	-0.123385778	-0.980988129
59	2010	11	4,640,430.796	5458183.381	-817752.5853	-0.17622342	-2.456283237
60	2010	12	8,520,895.000	8913989.769	-393094.7689	-0.046133038	-1.18073866
61	2011	1	10,684,779.109	11990523.26	-1305744.154	-0.122206004	-3.922063392
62	2011	2	10,710,571.592	10882434.48	-171862.8913	-0.016046099	-0.516224524
63	2011	3	9,516,775.763	9927047.422	-410271.6586	-0.043110363	-1.232332879
64	2011	4	6,567,917.913	6551709.701	16208.21173	0.002467785	0.048684602
65	2011	5	5,432,041.100	5510813.179	-78772.0788	-0.014501378	-0.236607674
66	2011	6	4,363,901.371	3809932.638	553968.7331	0.126943459	1.663955746
67	2011	7	2,690,279.916	2833380.475	-143100.5592	-0.053191699	-0.429831114
68	2011	8	2,383,473.453	2532078.749	-148605.2961	-0.062348207	-0.446365691
69	2011	9	2,444,038.231	2819916.146	-375877.9152	-0.153793795	-1.129024401
70	2011	10	2,960,537.215	3119157.281	-158620.0663	-0.053578136	-0.476447054
71	2011	11	5,475,570.996	6084784.021	-609213.0246	-0.111260182	-1.829893011
72	2011	12	8,806,255.685	9459216.826	-652961.141	-0.07414742	-1.961299217
73	2012	1	11,177,521.980	10962738.39	214783.5852	0.019215671	0.645145402
74	2012	2	9,852,097.126	10358581.84	-506484.7099	-0.051408822	-1.521327997
75	2012	3	9,172,543.963	9247282.135	-74738.17197	-0.008148031	-0.224491029
76	2012	4	5,532,658.172	5613232.201	-80574.02863	-0.014563348	-0.24202019
77	2012	5	4,151,805.467	4169589.645	-17784.17766	-0.00428348	-0.05341833
78	2012	6	3,554,752.285	4060013.426	-505261.1409	-0.142136807	-1.517652763
79	2012	7	2,612,467.000	2690938.153	-78471.1526	-0.030037184	-0.235703782
80	2012	8	2,601,112.884	2439383.495	161729.3886	0.062176997	0.485786524
81	2012	9	2,623,549.226	2418115.93	205433.2956	0.07830358	0.617059939
82	2012	10	3,491,791.977	3452939.5	38852.47743	0.011126802	0.116701177
83	2012	11	5,720,911.479	5539424.832	181486.6475	0.03172338	0.545131398
84	2012	12	7,664,938.113	7735100.94	-70162.82719	-0.009153737	-0.210748067
85	2013	1	12,014,619.720	11889281.65	125338.0721	0.01043213	0.376477936
86	2013	2	10,517,047.703	10448832.23	68215.4721	0.006486181	0.204898797
87	2013	3	9,799,152.512	10201546.84	-402394.3255	-0.041064197	-1.208671735
88	2013	4	8,344,364.928	8753215.282	-408850.3537	-0.04899718	-1.228063706
89	2013	5	6,588,405.257	6359131.01	229274.2466	0.034799658	0.688670997
90	2013	6	3,770,481.307	3898664.992	-128183.6854	-0.033996637	-0.385025304
91	2013	7	2,755,820.919	2775579.641	-19758.72214	-0.007169814	-0.059349269
92	2013	8	2,576,844.357	2641713.548	-64869.19133	-0.025173888	-0.194847574
93	2013	9	2,272,887.800	2549179.209	-276291.4094	-0.121559634	-0.829896438
94	2013	10	3,357,078.711	3682381.619	-325302.9078	-0.096900059	-0.977112263
95	2013	11	5,953,728.102	6003397.838	-49669.73552	-0.008342627	-0.149192972
96	2013	12	9,236,366.524	9443692.88	-207326.3563	-0.022446744	-0.622746125

I/Transport Sales

Line No.	Year	Month	Actual	Pred	Resid	%Resid	StdResid
97	2014	1	12,086,333.600	12089621.52	-3287.923918	-0.000272037	-0.009875936
98	2014	2	10,866,455.782	11008537.38	-142081.6017	-0.013075248	-0.426770472
99	2014	3	9,808,371.734	9988748.387	-180376.6532	-0.018390071	-0.541797308
100	2014	4	7,458,577.298	7121552.707	337024.5913	0.045186177	1.012320681
101	2014	5	5,258,798.526	5294801.782	-36003.25633	-0.006846289	-0.108142972
102	2014	6	3,962,931.820	3593836.173	369095.647	0.093137017	1.108652503
103	2014	7	2,921,911.898	2718429.271	203482.6272	0.069640234	0.611200717
104	2014	8	2,630,018.769	2620356.536	9662.232535	0.003673826	0.029022445
105	2014	9	2,817,598.901	2762457.168	55141.73297	0.019570469	0.16562921
106	2014	10	3,399,998.096	3107052.862	292945.2338	0.086160411	0.879919526
107	2014	11	5,028,616.400	5069508.701	-40892.3006	-0.008131919	-0.122828193
108	2014	12	9,839,698.000	8925766.268	913931.732	0.092882092	2.745176516
109	2015	1	11,918,092.848	11960210.37	-42117.52029	-0.003533914	-0.126508385
110	2015	2	9,306,179.009	9242853.431	63325.57848	0.006804681	0.190211024
111	2015	3	9,841,643.600	9742975.386	98668.21443	0.010025583	0.296369691
112	2015	4	6,434,978.374	6615148.555	-180170.1805	-0.027998568	-0.541177126
113	2015	5	5,313,915.603	5258796.55	55119.05306	0.010372587	0.165561086
114	2015	6	4,579,880.594	3742618.363	837262.2308	0.182813113	2.514884354
115	2015	7	2,904,100.900	2838732.744	65368.15586	0.022508913	0.196346314
116	2015	8	2,753,680.000	2635563.195	118116.8048	0.042894165	0.354787417
117	2015	9	2,837,560.400	2474005.771	363554.6293	0.128122252	1.09200895
118	2015	10	3,039,899.800	2829284.923	210614.8775	0.069283493	0.632623855
119	2015	11	4,770,506.219	4781271.961	-10765.74224	-0.00225673	-0.032337057
120	2015	12	9,725,647.704	9781872.769	-56225.06523	-0.005781113	-0.168883214
121	2016	1	12,209,450.000	12157265.94	52184.05725	0.004274071	0.15674524
122	2016	2	10,602,670.300	10513377.74	89292.55696	0.008421705	0.268208031
123	2016	3	8,705,979.300	9141738.892	-435759.5916	-0.050052909	-1.308890977
124	2016	4	7,628,753.557	7126995.901	501757.6562	0.065771905	1.507129347
125	2016	5	5,965,916.911	5943405.986	22510.92517	0.003773255	0.06761606
126	2016	6	4,353,828.929	4200411.948	153416.9814	0.035237255	0.460818549
127	2016	7	2,923,336.800	2969882.583	-46545.78342	-0.015922142	-0.139809558
128	2016	8	2,879,358.433	2780024.543	99333.89042	0.034498619	0.298369182
129	2016	9	3,060,319.722	3011501.214	48818.50816	0.015952094	0.146636141
130	2016	10	3,361,686.700	3358305.615	3381.084972	0.00100577	0.010155764
131	2016	11	4,631,703.081	4290518.455	341184.6265	0.073662888	1.024816178
132	2016	12	8,577,985.472	9475316.679	-897331.2068	-0.104608618	-2.695313523
133	2017	1	12,667,084.000	12196468.64	470615.3631	0.03715262	1.413587249
134	2017	2	10,647,960.800	10004289.5	643671.3034	0.060450195	1.933395334
135	2017	3	8,446,795.700	8616844.081	-170048.3813	-0.020131703	-0.510774281
136	2017	4	6,466,150.100	6301162.781	164987.3187	0.025515541	0.495572368
137	2017	5	5,871,527.875	5354952.746	516575.1289	0.087979678	1.551636586
138	2017	6	4,662,510.664	4299917.289	362593.3745	0.077767838	1.089121629
139	2017	7	3,013,933.414	2928953.439	84979.97513	0.028195704	0.25525433
140	2017	8	2,937,645.784	2843566.287	94079.49698	0.032025473	0.282586562
141	2017	9	3,042,726.700	3002790.835	39935.86497	0.013125025	0.119955348
142	2017	10	4,044,761.056	3904862.185	139898.8709	0.034587673	0.420214204
143	2017	11	6,406,689.136	6221961.596	184727.5404	0.028833542	0.554866067
144	2017	12	8,022,289.382	7989929.107	32360.27489	0.004033796	0.09720055

I/Transport Sales

Line No.	Year	Month	Actual	Pred	Resid	%Resid	StdResid
145	2018	1	11,600,338.094	11341543.55	258794.5392	0.022309224	0.777341093
146	2018	2	10,593,900.500	10559692.09	34208.41379	0.003229067	0.102751804
147	2018	3	10,635,272.020	10006568.23	628703.7911	0.05911497	1.888437421
148	2018	4	7,522,724.551	7820104.549	-297379.998	-0.03953089	-0.893240226
149	2018	5	5,966,381.600	5548588.334	417793.2663	0.070024563	1.25492553
150	2018	6	3,975,141.786	4352341.229	-377199.443	-0.094889557	-1.132993873
151	2018	7	3,156,048.500	2980960.658	175087.8419	0.055476917	0.525911307
152	2018	8	3,058,213.200	2926647.247	131565.9529	0.04302053	0.39518462
153	2018	9	3,097,634.100	2903178.862	194455.2377	0.062775406	0.584085149
154	2018	10	4,197,316.902	4049518.042	147798.8596	0.0352127	0.443943398
155	2018	11	6,954,828.267	6944275.809	10552.45785	0.001517285	0.031696415
156	2018	12	9,882,664.776	9341709.267	540955.5088	0.054737818	1.624867927
157	2019	1	12,391,059.145	11966056.18	425002.9673	0.034299164	1.276581307
158	2019	2	11,799,930.675	11414240.3	385690.3753	0.032685817	1.158498084
159	2019	3	11,967,303.700	11943043.92	24259.7804	0.002027172	0.072869096
160	2019	4	8,904,881.900	8409506.892	495375.0077	0.055629599	1.487957788
161	2019	5	6,343,388.581	6626891.346	-283502.7645	-0.044692637	-0.851557183
162	2019	6	5,337,686.374	5576888.27	-239201.8958	-0.044813779	-0.718490675
163	2019	7	3,541,226.612	3302618.232	238608.38	0.06738015	0.716707932
164	2019	8	3,045,389.500	3227440.646	-182051.1464	-0.059779265	-0.546826983
165	2019	9	3,255,216.971	3181286.156	73930.81527	0.022711486	0.222065971
166	2019	10	3,815,869.400	4202244.18	-386374.7797	-0.101254718	-1.16055383
167	2019	11	8,058,747.400	7748250.032	310497.3684	0.038529235	0.932640868
168	2019	12	10,542,117.620	10865960.35	-323842.7271	-0.030718945	-0.972726319
169	2020	1	12,614,105.201	12172044.11	442061.0868	0.035044982	1.327818776
170	2020	2	11,239,451.277	11496996.61	-257545.3301	-0.022914404	-0.773588844
171	2020	3	11,403,750.209	11053322.36	350427.8538	0.030729177	1.052580057
172	2020	4	8,147,128.324	8505889.907	-358761.5826	-0.044035342	-1.077612076
173	2020	5	5,539,447.114	6138570.749	-599123.6345	-0.108155854	-1.799587512
174	2020	6	3,607,358.600	4098864.416	-491505.8159	-0.136250889	-1.476335897
175	2020	7	3,161,886.999	3496505.791	-334618.7917	-0.105828827	-1.005094381
176	2020	8	3,254,555.800	3220307.829	34247.9709	0.010523086	0.102870622
177	2020	9	3,899,266.685	3862795.185	36471.49982	0.009353425	0.109549435
178	2020	10	4,283,058.148	3956212.971	326845.177	0.07631117	0.981744777
179	2020	11	7,358,353.300	7438355.739	-80002.43876	-0.010872329	-0.240303305
180	2020	12	10,447,274.597	10629513.01	-182238.4124	-0.017443632	-0.547389474
181	2021	1	12,517,247.800	12866633.21	-349385.4091	-0.027912319	-1.049448867
182	2021	2	12,235,551.860	12224974.18	10577.67573	0.000864503	0.031772162
183	2021	3	12,821,903.400	12914716.71	-92813.30806	-0.007238653	-0.27878331
184	2021	4	9,653,095.476	9425978.656	227116.8195	0.023527875	0.682190734
185	2021	5	7,292,582.502	6796948.864	495633.6381	0.067964077	1.488734636
186	2021	6		3797308.981			
187	2021	7		3343785.129			
188	2021	8		3183268.329			
189	2021	9		3535894.513			
190	2021	10		3963243.096			
191	2021	11		6678782.927			
192	2021	12		9737291.3			

I/Transport Sales

Line No.	Year	Month	Actual	Pred	Resid	%Resid	StdResid
193	2022	1		13719444.4			
194	2022	2		12315661.18			
195	2022	3		12613831.13			
196	2022	4		8562077.976			
197	2022	5		6318480.95			
198	2022	6		3638997.596			
199	2022	7		3239791.544			
200	2022	8		3198206.156			
201	2022	9		3584516.712			
202	2022	10		4235261.407			
203	2022	11		7366482.563			
204	2022	12		10934703.17			