Kentucky Power Company
Residential

The ARIMA Procedure

Name of Variable = USAGE

Period(s) of Differencing	12
Mean of Working Series	2.274218
Standard Deviation	172.4329
Number of Observations	109
Observation(s) eliminated by differencing	12

Autocorrelations

```
Lag    Covariance    Correlation    -1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1      Std Error

  0     29733.101        1.00000    |                    |********************|              0
  1      9335.176        0.31397    |                .   |******              |       0.095783
  2      1646.567        0.05538    |                .   |*  .                |       0.104800
  3      2251.777        0.07573    |                .   |** .                |       0.105068
  4      4642.237        0.15613    |                .   |***.                |       0.105568
  5       621.963        0.02092    |                .   |   .                |       0.107665
  6      -935.501        -.03146    |                .  *|   .                |       0.107703
  7     -2209.961        -.07433    |                .  *|   .                |       0.107787
  8     -3763.915        -.12659    |                .***|   .                |       0.108256
  9       356.627        0.01199    |                .   |   .                |       0.109606
 10      1900.096        0.06391    |                .   |*  .                |       0.109618
 11      -583.931        -.01964    |                .   |   .                |       0.109959
 12    -11870.324        -.39923    |            ********|   .                |       0.109991
 13     -2787.527        -.09375    |               .  **|    .               |       0.122566
 14     -2916.556        -.09809    |               .  **|    .               |       0.123223
 15     -1909.771        -.06423    |               .   *|    .               |       0.123937
 16     -5013.498        -.16862    |               . ***|    .               |       0.124242
 17     -1158.454        -.03896    |               .   *|    .               |       0.126324
 18      -106.569        -.00358    |               .    |    .               |       0.126434
 19      1633.965        0.05495    |               .    |*   .               |       0.126435
 20       847.675        0.02851    |               .    |*   .               |       0.126654
 21      -112.475        -.00378    |               .    |    .               |       0.126713
 22     33.150811        0.00111    |               .    |    .               |       0.126714
 23     -1881.792        -.06329    |               .   *|    .               |       0.126714
 24      -827.054        -.02782    |               .   *|    .               |       0.127004
```

"." marks two standard errors

Kentucky Power Company
Residential

The ARIMA Procedure

Inverse Autocorrelations

```
Lag    Correlation    -1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1

  1       -0.55881    |          ***********|   .                |
  2        0.37500    |                  .  |*******             |
  3       -0.36124    |              *******|   .                |
  4        0.27746    |                  .  |******              |
  5       -0.24514    |               *****|   .                |
  6        0.25785    |                  .  |*****               |
  7       -0.23004    |               *****|   .                |
  8        0.29498    |                  .  |******              |
  9       -0.27452    |               *****|   .                |
 10        0.22985    |                  .  |*****               |
 11       -0.35143    |              *******|   .                |
 12        0.49983    |                  .  |**********          |
 13       -0.27663    |              ******|   .                |
 14        0.21064    |                  .  |****                |
 15       -0.18165    |                ****|   .                |
 16        0.16447    |                  .  |***.                |
 17       -0.11119    |                  . **|   .                |
 18        0.11084    |                  .  |** .                |
 19       -0.11005    |                  . **|   .                |
 20        0.11466    |                  .  |** .                |
 21       -0.10165    |                  . **|   .                |
 22        0.06057    |                  .  |*  .                |
 23       -0.08399    |                  . **|   .                |
 24        0.11792    |                  .  |** .                |
```

Partial Autocorrelations

```
Lag    Correlation    -1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1

  1        0.31397    |                  .  |******              |
  2       -0.04792    |                  .  *|   .                |
  3        0.08068    |                  .  |** .                |
  4        0.12279    |                  .  |** .                |
  5       -0.07422    |                  .  *|   .                |
  6       -0.01845    |                  .  |   .                |
  7       -0.07966    |                  . **|   .                |
  8       -0.11301    |                  . **|   .                |
  9        0.10937    |                  .  |** .                |
 10        0.04672    |                  .  |*  .                |
 11       -0.03230    |                  .  *|   .                |
 12       -0.41613    |            ********|   .                |
 13        0.16726    |                  .  |***.                |
 14       -0.19277    |                ****|   .                |
 15        0.08869    |                  .  |** .                |
 16       -0.10465    |                  . **|   .                |
```

Kentucky Power Company
Residential

The ARIMA Procedure

Partial Autocorrelations

```
Lag    Correlation    -1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1

 17        0.08084    |                .   |** .                |
 18       -0.01810    |                .   |   .                |
 19        0.03690    |                .   |*  .                |
 20       -0.11311    |                . **|   .                |
 21        0.07819    |                .   |** .                |
 22       -0.02124    |                .   |   .                |
 23       -0.05211    |                .  *|   .                |
 24       -0.24723    |               *****|   .                |
```

Autocorrelation Check for White Noise

To Lag	Chi-Square	DF	Pr > ChiSq	Autocorrelations						
6	15.02	6	0.0201	0.314	0.055	0.076	0.156	0.021	-0.031
12	38.04	12	0.0002	-0.074	-0.127	0.012	0.064	-0.020	-0.399
18	44.80	18	0.0004	-0.094	-0.098	-0.064	-0.169	-0.039	-0.004
24	46.00	24	0.0044	0.055	0.029	-0.004	0.001	-0.063	-0.028

Variable bcdd65 has been differenced.

Correlation of USAGE and bcdd65

Period(s) of Differencing	12
Variance of input =	1934.094
Number of Observations	109
Observation(s) eliminated by differencing	12

Crosscorrelations

```
Lag    Covariance    Correlation    -1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1

-24       180.046        0.02000    |                .   |   .                |
-23       238.324        0.02648    |                .   |*  .                |
-22       883.283        0.09812    |                .   |** .                |
-21      1186.951        0.13186    |                .   |***.                |
-20      1098.347        0.12201    |                .   |** .                |
-19       926.798        0.10296    |                .   |** .                |
-18       909.938        0.10108    |                .   |** .                |
-17       393.902        0.04376    |                .   |*  .                |
-16      -804.755        -.08940    |                . **|   .                |
-15      -521.334        -.05791    |                .  *|   .                |
-14      -849.344        -.09435    |                . **|   .                |
```

Kentucky Power Company
Residential

The ARIMA Procedure

Crosscorrelations

```
Lag    Covariance    Correlation    -1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1

-13     -1057.401        -.11747    |                 . **|   .                |
-12     -1153.722        -.12817    |                .***|   .                |
-11      -778.718        -.08651    |                . **|   .                |
-10     -1420.750        -.15783    |                .***|   .                |
 -9     -2284.682        -.25380    |               *****|   .                |
 -8     -1004.923        -.11164    |                . **|   .                |
 -7       478.767        0.05319    |                .   |*  .                |
 -6      -634.807        -.07052    |                .  *|   .                |
 -5       695.838        0.07730    |                .   |** .                |
 -4      1260.189        0.13999    |                .   |***.                |
 -3       328.050        0.03644    |                .   |*  .                |
 -2       652.484        0.07248    |                .   |*  .                |
 -1      1922.806        0.21360    |                .   |****                |
  0      3006.490        0.33399    |                .   |*******             |
  1      1420.732        0.15783    |                .   |***.                |
  2      1172.176        0.13022    |                .   |***.                |
  3      1936.762        0.21515    |                .   |****                |
  4       811.723        0.09017    |                .   |** .                |
  5      -569.946        -.06331    |                .  *|   .                |
  6      -446.411        -.04959    |                .  *|   .                |
  7     -2091.567        -.23235    |               *****|   .                |
  8     -1785.407        -.19834    |                ****|   .                |
  9      -228.501        -.02538    |                .  *|   .                |
 10      -283.393        -.03148    |                .  *|   .                |
 11     -1147.725        -.12750    |                .***|   .                |
 12     -1235.005        -.13720    |                .***|   .                |
 13      -140.698        -.01563    |                .   |   .                |
 14       299.685        0.03329    |                .   |*  .                |
 15      -303.430        -.03371    |                .  *|   .                |
 16     -1143.502        -.12703    |                .***|   .                |
 17     -1707.223        -.18965    |                ****|   .                |
 18     -1017.829        -.11307    |                . **|   .                |
 19       786.495        0.08737    |                .   |** .                |
 20     85.275620        0.00947    |                .   |   .                |
 21     -1095.277        -.12167    |                . **|   .                |
 22      -672.143        -.07467    |                .  *|   .                |
 23    -16.336833        -.00181    |                .   |   .                |
 24    -63.895646        -.00710    |                .   |   .                |
```

"." marks two standard errors

Variable bhdd55 has been differenced.

Kentucky Power Company
Residential

The ARIMA Procedure

Correlation of USAGE and bhdd55

Period(s) of Differencing	12
Variance of input =	6123.297
Number of Observations	109
Observation(s) eliminated by differencing	12

Crosscorrelations

```
Lag    Covariance    Correlation    -1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1

-24       156.565        0.00983    |                .   |   .                |
-23     -1112.654        -.06989    |                .  *|   .                |
-22      -183.610        -.01153    |                .   |   .                |
-21     -1075.940        -.06758    |                .  *|   .                |
-20     -1272.659        -.07994    |                . **|   .                |
-19    -38.126739        -.00239    |                .   |   .                |
-18      -894.351        -.05617    |                .  *|   .                |
-17     -1432.151        -.08995    |                . **|   .                |
-16     -3047.287        -.19140    |               ****|   .                |
-15      -643.495        -.04042    |                .  *|   .                |
-14     -1176.873        -.07392    |                .  *|   .                |
-13      -853.323        -.05360    |                .  *|   .                |
-12     -5859.973        -.36806    |             *******|   .                |
-11      -400.991        -.02519    |                .  *|   .                |
-10      1162.699        0.07303    |                .   |*  .                |
 -9      1670.849        0.10495    |                .   |** .                |
 -8      -234.268        -.01471    |                .   |   .                |
 -7     -1092.680        -.06863    |                .  *|   .                |
 -6      -433.917        -.02725    |                .  *|   .                |
 -5      -383.152        -.02407    |                .   |   .                |
 -4      2207.795        0.13867    |                .   |***.                |
 -3      2027.053        0.12732    |                .   |***.                |
 -2       402.333        0.02527    |                .   |*  .                |
 -1      3015.448        0.18940    |                .   |****                |
  0     13785.790        0.86588    |                .   |****************    |
  1      5078.620        0.31899    |                .   |******              |
  2       396.292        0.02489    |                .   |   .                |
  3      -331.368        -.02081    |                .   |   .                |
  4      1611.938        0.10125    |                .   |** .                |
  5     62.167551        0.00390    |                .   |   .                |
  6      -664.947        -.04176    |                .  *|   .                |
  7    -24.136017        -.00152    |                .   |   .                |
  8     -1285.849        -.08076    |                . **|   .                |
  9     -1696.289        -.10654    |                . **|   .                |
 10       149.539        0.00939    |                .   |   .                |
 11       970.737        0.06097    |                .   |*  .                |
 12     -5341.692        -.33551    |             *******|   .                |
 13     -2266.181        -.14234    |                .***|   .                |
```

Kentucky Power Company
Residential

The ARIMA Procedure

Crosscorrelations

```
Lag    Covariance    Correlation    -1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1

 14     -1791.999        -.11255    |                 . **|   .                |
 15      -787.011        -.04943    |                 .  *|   .                |
 16     -1662.083        -.10439    |                 . **|   .                |
 17      1519.776        0.09546    |                 .   |** .                |
 18      1657.806        0.10413    |                 .   |** .                |
 19      1134.484        0.07126    |                 .   |*  .                |
 20       670.653        0.04212    |                 .   |*  .                |
 21      1556.107        0.09774    |                 .   |** .                |
 22      1213.039        0.07619    |                 .   |** .                |
 23      -937.796        -.05890    |                 .  *|   .                |
 24      -563.593        -.03540    |                 .  *|   .                |
```

"." marks two standard errors

Variable MET_DAYS has been differenced.

Correlation of USAGE and MET_DAYS

Period(s) of Differencing	12
Variance of input =	0.154603
Number of Observations	109
Observation(s) eliminated by differencing	12

Crosscorrelations

```
Lag    Covariance    Correlation    -1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1

-24      2.160098        0.02695    |                 .   |*  .                |
-23      6.702310        0.08362    |                 .   |** .                |
-22     -4.298336        -.05363    |                 .  *|   .                |
-21     -8.021587        -.10008    |                 . **|   .                |
-20      6.263289        0.07814    |                 .   |** .                |
-19      9.509032        0.11863    |                 .   |** .                |
-18     -1.507745        -.01881    |                 .   |   .                |
-17      1.994441        0.02488    |                 .   |   .                |
-16     14.358569        0.17914    |                 .   |****                |
-15     -3.406550        -.04250    |                 .  *|   .                |
-14      4.454823        0.05558    |                 .   |*  .                |
-13     -0.173336        -.00216    |                 .   |   .                |
-12    -10.192593        -.12716    |                 .***|   .                |
-11     -2.113924        -.02637    |                 .  *|   .                |
-10     12.400127        0.15470    |                 .   |***.                |
 -9     14.499959        0.18090    |                 .   |****                |
 -8    -10.945589        -.13656    |                 .***|   .                |
```

Kentucky Power Company
Residential

The ARIMA Procedure

Crosscorrelations

Lag	Covariance	Correlation	-1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1
-7	-17.487146	-.21817	| **** | . |
-6	1.718471	0.02144	| . | . |
-5	6.646792	0.08292	| . | ** . |
-4	-10.233152	-.12767	| .*** | . |
-3	-18.963409	-.23659	| ***** | . |
-2	3.254532	0.04060	| . | * . |
-1	9.929201	0.12388	| . | ** . |
0	11.317267	0.14119	| . | ***. |
1	2.280859	0.02846	| . | * . |
2	-9.422822	-.11756	| . ** | . |
3	-4.666204	-.05822	| . * | . |
4	3.751886	0.04681	| . | * . |
5	15.765397	0.19669	| . | **** |
6	-3.384062	-.04222	| . * | . |
7	-16.650296	-.20773	| **** | . |
8	-2.922292	-.03646	| . * | . |
9	21.970625	0.27410	| . | ***** |
10	-3.567776	-.04451	| . * | . |
11	-16.498677	-.20584	| **** | . |
12	7.001028	0.08734	| . | ** . |
13	8.011936	0.09996	| . | ** . |
14	1.012083	0.01263	| . | . |
15	-0.640985	-.00800	| . | . |
16	-9.139441	-.11402	| . ** | . |
17	-12.933702	-.16136	| .*** | . |
18	2.131814	0.02660	| . | * . |
19	9.966722	0.12434	| . | ** . |
20	6.794157	0.08476	| . | ** . |
21	-9.064803	-.11309	| . ** | . |
22	1.300242	0.01622	| . | . |
23	14.162774	0.17669	| . | **** |
24	-6.473905	-.08077	| . ** | . |

"." marks two standard errors

Kentucky Power Company
Residential

The ARIMA Procedure

Conditional Least Squares Estimation

Parameter	Estimate	Standard Error	t Value	Approx Pr > |t|	Lag	Variable	Shift
MU	-5.08874	3.38720	-1.50	0.1361	0	USAGE	0
MA1,1	-0.22288	0.10099	-2.21	0.0296	1	USAGE	0
AR1,1	-0.46543	0.10731	-4.34	<.0001	12	USAGE	0
AR1,2	-0.25810	0.10879	-2.37	0.0195	24	USAGE	0
NUM1	1.23942	0.10873	11.40	<.0001	0	bcdd65	0
NUM2	1.61262	0.06052	26.65	<.0001	0	bhdd55	0
NUM3	47.39798	11.14735	4.25	<.0001	0	MET_DAYS	0

Constant Estimate	-8.77058
Variance Estimate	2229.584
Std Error Estimate	47.21847
AIC	1156.437
SBC	1175.276
Number of Residuals	109

* AIC and SBC do not include log determinant.

Correlations of Parameter Estimates

Variable	Parameter	USAGE MU	USAGE MA1,1	USAGE AR1,1	USAGE AR1,2	bcdd65 NUM1	bhdd55 NUM2	MET_DAYS NUM3
USAGE	MU	1.000	-0.014	-0.003	-0.015	-0.006	-0.013	-0.028
USAGE	MA1,1	-0.014	1.000	0.104	0.078	-0.071	-0.111	-0.005
USAGE	AR1,1	-0.003	0.104	1.000	0.343	-0.010	0.176	0.143
USAGE	AR1,2	-0.015	0.078	0.343	1.000	-0.005	-0.055	0.124
bcdd65	NUM1	-0.006	-0.071	-0.010	-0.005	1.000	0.041	-0.028
bhdd55	NUM2	-0.013	-0.111	0.176	-0.055	0.041	1.000	0.029
MET_DAYS	NUM3	-0.028	-0.005	0.143	0.124	-0.028	0.029	1.000

Autocorrelation Check of Residuals

To Lag	Chi-Square	DF	Pr > ChiSq	Autocorrelations					
6	2.02	3	0.5675	0.020	0.081	-0.033	0.074	0.063	0.010
12	7.75	9	0.5592	-0.029	0.023	0.079	0.129	0.144	-0.041
18	9.22	15	0.8656	0.033	-0.003	0.023	0.086	0.046	-0.015
24	14.19	21	0.8614	0.070	0.055	0.110	-0.097	-0.015	-0.080

Kentucky Power Company
Residential

The ARIMA Procedure

Autocorrelation Plot of Residuals

Lag	Covariance	Correlation	-1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1	Std Error
0	2229.584	1.00000	|********************|	0
1	45.516215	0.02041	| . | . |	0.095783
2	181.380	0.08135	| . |** . |	0.095823
3	-74.136753	-.03325	| . *| . |	0.096454
4	165.231	0.07411	| . |* . |	0.096559
5	139.918	0.06276	| . |* . |	0.097080
6	22.012898	0.00987	| . | . |	0.097451
7	-64.625109	-.02899	| . *| . |	0.097460
8	50.517192	0.02266	| . | . |	0.097539
9	175.913	0.07890	| . |** . |	0.097588
10	287.519	0.12896	| . |***. |	0.098171
11	322.043	0.14444	| . |***. |	0.099713
12	-90.787318	-.04072	| . *| . |	0.101614
13	73.856935	0.03313	| . |* . |	0.101764
14	-6.446394	-.00289	| . | . |	0.101863
15	52.068972	0.02335	| . | . |	0.101864
16	190.808	0.08558	| . |** . |	0.101913
17	102.510	0.04598	| . |* . |	0.102570
18	-33.358871	-.01496	| . | . |	0.102759
19	156.028	0.06998	| . |* . |	0.102779
20	121.882	0.05467	| . |* . |	0.103215
21	244.732	0.10977	| . |** . |	0.103480
22	-216.267	-.09700	| . **| . |	0.104543
23	-33.707670	-.01512	| . | . |	0.105366
24	-177.513	-.07962	| . **| . |	0.105385

"." marks two standard errors

Inverse Autocorrelations

Lag	Correlation	-1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1
1	0.00624	| . | . |
2	-0.05623	| . *| . |
3	0.02502	| . |* . |
4	-0.06956	| . *| . |
5	-0.04511	| . *| . |
6	0.04727	| . |* . |
7	0.04770	| . |* . |
8	-0.01284	| . | . |
9	-0.03999	| . *| . |
10	-0.08947	| . **| . |
11	-0.13217	| .***| . |
12	0.05638	| . |* . |
13	-0.04957	| . *| . |

Kentucky Power Company
Residential

The ARIMA Procedure

Inverse Autocorrelations

Lag	Correlation	-1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1
14	-0.00620	| . | . |
15	0.02914	| . |* . |
16	-0.07372	| . *| . |
17	-0.04492	| . *| . |
18	0.01762	| . | . |
19	-0.03651	| . *| . |
20	-0.04107	| . *| . |
21	-0.04996	| . *| . |
22	0.09419	| . |** . |
23	0.01069	| . | . |
24	0.07488	| . |* . |

Partial Autocorrelations

Lag	Correlation	-1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1
1	0.02041	| . | . |
2	0.08097	| . |** . |
3	-0.03669	| . *| . |
4	0.06951	| . |* . |
5	0.06604	| . |* . |
6	-0.00559	| . | . |
7	-0.03451	| . *| . |
8	0.02389	| . | . |
9	0.07552	| . |** . |
10	0.11814	| . |** . |
11	0.13952	| . |***. |
12	-0.05753	| . *| . |
13	0.00847	| . | . |
14	-0.01278	| . | . |
15	-0.01636	| . | . |
16	0.08958	| . |** . |
17	0.05871	| . |* . |
18	-0.03166	| . *| . |
19	0.04578	| . |* . |
20	0.01844	| . | . |
21	0.05757	| . |* . |
22	-0.11501	| . **| . |
23	-0.01235	| . | . |
24	-0.08168	| . **| . |

Kentucky Power Company
Residential

The ARIMA Procedure

Model for variable USAGE

Estimated Intercept	-5.08874
Period(s) of Differencing	12

Autoregressive Factors

Factor 1: 1 + 0.46543 B**(12) + 0.2581 B**(24)

Moving Average Factors

Factor 1: 1 + 0.22288 B**(1)

Input Number 1

Input Variable	bcdd65
Period(s) of Differencing	12
Overall Regression Factor	1.239423

Input Number 2

Input Variable	bhdd55
Period(s) of Differencing	12
Overall Regression Factor	1.612625

Input Number 3

Input Variable	MET_DAYS
Period(s) of Differencing	12
Overall Regression Factor	47.39798

Outlier Detection Summary

Maximum number searched	3
Number found	3
Significance used	0.05

Kentucky Power Company
Residential

The ARIMA Procedure

Outlier Details

Obs	Time ID	Type	Estimate	Chi-Square	Approx Prob> ChiSq
36	DEC2006	Additive	138.79564	16.77	<.0001
86	FEB2011	Shift	-46.56502	15.04	0.0001
109	JAN2013	Additive	-98.62952	9.23	0.0024

Forecasts for variable USAGE

Obs	Forecast	Std Error	95% Confidence Limits	
122	1938.1794	47.2185	1845.6329	2030.7259
123	1629.6353	48.3770	1534.8180	1724.4526
124	1240.5395	48.3770	1145.7222	1335.3568
125	940.5955	48.3770	845.7783	1035.4128
126	1040.7739	48.3770	945.9566	1135.5911
127	1255.0296	48.3770	1160.2124	1349.8469
128	1305.1736	48.3770	1210.3564	1399.9909
129	1191.1348	48.3770	1096.3176	1285.9521
130	933.8912	48.3770	839.0740	1028.7085
131	1091.8304	48.3770	997.0132	1186.6477
132	1697.2597	48.3770	1602.4424	1792.0770
133	2174.4227	48.3770	2079.6054	2269.2399
134	1927.4858	54.5663	1820.5379	2034.4338
135	1616.6277	54.8555	1509.1129	1724.1426
136	1227.7628	54.8555	1120.2480	1335.2777
137	939.4875	54.8555	831.9727	1047.0024
138	1036.3600	54.8555	928.8451	1143.8748
139	1248.8760	54.8555	1141.3611	1356.3908
140	1298.8480	54.8555	1191.3332	1406.3629
141	1183.5852	54.8555	1076.0703	1291.1001
142	929.7990	54.8555	822.2842	1037.3139
143	1081.1460	54.8555	973.6311	1188.6608
144	1695.7173	54.8555	1588.2025	1803.2322
145	2158.6824	54.8555	2051.1675	2266.1973
146	1922.2524	59.5923	1805.4536	2039.0512
147	1621.6165	59.8178	1504.3757	1738.8574
148	1232.4131	59.8178	1115.1723	1349.6539
149	934.4059	59.8178	817.1651	1051.6467
150	1023.2713	59.8178	906.0305	1140.5121
151	1240.6085	59.8178	1123.3677	1357.8493
152	1288.5766	59.8178	1171.3358	1405.8174
153	1177.2406	59.8178	1059.9998	1294.4814
154	921.7441	59.8178	804.5033	1038.9850
155	1076.4823	59.8178	959.2415	1193.7231
156	1684.1196	59.8178	1566.8788	1801.3604
157	2173.0784	59.8178	2055.8376	2290.3193

Kentucky Power Company
Commercial

The ARIMA Procedure

Name of Variable = USAGE

Period(s) of Differencing	12
Mean of Working Series	-28.9015
Standard Deviation	203.6039
Number of Observations	109
Observation(s) eliminated by differencing	12

Autocorrelations

Lag	Covariance	Correlation	-1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1	Std Error
0	41454.539	1.00000	| |********** |	0
1	18781.503	0.45306	| . |********* |	0.095783
2	6238.455	0.15049	| . |*** . |	0.113757
3	3686.738	0.08893	| . |** . |	0.115569
4	5169.572	0.12470	| . |** . |	0.116195
5	3867.116	0.09329	| . |** . |	0.117417
6	-57.814562	-.00139	| . | . |	0.118095
7	-3295.094	-.07949	| . **| . |	0.118095
8	-4800.576	-.11580	| . **| . |	0.118585
9	1941.438	0.04683	| . |* . |	0.119618
10	1978.450	0.04773	| . |* . |	0.119786
11	-4046.239	-.09761	| . **| . |	0.119960
12	-14492.114	-.34959	| *******| . |	0.120686
13	-5300.778	-.12787	| . ***| . |	0.129644
14	-2646.466	-.06384	| . *| . |	0.130796
15	-982.680	-.02370	| . | . |	0.131082
16	372.827	0.00899	| . | . |	0.131121
17	1033.590	0.02493	| . | . |	0.131127
18	3587.507	0.08654	| . |** . |	0.131170
19	5766.232	0.13910	| . |*** . |	0.131693
20	5080.487	0.12256	| . |** . |	0.133034
21	-1308.433	-.03156	| . *| . |	0.134066
22	-1610.203	-.03884	| . *| . |	0.134134
23	-670.298	-.01617	| . | . |	0.134237
24	-951.411	-.02295	| . | . |	0.134255

"." marks two standard errors

Kentucky Power Company
Commercial

The ARIMA Procedure

Inverse Autocorrelations

```
Lag    Correlation    -1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1

  1       -0.50923    |          **********|   .                |
  2        0.20915    |                 .  |****                |
  3       -0.17758    |                 ****|   .                |
  4        0.14252    |                 .  |***.                |
  5       -0.18118    |                 ****|   .                |
  6        0.15920    |                 .  |***.                |
  7       -0.17058    |                 .***|   .                |
  8        0.19484    |                 .  |****                |
  9       -0.17928    |                 ****|   .                |
 10        0.13340    |                 .  |***.                |
 11       -0.27824    |              ******|   .                |
 12        0.43632    |                 .  |*********           |
 13       -0.22738    |               *****|   .                |
 14        0.13144    |                 .  |***.                |
 15       -0.07273    |                 .  *|   .                |
 16        0.03898    |                 .  |*  .                |
 17       -0.05693    |                 .  *|   .                |
 18        0.04792    |                 .  |*  .                |
 19       -0.07416    |                 .  *|   .                |
 20        0.03413    |                 .  |*  .                |
 21       -0.02229    |                 .  |   .                |
 22        0.03554    |                 .  |*  .                |
 23       -0.07727    |                 . **|   .                |
 24        0.09386    |                 .  |** .                |
```

Partial Autocorrelations

```
Lag    Correlation    -1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1

  1        0.45306    |                 .  |*********           |
  2       -0.06892    |                 .  *|   .                |
  3        0.05978    |                 .  |*  .                |
  4        0.08744    |                 .  |** .                |
  5       -0.00155    |                 .  |   .                |
  6       -0.06319    |                 .  *|   .                |
  7       -0.07230    |                 .  *|   .                |
  8       -0.07174    |                 .  *|   .                |
  9        0.16194    |                 .  |***.                |
 10       -0.03517    |                 .  *|   .                |
 11       -0.13108    |                 .***|   .                |
 12       -0.31268    |              ******|   .                |
 13        0.21422    |                 .  |****                |
 14       -0.11239    |                 . **|   .                |
 15        0.08427    |                 .  |** .                |
 16        0.06559    |                 .  |*  .                |
```

Kentucky Power Company
Commercial

The ARIMA Procedure

Partial Autocorrelations

Lag	Correlation	-1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1
17	0.06570	| . |* . |
18	0.02493	| . | . |
19	0.04363	| . |* . |
20	-0.05872	| . *| . |
21	-0.01062	| . | . |
22	-0.01868	| . | . |
23	-0.03983	| . *| . |
24	-0.16710	| .***| . |

Autocorrelation Check for White Noise

To Lag	Chi-Square	DF	Pr > ChiSq	Autocorrelations					
6	29.26	6	<.0001	0.453	0.150	0.089	0.125	0.093	-0.001
12	48.58	12	<.0001	-0.079	-0.116	0.047	0.048	-0.098	-0.350
18	52.32	18	<.0001	-0.128	-0.064	-0.024	0.009	0.025	0.087
24	57.42	24	0.0001	0.139	0.123	-0.032	-0.039	-0.016	-0.023

Variable bcdd65 has been differenced.

Correlation of USAGE and bcdd65

Period(s) of Differencing	12
Variance of input =	1934.094
Number of Observations	109
Observation(s) eliminated by differencing	12

Crosscorrelations

Lag	Covariance	Correlation	-1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1
-24	1048.061	0.09860	| . |** . |
-23	1060.891	0.09981	| . |** . |
-22	1470.977	0.13839	| . |***. |
-21	1387.907	0.13058	| . |***. |
-20	1513.828	0.14242	| . |***. |
-19	1133.129	0.10661	| . |** . |
-18	953.751	0.08973	| . |** . |
-17	628.146	0.05910	| . |* . |
-16	-388.274	-.03653	| . *| . |
-15	-937.784	-.08823	| . **| . |
-14	-1016.112	-.09560	| . **| . |

Kentucky Power Company
Commercial

The ARIMA Procedure

Crosscorrelations

```
Lag    Covariance    Correlation    -1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1

-13     -1950.589        -.18351    |                 ****|   .                |
-12     -2618.691        -.24637    |                *****|   .                |
-11     -2424.255        -.22808    |                *****|   .                |
-10     -2572.486        -.24202    |                *****|   .                |
 -9     -2936.347        -.27626    |               ******|   .                |
 -8     -1508.520        -.14192    |                 .***|   .                |
 -7       502.278        0.04726    |                 .   |*  .                |
 -6     89.806350        0.00845    |                 .   |   .                |
 -5      1211.059        0.11394    |                 .   |** .                |
 -4      1417.036        0.13332    |                 .   |***.                |
 -3       584.535        0.05499    |                 .   |*  .                |
 -2       695.868        0.06547    |                 .   |*  .                |
 -1      3144.687        0.29586    |                 .   |******              |
  0      5349.995        0.50334    |                 .   |**********          |
  1      3318.065        0.31217    |                 .   |******              |
  2      2080.282        0.19572    |                 .   |****                |
  3      2117.779        0.19924    |                 .   |****                |
  4       791.248        0.07444    |                 .   |*  .                |
  5      -973.320        -.09157    |                 . **|   .                |
  6     -1514.550        -.14249    |                 .***|   .                |
  7     -3103.931        -.29202    |               ******|   .                |
  8     -2872.333        -.27023    |                *****|   .                |
  9      -723.486        -.06807    |                  .  *|   .                |
 10      -530.330        -.04989    |                  .  *|   .                |
 11     -1806.380        -.16995    |                 .***|   .                |
 12     -2423.388        -.22800    |                *****|   .                |
 13      -728.335        -.06852    |                  .  *|   .                |
 14      -434.041        -.04084    |                  .  *|   .                |
 15      -535.499        -.05038    |                  .  *|   .                |
 16     -1179.269        -.11095    |                  . **|   .                |
 17     -1599.437        -.15048    |                 .***|   .                |
 18      -476.178        -.04480    |                  .  *|   .                |
 19      1718.716        0.16170    |                  .   |***.                |
 20      1492.556        0.14042    |                  .   |***.                |
 21      -682.681        -.06423    |                  .  *|   .                |
 22     -1100.966        -.10358    |                  . **|   .                |
 23      -598.720        -.05633    |                  .  *|   .                |
 24      -459.763        -.04326    |                  .  *|   .                |

                    "." marks two standard errors

                Variable bhdd55 has been differenced.
```

Kentucky Power Company
Commercial

The ARIMA Procedure

Correlation of USAGE and bhdd55

Period(s) of Differencing	12
Variance of input =	6123.297
Number of Observations	109
Observation(s) eliminated by differencing	12

Crosscorrelations

Lag	Covariance	Correlation	-1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1
-24	-637.775	-.03393	| . *| . |
-23	-1170.812	-.06228	| . *| . |
-22	-1592.947	-.08473	| . **| . |
-21	-3179.790	-.16914	| .***| . |
-20	-1339.951	-.07128	| . *| . |
-19	771.942	0.04106	| . |* . |
-18	-794.217	-.04225	| . *| . |
-17	-2853.832	-.15181	| .***| . |
-16	-3394.054	-.18054	| ****| . |
-15	-812.603	-.04323	| . *| . |
-14	-855.887	-.04553	| . *| . |
-13	-434.198	-.02310	| . | . |
-12	-4865.591	-.25882	| *****| . |
-11	-1252.666	-.06663	| . *| . |
-10	1402.202	0.07459	| . |* . |
-9	2959.288	0.15742	| . |***. |
-8	-245.390	-.01305	| . | . |
-7	-2359.608	-.12552	| .***| . |
-6	-1327.303	-.07060	| . *| . |
-5	-150.255	-.00799	| . | . |
-4	1608.165	0.08554	| . |** . |
-3	2369.736	0.12605	| . |***. |
-2	830.136	0.04416	| . |* . |
-1	3316.226	0.17640	| . |**** |
0	12790.541	0.68038	| . |********** |
1	5993.798	0.31883	| . |****** |
2	914.011	0.04862	| . |* . |
3	-683.277	-.03635	| . *| . |
4	1352.798	0.07196	| . |* . |
5	731.922	0.03893	| . |* . |
6	228.483	0.01215	| . | . |
7	518.767	0.02760	| . |* . |
8	-37.705252	-.00201	| . | . |
9	-1679.650	-.08935	| . **| . |
10	276.686	0.01472	| . | . |
11	866.135	0.04607	| . |* . |
12	-4245.425	-.22583	| *****| . |
13	-2258.495	-.12014	| . **| . |

Kentucky Power Company
Commercial

The ARIMA Procedure

Crosscorrelations

Lag	Covariance	Correlation	-1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1
14	-1711.729	-.09105	| . **| . |
15	-983.188	-.05230	| . *| . |
16	46.590501	0.00248	| . | . |
17	3461.104	0.18411	| . |**** |
18	2658.498	0.14142	| . |***. |
19	1385.986	0.07373	| . |* . |
20	227.193	0.01209	| . | . |
21	1872.401	0.09960	| . |** . |
22	1450.330	0.07715	| . |** . |
23	-245.457	-.01306	| . | . |
24	-729.964	-.03883	| . *| . |

"." marks two standard errors

Variable MET_DAYS has been differenced.

Correlation of USAGE and MET_DAYS

Period(s) of Differencing	12
Variance of input =	0.15623
Number of Observations	109
Observation(s) eliminated by differencing	12

Crosscorrelations

Lag	Covariance	Correlation	-1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1
-24	4.534943	0.04764	| . |* . |
-23	-3.448045	-.03622	| . *| . |
-22	-11.333733	-.11905	| . **| . |
-21	-4.881869	-.05128	| . *| . |
-20	6.427118	0.06751	| . |* . |
-19	11.029516	0.11586	| . |** . |
-18	5.708301	0.05996	| . |* . |
-17	-1.886518	-.01982	| . | . |
-16	16.968039	0.17824	| . |**** |
-15	-1.994058	-.02095	| . | . |
-14	-0.242857	-.00255	| . | . |
-13	-10.303732	-.10823	| . **| . |
-12	-20.042448	-.21053	| ****| . |
-11	5.978851	0.06280	| . |* . |
-10	17.047446	0.17907	| . |**** |
-9	16.279177	0.17100	| . |***. |
-8	-6.130391	-.06440	| . *| . |

Kentucky Power Company
Commercial

The ARIMA Procedure

Crosscorrelations

```
Lag    Covariance    Correlation    -1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1

 -7    -19.815858        -.20815    |                ****|   .                |
 -6     -1.110674        -.01167    |                .   |   .                |
 -5      5.774832        0.06066    |                .   |*  .                |
 -4    -12.730257        -.13372    |                .***|   .                |
 -3    -19.105114        -.20069    |                ****|   .                |
 -2      9.182187        0.09645    |                .   |** .                |
 -1     13.927220        0.14630    |                .   |***.                |
  0     29.159390        0.30630    |                .   |******              |
  1      4.363509        0.04584    |                .   |*  .                |
  2     -9.806392        -.10301    |                . **|   .                |
  3    -12.639555        -.13277    |                .***|   .                |
  4     -6.602522        -.06936    |                .  *|   .                |
  5     11.684568        0.12274    |                .   |** .                |
  6      0.783432        0.00823    |                .   |   .                |
  7    -11.497152        -.12077    |                . **|   .                |
  8     -1.285501        -.01350    |                .   |   .                |
  9     19.979007        0.20987    |                .   |****                |
 10     -3.542857        -.03722    |                .  *|   .                |
 11    -12.243095        -.12861    |                .***|   .                |
 12     -6.538901        -.06869    |                .  *|   .                |
 13     -4.162272        -.04372    |                .  *|   .                |
 14      3.537760        0.03716    |                .   |*  .                |
 15      2.410386        0.02532    |                .   |*  .                |
 16      6.701545        0.07040    |                .   |*  .                |
 17     -5.661775        -.05947    |                .  *|   .                |
 18     -1.574286        -.01654    |                .   |   .                |
 19      1.035813        0.01088    |                .   |   .                |
 20      6.229373        0.06544    |                .   |*  .                |
 21     -4.103834        -.04311    |                .  *|   .                |
 22     -0.272251        -.00286    |                .   |   .                |
 23      4.127874        0.04336    |                .   |*  .                |
 24     -3.650621        -.03835    |                .  *|   .                |

                        "." marks two standard errors
```

Kentucky Power Company
Commercial

The ARIMA Procedure

Conditional Least Squares Estimation

Parameter	Estimate	Standard Error	t Value	Approx Pr > |t|	Lag	Variable	Shift
MU	9.79677	35.98115	0.27	0.7860	0	USAGE	0
MA1,1	-0.26895	0.10996	-2.45	0.0162	11	USAGE	0
AR1,1	0.38706	0.09824	3.94	0.0002	1	USAGE	0
AR1,2	0.32451	0.10217	3.18	0.0020	2	USAGE	0
AR1,3	0.20643	0.08589	2.40	0.0181	10	USAGE	0
AR2,1	-0.44421	0.10344	-4.29	<.0001	12	USAGE	0
NUM1	2.25198	0.11583	19.44	<.0001	0	bcdd65	0
NUM2	1.51304	0.06719	22.52	<.0001	0	bhdd55	0
NUM3	137.01799	12.43322	11.02	<.0001	0	MET_DAYS	0

Constant Estimate	1.1601
Variance Estimate	3498.844
Std Error Estimate	59.15103
AIC	1207.396
SBC	1231.618
Number of Residuals	109

* AIC and SBC do not include log determinant.

Correlations of Parameter Estimates

Variable	Parameter	USAGE MU	USAGE MA1,1	USAGE AR1,1	USAGE AR1,2	USAGE AR1,3
USAGE	MU	1.000	-0.013	0.086	0.118	0.108
USAGE	MA1,1	-0.013	1.000	0.171	-0.244	0.270
USAGE	AR1,1	0.086	0.171	1.000	-0.645	-0.142
USAGE	AR1,2	0.118	-0.244	-0.645	1.000	-0.294
USAGE	AR1,3	0.108	0.270	-0.142	-0.294	1.000
USAGE	AR2,1	-0.006	-0.007	0.113	-0.054	-0.231
bcdd65	NUM1	-0.009	0.020	0.134	-0.075	-0.047
bhdd55	NUM2	0.143	-0.010	0.150	-0.040	-0.095
MET_DAYS	NUM3	0.020	-0.023	-0.107	0.151	-0.042

Correlations of Parameter Estimates

Variable	Parameter	USAGE AR2,1	bcdd65 NUM1	bhdd55 NUM2	MET_DAYS NUM3
USAGE	MU	-0.006	-0.009	0.143	0.020
USAGE	MA1,1	-0.007	0.020	-0.010	-0.023
USAGE	AR1,1	0.113	0.134	0.150	-0.107
USAGE	AR1,2	-0.054	-0.075	-0.040	0.151
USAGE	AR1,3	-0.231	-0.047	-0.095	-0.042

Kentucky Power Company
Commercial

The ARIMA Procedure

Correlations of Parameter Estimates

Variable		USAGE	bcdd65	bhdd55	MET_DAYS
Parameter		AR2,1	NUM1	NUM2	NUM3
USAGE	AR2,1	1.000	0.056	0.157	0.046
bcdd65	NUM1	0.056	1.000	0.115	0.162
bhdd55	NUM2	0.157	0.115	1.000	-0.016
MET_DAYS	NUM3	0.046	0.162	-0.016	1.000

Autocorrelation Check of Residuals

To Lag	Chi-Square	DF	Pr > ChiSq	Autocorrelations					
6	1.41	1	0.2347	-0.032	-0.039	0.087	0.017	0.030	-0.033
12	4.19	7	0.7573	-0.057	0.064	-0.079	0.034	-0.003	-0.090
18	8.52	13	0.8080	-0.003	0.026	0.026	0.081	0.156	-0.027
24	16.43	19	0.6285	0.056	0.052	-0.008	0.012	0.107	-0.196

Autocorrelation Plot of Residuals

Lag	Covariance	Correlation	-1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1	Std Error
0	3498.844	1.00000	| |********** |	0
1	-112.216	-.03207	| . *| . |	0.095783
2	-137.942	-.03942	| . *| . |	0.095881
3	302.701	0.08651	| . |** . |	0.096030
4	60.947627	0.01742	| . | . |	0.096742
5	106.386	0.03041	| . |* . |	0.096771
6	-113.729	-.03250	| . *| . |	0.096859
7	-198.048	-.05660	| . *| . |	0.096959
8	223.117	0.06377	| . |* . |	0.097261
9	-277.776	-.07939	| . **| . |	0.097644
10	117.731	0.03365	| . |* . |	0.098234
11	-11.347116	-.00324	| . | . |	0.098340
12	-315.117	-.09006	| . **| . |	0.098341
13	-10.348007	-.00296	| . | . |	0.099095
14	91.111796	0.02604	| . |* . |	0.099096
15	89.628381	0.02562	| . |* . |	0.099159
16	281.831	0.08055	| . |** . |	0.099219
17	547.075	0.15636	| . |***. |	0.099817
18	-95.233033	-.02722	| . *| . |	0.102040
19	196.231	0.05608	| . |* . |	0.102106
20	182.622	0.05219	| . |* . |	0.102388
21	-28.067581	-.00802	| . | . |	0.102632
22	43.554952	0.01245	| . | . |	0.102638
23	373.311	0.10670	| . |** . |	0.102652

Kentucky Power Company
Commercial

The ARIMA Procedure

Autocorrelation Plot of Residuals

```
Lag    Covariance    Correlation    -1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1      Std Error

 24      -686.610        -.19624    |                ****|   .                |       0.103664
```

"." marks two standard errors

Inverse Autocorrelations

```
Lag    Correlation    -1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1

  1       -0.00890    |                .   |   .                |
  2        0.04088    |                .   |*  .                |
  3       -0.05063    |                .  *|   .                |
  4       -0.05094    |                .  *|   .                |
  5       -0.06367    |                .  *|   .                |
  6        0.09246    |                .   |** .                |
  7        0.01164    |                .   |   .                |
  8       -0.10612    |                . **|   .                |
  9        0.06769    |                .   |*  .                |
 10       -0.07965    |                . **|   .                |
 11        0.00977    |                .   |   .                |
 12        0.12212    |                .   |** .                |
 13        0.04212    |                .   |*  .                |
 14       -0.04234    |                .  *|   .                |
 15       -0.00950    |                .   |   .                |
 16       -0.10456    |                . **|   .                |
 17       -0.15055    |                .***|   .                |
 18        0.05701    |                .   |*  .                |
 19       -0.05196    |                .  *|   .                |
 20       -0.02022    |                .   |   .                |
 21       -0.02103    |                .   |   .                |
 22        0.00308    |                .   |   .                |
 23       -0.10153    |                . **|   .                |
 24        0.18007    |                .   |****                |
```

Partial Autocorrelations

```
Lag    Correlation    -1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1

  1       -0.03207    |                .  *|   .                |
  2       -0.04050    |                .  *|   .                |
  3        0.08412    |                .   |** .                |
  4        0.02143    |                .   |   .                |
  5        0.03857    |                .   |*  .                |
  6       -0.03657    |                .  *|   .                |
  7       -0.06029    |                .  *|   .                |
```

Kentucky Power Company
Commercial

The ARIMA Procedure

Partial Autocorrelations

```
Lag    Correlation    -1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1

  8        0.05184    |                 .   |*  .                |
  9       -0.07682    |                 . **|   .                |
 10        0.04531    |                 .   |*  .                |
 11       -0.01307    |                 .   |   .                |
 12       -0.07571    |                 . **|   .                |
 13       -0.01865    |                 .   |   .                |
 14        0.02400    |                 .   |   .                |
 15        0.04193    |                 .   |*  .                |
 16        0.08369    |                 .   |** .                |
 17        0.18451    |                 .   |****                |
 18       -0.03465    |                 .  *|   .                |
 19        0.05021    |                 .   |*  .                |
 20        0.02620    |                 .   |*  .                |
 21       -0.01788    |                 .   |   .                |
 22        0.01034    |                 .   |   .                |
 23        0.12703    |                 .   |***.                |
 24       -0.20706    |                ****|   .                |
```

Model for variable USAGE

Estimated Intercept	9.796767
Period(s) of Differencing	12

Autoregressive Factors

```
Factor 1:  1 - 0.38706 B**(1) - 0.32451 B**(2) - 0.20643 B**(10)
Factor 2:  1 + 0.44421 B**(12)
```

Moving Average Factors

```
Factor 1:  1 + 0.26895 B**(11)
```

Input Number 1

Input Variable	bcdd65
Period(s) of Differencing	12
Overall Regression Factor	2.251979

Kentucky Power Company
Commercial

The ARIMA Procedure

Input Number 2

Input Variable	bhdd55
Period(s) of Differencing	12
Overall Regression Factor	1.513039

Input Number 3

Input Variable	MET_DAYS
Period(s) of Differencing	12
Overall Regression Factor	137.018

Outlier Detection Summary

Maximum number searched	3
Number found	3
Significance used	0.05

Outlier Details

Obs	Time ID	Type	Estimate	Chi-Square	Approx Prob> ChiSq
55	JUL2008	Shift	103.96749	13.32	0.0003
85	JAN2011	Additive	124.49008	14.52	0.0001
121	JAN2014	Additive	157.14792	11.73	0.0006

Forecasts for variable USAGE

Obs	Forecast	Std Error	95% Confidence Limits	
122	4061.1491	59.1510	3945.2153	4177.0830
123	3752.9032	63.4273	3628.5879	3877.2185
124	3452.3277	69.3558	3316.3929	3588.2626
125	3249.4811	71.7268	3108.8992	3390.0630
126	3542.4548	73.5300	3398.3387	3686.5709
127	3775.4325	74.5351	3629.3464	3921.5186
128	3837.3305	75.1995	3689.9423	3984.7188
129	3866.7422	75.6049	3718.5594	4014.9251
130	3408.5952	75.8639	3259.9047	3557.2857
131	3232.8850	76.0260	3083.8768	3381.8932
132	3921.0500	77.7252	3768.7114	4073.3887
133	4420.7156	82.7861	4258.4578	4582.9734
134	4053.1815	99.3603	3858.4389	4247.9241
135	3738.5805	105.1113	3532.5662	3944.5948
136	3440.5223	110.6109	3223.7289	3657.3158

Kentucky Power Company
Commercial

The ARIMA Procedure

Forecasts for variable USAGE

Obs	Forecast	Std Error	95% Confidence Limits	
137	3231.8809	113.8535	3008.7322	3455.0296
138	3510.9590	116.2897	3283.0353	3738.8826
139	3771.3183	117.9189	3540.2014	4002.4352
140	3834.6062	119.0730	3601.2275	4067.9850
141	3829.9661	119.8659	3595.0332	4064.8990
142	3414.7979	120.6844	3178.2609	3651.3349
143	3235.0968	121.7118	2996.5460	3473.6475
144	3889.7791	123.6848	3647.3613	4132.1970
145	4439.3314	127.1679	4190.0869	4688.5758
146	4048.4167	145.2765	3763.6801	4333.1533
147	3735.4654	151.3229	3438.8779	4032.0529
148	3434.9226	157.6105	3126.0117	3743.8335
149	3228.6471	161.4140	2912.2814	3545.0127
150	3512.6642	164.4015	3190.4431	3834.8852
151	3761.2492	166.4795	3434.9553	4087.5431
152	3825.4770	168.0842	3496.0380	4154.9160
153	3837.0125	169.3583	3505.0763	4168.9488
154	3404.3738	170.5454	3070.1109	3738.6367
155	3227.4557	171.7857	2890.7618	3564.1496
156	3898.0498	174.2154	3556.5940	4239.5057
157	4425.9297	178.4473	4076.1794	4775.6801

Kentucky Power Company
Industrial

The ARIMA Procedure

Name of Variable = KWH

Period(s) of Differencing	1
Mean of Working Series	-57950.4
Standard Deviation	11625909
Number of Observations	120
Observation(s) eliminated by differencing	1

Autocorrelations

Lag	Covariance	Correlation	-1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1	Std Error
0	1.35162E14	1.00000	| |********** |	0
1	-7.6617E13	-.56686	| ********** | . |	0.091287
2	1.77503E12	0.01313	| . | . |	0.116999
3	1.08973E13	0.08062	| . |** . |	0.117011
4	2.90966E11	0.00215	| . | . |	0.117473
5	-1.1739E13	-.08685	| . **| . |	0.117474
6	1.69298E13	0.12526	| . |*** . |	0.118007
7	-1.5131E13	-.11194	| . **| . |	0.119110
8	-4.3659E12	-.03230	| . *| . |	0.119984
9	3.1125E13	0.23028	| . |***** |	0.120056
10	-3.0858E13	-.22830	| *****| . |	0.123682
11	1.06496E13	0.07879	| . |** . |	0.127146
12	3.94886E11	0.00292	| . | . |	0.127552
13	2.7779E12	0.02055	| . | . |	0.127552
14	-6.7651E12	-.05005	| . *| . |	0.127580
15	5.61669E11	0.00416	| . | . |	0.127743
16	7.45637E12	0.05517	| . |* . |	0.127745
17	-4.2244E12	-.03125	| . *| . |	0.127943
18	-3.1052E12	-.02297	| . | . |	0.128007
19	-5.0486E12	-.03735	| . *| . |	0.128041
20	1.20833E13	0.08940	| . |** . |	0.128132
21	6.72607E12	0.04976	| . |* . |	0.128650
22	-2.1325E13	-.15778	| . ***| . |	0.128811
23	1.45931E11	0.00108	| . | . |	0.130411
24	2.00552E13	0.14838	| . |*** . |	0.130411

"." marks two standard errors

Kentucky Power Company
Industrial

The ARIMA Procedure

Inverse Autocorrelations

```
Lag    Correlation    -1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1

  1        0.93728    |                 .   |******************* |
  2        0.85123    |                 .   |*****************   |
  3        0.77520    |                 .   |****************    |
  4        0.70603    |                 .   |**************      |
  5        0.63349    |                 .   |*************       |
  6        0.55595    |                 .   |***********         |
  7        0.49510    |                 .   |**********          |
  8        0.43699    |                 .   |*********           |
  9        0.39552    |                 .   |********            |
 10        0.38868    |                 .   |********            |
 11        0.38009    |                 .   |********            |
 12        0.36798    |                 .   |*******             |
 13        0.35190    |                 .   |*******             |
 14        0.34420    |                 .   |*******             |
 15        0.33429    |                 .   |*******             |
 16        0.31043    |                 .   |******              |
 17        0.28483    |                 .   |******              |
 18        0.24557    |                 .   |*****               |
 19        0.19292    |                 .   |****                |
 20        0.14725    |                 .   |***.                |
 21        0.11712    |                 .   |** .                |
 22        0.08956    |                 .   |** .                |
 23        0.04640    |                 .   |*  .                |
 24        0.01057    |                 .   |   .                |
```

Partial Autocorrelations

```
Lag    Correlation    -1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1

  1       -0.56686    |          ***********|   .                |
  2       -0.45411    |            *********|   .                |
  3       -0.30807    |               ******|   .                |
  4       -0.17524    |                 ****|   .                |
  5       -0.23410    |                *****|   .                |
  6       -0.08462    |                 . **|   .                |
  7       -0.14468    |                .***|   .                |
  8       -0.31209    |               ******|   .                |
  9       -0.00834    |                 .   |   .                |
 10       -0.07901    |                 . **|   .                |
 11       -0.03426    |                 .  *|   .                |
 12       -0.07077    |                 .  *|   .                |
 13       -0.00752    |                 .   |   .                |
 14        0.01094    |                 .   |   .                |
 15       -0.11440    |                 . **|   .                |
 16        0.01795    |                 .   |   .                |
```

Kentucky Power Company
Industrial

The ARIMA Procedure

Partial Autocorrelations

```
Lag    Correlation    -1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1

 17        0.05942    |                .   |*  .                |
 18       -0.03586    |                .  *|   .                |
 19       -0.15775    |                .***|   .                |
 20       -0.15141    |                .***|   .                |
 21        0.12889    |                .   |***.                |
 22       -0.01244    |                .   |   .                |
 23       -0.23200    |               *****|   .                |
 24       -0.11275    |                . **|   .                |
```

Autocorrelation Check for White Noise

To Lag	Chi-Square	DF	Pr > ChiSq	Autocorrelations					
6	43.34	6	<.0001	-0.567	0.013	0.081	0.002	-0.087	0.125
12	59.87	12	<.0001	-0.112	-0.032	0.230	-0.228	0.079	0.003
18	60.92	18	<.0001	0.021	-0.050	0.004	0.055	-0.031	-0.023
24	69.73	24	<.0001	-0.037	0.089	0.050	-0.158	0.001	0.148

Variable bcdd65 has been differenced.

Correlation of KWH and bcdd65

Period(s) of Differencing	1
Variance of input =	7123.072
Number of Observations	120
Observation(s) eliminated by differencing	1

Crosscorrelations

```
Lag    Covariance    Correlation    -1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1

-24     -58031351        -.05807    |                .  *|   .                |
-23      71873604        0.07192    |                .   |*  .                |
-22      -4090067        -.00409    |                .   |   .                |
-21      -9590661        -.00960    |                .   |   .                |
-20      32372896        0.03239    |                .   |*  .                |
-19     100921803        0.10099    |                .   |** .                |
-18      11055044        0.01106    |                .   |   .                |
-17     -65966204        -.06601    |                .  *|   .                |
-16    -149144831        -.14924    |                .***|   .                |
-15      22124351        0.02214    |                .   |   .                |
-14      63491412        0.06353    |                .   |*  .                |
```

Kentucky Power Company
Industrial

The ARIMA Procedure

Crosscorrelations

Lag	Covariance	Correlation	-1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1
-13	-67801049	-.06785	| . *| . |
-12	27506505	0.02752	| . |* . |
-11	20530349	0.02054	| . | . |
-10	16059599	0.01607	| . | . |
-9	30795072	0.03082	| . |* . |
-8	1198355	0.00120	| . | . |
-7	33602529	0.03362	| . |* . |
-6	98666462	0.09873	| . |** . |
-5	-111201342	-.11128	| . **| . |
-4	-116380725	-.11646	| . **| . |
-3	-3490826	-.00349	| . | . |
-2	32243330	0.03226	| . |* . |
-1	-50673079	-.05071	| . *| . |
0	45186717	0.04522	| . |* . |
1	100871072	0.10094	| . |** . |
2	-49920971	-.04995	| . *| . |
3	-30318261	-.03034	| . *| . |
4	23604520	0.02362	| . | . |
5	98982087	0.09905	| . |** . |
6	-4435792	-.00444	| . | . |
7	-32799153	-.03282	| . *| . |
8	-81393864	-.08145	| . **| . |
9	-19312283	-.01933	| . | . |
10	15951537	0.01596	| . | . |
11	-32416237	-.03244	| . *| . |
12	-55624895	-.05566	| . *| . |
13	120927553	0.12101	| . |** . |
14	73872266	0.07392	| . |* . |
15	-68677871	-.06872	| . *| . |
16	-17435944	-.01745	| . | . |
17	69776752	0.06982	| . |* . |
18	14607977	0.01462	| . | . |
19	-58637751	-.05868	| . *| . |
20	-41616087	-.04164	| . *| . |
21	-5958893	-.00596	| . | . |
22	-9599036	-.00961	| . | . |
23	-64017376	-.06406	| . *| . |
24	35671989	0.03570	| . |* . |

"." marks two standard errors

Variable bhdd55 has been differenced.

Kentucky Power Company
Industrial

The ARIMA Procedure

Correlation of KWH and bhdd55

Period(s) of Differencing	1
Variance of input =	22512.59
Number of Observations	120
Observation(s) eliminated by differencing	1

Crosscorrelations

Lag	Covariance	Correlation	-1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1
-24	-17096088	-.00943	| . | . |
-23	-110347409	-.06085	| . *| . |
-22	-67342979	-.03714	| . *| . |
-21	-68151986	-.03758	| . *| . |
-20	-98944005	-.05456	| . *| . |
-19	84496193	0.04660	| . |* . |
-18	5347334	0.00295	| . | . |
-17	-53258115	-.02937	| . *| . |
-16	118762434	0.06549	| . |* . |
-15	-17247556	-.00951	| . | . |
-14	220780517	0.12175	| . |** . |
-13	-52328655	-.02886	| . *| . |
-12	-35091728	-.01935	| . | . |
-11	-40034451	-.02208	| . | . |
-10	-66284756	-.03655	| . *| . |
-9	-155034365	-.08549	| . **| . |
-8	78057534	0.04305	| . |* . |
-7	-65644796	-.03620	| . *| . |
-6	-29956375	-.01652	| . | . |
-5	213712730	0.11785	| . |** . |
-4	-38657170	-.02132	| . | . |
-3	-51148054	-.02821	| . *| . |
-2	183601589	0.10125	| . |** . |
-1	39482118	0.02177	| . | . |
0	-95918141	-.05289	| . *| . |
1	95748171	0.05280	| . |* . |
2	-205956243	-.11358	| . **| . |
3	-82351006	-.04541	| . *| . |
4	5160172	0.00285	| . | . |
5	36728755	0.02025	| . | . |
6	-100875373	-.05563	| . *| . |
7	201510391	0.11112	| . |** . |
8	31096277	0.01715	| . | . |
9	-204760205	-.11292	| . **| . |
10	268474842	0.14805	| . |***. |
11	-38890733	-.02145	| . | . |
12	71233366	0.03928	| . |* . |
13	-9449765	-.00521	| . | . |

Kentucky Power Company
Industrial

The ARIMA Procedure

Crosscorrelations

```
Lag    Covariance    Correlation    -1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1

 14    -204159849        -.11259    |                . **|   .                |
 15     -40437200        -.02230    |                .   |   .                |
 16      44378711        0.02447    |                .   |   .                |
 17    -145397278        -.08018    |                . **|   .                |
 18     153984152        0.08492    |                .   |** .                |
 19      67071193        0.03699    |                .   |*  .                |
 20     -72540442        -.04000    |                .  *|   .                |
 21      66926317        0.03691    |                .   |*  .                |
 22     124006629        0.06838    |                .   |*  .                |
 23     -86059679        -.04746    |                .  *|   .                |
 24      53769779        0.02965    |                .   |*  .                |
```

"." marks two standard errors

Variable ind1 has been differenced.

Correlation of KWH and ind1

Period(s) of Differencing	1
Variance of input =	0.035928
Number of Observations	120
Observation(s) eliminated by differencing	1

Crosscorrelations

```
Lag    Covariance    Correlation    -1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1

-24            0        0.00000    |                .   |   .                |
-23            0        0.00000    |                .   |   .                |
-22            0        0.00000    |                .   |   .                |
-21            0        0.00000    |                .   |   .                |
-20            0        0.00000    |                .   |   .                |
-19            0        0.00000    |                .   |   .                |
-18            0        0.00000    |                .   |   .                |
-17            0        0.00000    |                .   |   .                |
-16            0        0.00000    |                .   |   .                |
-15            0        0.00000    |                .   |   .                |
-14            0        0.00000    |                .   |   .                |
-13            0        0.00000    |                .   |   .                |
-12            0        0.00000    |                .   |   .                |
-11            0        0.00000    |                .   |   .                |
-10            0        0.00000    |                .   |   .                |
 -9            0        0.00000    |                .   |   .                |
 -8            0        0.00000    |                .   |   .                |
```

Kentucky Power Company
Industrial

The ARIMA Procedure

Crosscorrelations

```
Lag    Covariance    Correlation    -1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1

 -7            0        0.00000    |                 .   |   .                |
 -6            0        0.00000    |                 .   |   .                |
 -5            0        0.00000    |                 .   |   .                |
 -4     14681.213       0.00565    |                 .   |   .                |
 -3    -25973.288       -.00999    |                 .   |   .                |
 -2        126242       0.04856    |                 .   |*  .                |
 -1       -499702       -.19222    |                 ****|   .                |
  0        787246       0.30283    |                 .   |******              |
  1       -542457       -.20867    |                 ****|   .                |
  2        149632       0.05756    |                 .   |*  .                |
  3    -15182.533       -.00584    |                 .   |   .                |
  4     -1014.742       -.00039    |                 .   |   .                |
  5     -8593.192       -.00331    |                 .   |   .                |
  6     18875.167       0.00726    |                 .   |   .                |
  7     21955.408       0.00845    |                 .   |   .                |
  8       -152580       -.05869    |                 .  *|   .                |
  9        521358       0.20055    |                 .   |****                |
 10       -798259       -.30707    |               ******|   .                |
 11        544956       0.20963    |                 .   |****                |
 12       -181262       -.06973    |                 .  *|   .                |
 13     88690.167       0.03412    |                 .   |*  .                |
 14       -112078       -.04311    |                 .  *|   .                |
 15        149927       0.05767    |                 .   |*  .                |
 16       -219873       -.08458    |                 . **|   .                |
 17        286407       0.11017    |                 .   |** .                |
 18       -239971       -.09231    |                 . **|   .                |
 19        115390       0.04439    |                 .   |*  .                |
 20    -94911.500       -.03651    |                 .  *|   .                |
 21        278427       0.10710    |                 .   |** .                |
 22       -434044       -.16696    |                 .***|   .                |
 23        322837       0.12419    |                 .   |** .                |
 24       -185120       -.07121    |                 .  *|   .                |
```

"." marks two standard errors

Variable ind2 has been differenced.

Correlation of KWH and ind2

Period(s) of Differencing	1
Variance of input =	0.035928
Number of Observations	120
Observation(s) eliminated by differencing	1

Kentucky Power Company
Industrial

The ARIMA Procedure

Crosscorrelations

```
Lag    Covariance    Correlation    -1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1

-24             0        0.00000    |                 .   |   .                 |
-23             0        0.00000    |                 .   |   .                 |
-22             0        0.00000    |                 .   |   .                 |
-21             0        0.00000    |                 .   |   .                 |
-20             0        0.00000    |                 .   |   .                 |
-19             0        0.00000    |                 .   |   .                 |
-18             0        0.00000    |                 .   |   .                 |
-17             0        0.00000    |                 .   |   .                 |
-16             0        0.00000    |                 .   |   .                 |
-15             0        0.00000    |                 .   |   .                 |
-14    -14681.213        -.00565    |                 .   |   .                 |
-13     25973.288        0.00999    |                 .   |   .                 |
-12       -126242        -.04856    |                 .  *|   .                 |
-11        499702        0.19222    |                 .   |****                 |
-10       -787246        -.30283    |              ******|   .                 |
 -9        542457        0.20867    |                 .   |****                 |
 -8       -149632        -.05756    |                 .  *|   .                 |
 -7     15182.533        0.00584    |                 .   |   .                 |
 -6      1014.742        0.00039    |                 .   |   .                 |
 -5      8593.192        0.00331    |                 .   |   .                 |
 -4    -18875.167        -.00726    |                 .   |   .                 |
 -3    -21955.408        -.00845    |                 .   |   .                 |
 -2        152580        0.05869    |                 .   |*  .                 |
 -1       -521358        -.20055    |                ****|   .                 |
  0        798259        0.30707    |                 .   |******               |
  1       -544956        -.20963    |                ****|   .                 |
  2        181262        0.06973    |                 .   |*  .                 |
  3    -88690.167        -.03412    |                 .  *|   .                 |
  4        112078        0.04311    |                 .   |*  .                 |
  5       -149927        -.05767    |                 .  *|   .                 |
  6        219873        0.08458    |                 .   |** .                 |
  7       -286407        -.11017    |                 . **|   .                 |
  8        239971        0.09231    |                 .   |** .                 |
  9       -115390        -.04439    |                 .  *|   .                 |
 10     94911.500        0.03651    |                 .   |*  .                 |
 11       -278427        -.10710    |                 . **|   .                 |
 12        434044        0.16696    |                 .   |***.                 |
 13       -322837        -.12419    |                 . **|   .                 |
 14        185120        0.07121    |                 .   |*  .                 |
 15       -174314        -.06705    |                 .  *|   .                 |
 16        115429        0.04440    |                 .   |*  .                 |
 17     35767.933        0.01376    |                 .   |   .                 |
 18       -158540        -.06099    |                 .  *|   .                 |
 19        117247        0.04510    |                 .   |*  .                 |
 20     44439.908        0.01709    |                 .   |   .                 |
 21     37832.650        0.01455    |                 .   |   .                 |
```

Kentucky Power Company
Industrial

The ARIMA Procedure

Crosscorrelations

```
Lag    Covariance    Correlation    -1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1

 22       -547140        -.21047    |                 ****|   .                |
 23        869466        0.33446    |                 .   |*******             |
 24       -510616        -.19642    |                 ****|   .                |

                        "." marks two standard errors
```

Variable ind3 has been differenced.

Correlation of KWH and ind3

Period(s) of Differencing	1
Variance of input =	0.035928
Number of Observations	120
Observation(s) eliminated by differencing	1

Crosscorrelations

```
Lag    Covariance    Correlation    -1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1

-24       -521358        -.20055    |                 ****|   .                |
-23        798259        0.30707    |                 .   |******              |
-22       -544956        -.20963    |                 ****|   .                |
-21        181262        0.06973    |                 .   |*  .                |
-20    -88690.167        -.03412    |                 .  *|   .                |
-19        112078        0.04311    |                 .   |*  .                |
-18       -149927        -.05767    |                 .  *|   .                |
-17        219873        0.08458    |                 .   |** .                |
-16       -286407        -.11017    |                 . **|   .                |
-15        239971        0.09231    |                 .   |** .                |
-14       -115390        -.04439    |                 .  *|   .                |
-13     94911.500        0.03651    |                 .   |*  .                |
-12       -278427        -.10710    |                 . **|   .                |
-11        434044        0.16696    |                 .   |***.                |
-10       -322837        -.12419    |                 . **|   .                |
 -9        185120        0.07121    |                 .   |*  .                |
 -8       -174314        -.06705    |                 .  *|   .                |
 -7        115429        0.04440    |                 .   |*  .                |
 -6     35767.933        0.01376    |                 .   |   .                |
 -5       -158540        -.06099    |                 .  *|   .                |
 -4        117247        0.04510    |                 .   |*  .                |
 -3     44439.908        0.01709    |                 .   |   .                |
 -2     37832.650        0.01455    |                 .   |   .                |
 -1       -547140        -.21047    |                 ****|   .                |
  0        869466        0.33446    |                 .   |*******             |
```

Kentucky Power Company
Industrial

The ARIMA Procedure

Crosscorrelations

```
Lag    Covariance    Correlation    -1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1

  1       -510616        -.19642    |                ****|   .                |
  2     14425.025        0.00555    |                .   |   .                |
  3        177134        0.06814    |                .   |*  .                |
  4       -190334        -.07322    |                .  *|   .                |
  5     82300.600        0.03166    |                .   |*  .                |
  6        108714        0.04182    |                .   |*  .                |
  7     48621.900        0.01870    |                .   |   .                |
  8       -924366        -.35558    |             *******|   .                |
  9       1534176        0.59015    |                .   |************        |
 10      -1005092        -.38663    |            ********|   .                |
 11        264129        0.10160    |                .   |** .                |
 12    -64728.608        -.02490    |                .   |   .                |
 13     68240.100        0.02625    |                .   |*  .                |
 14    -57703.842        -.02220    |                .   |   .                |
 15     94014.025        0.03616    |                .   |*  .                |
 16       -115701        -.04451    |                .  *|   .                |
 17     25076.875        0.00965    |                .   |   .                |
 18     98144.467        0.03775    |                .   |*  .                |
 19       -116976        -.04500    |                .  *|   .                |
 20     50585.400        0.01946    |                .   |   .                |
 21     37473.450        0.01441    |                .   |   .                |
 22    -75623.708        -.02909    |                .  *|   .                |
 23     14382.300        0.00553    |                .   |   .                |
 24     11752.275        0.00452    |                .   |   .                |
```

"." marks two standard errors

Variable ind4 has been differenced.

Correlation of KWH and ind4

Period(s) of Differencing	1
Variance of input =	0.035928
Number of Observations	120
Observation(s) eliminated by differencing	1

Kentucky Power Company
Industrial

The ARIMA Procedure

Crosscorrelations

```
Lag    Covariance    Correlation    -1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1

-24        239971        0.09231    |                 .   |** .                |
-23       -115390        -.04439    |                 .  *|   .                |
-22     94911.500        0.03651    |                 .   |*  .                |
-21       -278427        -.10710    |                 . **|   .                |
-20        434044        0.16696    |                 .   |***.                |
-19       -322837        -.12419    |                 . **|   .                |
-18        185120        0.07121    |                 .   |*  .                |
-17       -174314        -.06705    |                 .  *|   .                |
-16        115429        0.04440    |                 .   |*  .                |
-15     35767.933        0.01376    |                 .   |   .                |
-14       -158540        -.06099    |                 .  *|   .                |
-13        117247        0.04510    |                 .   |*  .                |
-12     44439.908        0.01709    |                 .   |   .                |
-11     37832.650        0.01455    |                 .   |   .                |
-10       -547140        -.21047    |                ****|   .                |
 -9        869466        0.33446    |                 .   |*******             |
 -8       -510616        -.19642    |                ****|   .                |
 -7     14425.025        0.00555    |                 .   |   .                |
 -6        177134        0.06814    |                 .   |*  .                |
 -5       -190334        -.07322    |                 .  *|   .                |
 -4     82300.600        0.03166    |                 .   |*  .                |
 -3        108714        0.04182    |                 .   |*  .                |
 -2     48621.900        0.01870    |                 .   |   .                |
 -1       -924366        -.35558    |             *******|   .                |
  0       1534176        0.59015    |                 .   |************        |
  1      -1005092        -.38663    |            ********|   .                |
  2        264129        0.10160    |                 .   |** .                |
  3    -64728.608        -.02490    |                 .   |   .                |
  4     68240.100        0.02625    |                 .   |*  .                |
  5    -57703.842        -.02220    |                 .   |   .                |
  6     94014.025        0.03616    |                 .   |*  .                |
  7       -115701        -.04451    |                 .  *|   .                |
  8     25076.875        0.00965    |                 .   |   .                |
  9     98144.467        0.03775    |                 .   |*  .                |
 10       -116976        -.04500    |                 .  *|   .                |
 11     50585.400        0.01946    |                 .   |   .                |
 12     37473.450        0.01441    |                 .   |   .                |
 13    -75623.708        -.02909    |                 .  *|   .                |
 14     14382.300        0.00553    |                 .   |   .                |
 15     11752.275        0.00452    |                 .   |   .                |
 16     31183.042        0.01200    |                 .   |   .                |
 17    -66706.467        -.02566    |                 .  *|   .                |
 18        136068        0.05234    |                 .   |*  .                |
 19       -126477        -.04865    |                 .  *|   .                |
 20       -109629        -.04217    |                 .  *|   .                |
 21        425689        0.16375    |                 .   |***.                |
```

Kentucky Power Company
Industrial

The ARIMA Procedure

Crosscorrelations

```
Lag    Covariance    Correlation    -1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1

 22       -252507        -.09713    |                . **|   .                |
 23       -425400        -.16364    |                .***|   .                |
 24        629362        0.24210    |                .   |*****               |

                        "." marks two standard errors
```

Variable ind5 has been differenced.

Correlation of KWH and ind5

Period(s) of Differencing	1
Variance of input =	0.023952
Number of Observations	120
Observation(s) eliminated by differencing	1

Crosscorrelations

```
Lag    Covariance    Correlation    -1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1

-24        875744        0.41258    |                .   |********            |
-23       -609810        -.28730    |              ******|   .                |
-22       -529084        -.24926    |               *****|   .                |
-21        740963        0.34908    |                .   |*******             |
-20       -199400        -.09394    |                . **|   .                |
-19     -3511.492        -.00165    |                .   |   .                |
-18    -10536.258        -.00496    |                .   |   .                |
-17    -36310.183        -.01711    |                .   |   .                |
-16     21686.667        0.01022    |                .   |   .                |
-15     90623.817        0.04269    |                .   |*  .                |
-14       -123221        -.05805    |                .  *|   .                |
-13     18831.100        0.00887    |                .   |   .                |
-12     66390.167        0.03128    |                .   |*  .                |
-11    -88058.850        -.04149    |                .  *|   .                |
-10     38150.258        0.01797    |                .   |   .                |
 -9     61241.408        0.02885    |                .   |*  .                |
 -8    -26134.575        -.01231    |                .   |   .                |
 -7    -42935.317        -.02023    |                .   |   .                |
 -6     35523.425        0.01674    |                .   |   .                |
 -5    -69361.617        -.03268    |                .  *|   .                |
 -4     -9590.633        -.00452    |                .   |   .                |
 -3        236107        0.11124    |                .   |** .                |
 -2       -316060        -.14890    |                .***|   .                |
 -1       -173182        -.08159    |                . **|   .                |
  0        677906        0.31938    |                .   |******              |
```

Kentucky Power Company
Industrial

The ARIMA Procedure

Crosscorrelations

```
Lag    Covariance    Correlation    -1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1

  1       -203962        -.09609    |                . **|   .                |
  2       -370628        -.17461    |                .***|   .                |
  3        218178        0.10279    |                .   |** .                |
  4     34755.042        0.01637    |                .   |   .                |
  5    -42391.917        -.01997    |                .   |   .                |
  6    -73898.358        -.03482    |                .  *|   .                |
  7    -19304.050        -.00909    |                .   |   .                |
  8        237231        0.11176    |                .   |** .                |
  9       -160718        -.07572    |                . **|   .                |
 10     14014.058        0.00660    |                .   |   .                |
 11        180932        0.08524    |                .   |** .                |
 12       -428384        -.20182    |                ****|   .                |
 13        302246        0.14239    |                .   |***.                |
 14     17978.192        0.00847    |                .   |   .                |
 15       -258640        -.12185    |                . **|   .                |
 16        476831        0.22465    |                .   |****                |
 17       -323389        -.15236    |                .***|   .                |
 18       -192204        -.09055    |                . **|   .                |
 19        306046        0.14419    |                .   |***.                |
 20    -35751.575        -.01684    |                .   |   .                |
 21    -26546.750        -.01251    |                .   |   .                |
 22    -65177.350        -.03071    |                .  *|   .                |
 23     91847.300        0.04327    |                .   |*  .                |
 24    -52570.250        -.02477    |                .   |   .                |
```

"." marks two standard errors

Variable ind6 has been differenced.

Correlation of KWH and ind6

Period(s) of Differencing	1
Variance of input =	0.035928
Number of Observations	120
Observation(s) eliminated by differencing	1

Kentucky Power Company
Industrial

The ARIMA Procedure

Crosscorrelations

```
Lag    Covariance    Correlation    -1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1

-24     31183.042        0.01200    |                .   |   .                |
-23    -66706.467        -.02566    |                .  *|   .                |
-22        136068        0.05234    |                .   |*  .                |
-21       -126477        -.04865    |                .  *|   .                |
-20       -109629        -.04217    |                .  *|   .                |
-19        425689        0.16375    |                .   |***.                |
-18       -252507        -.09713    |                . **|   .                |
-17       -425400        -.16364    |                .***|   .                |
-16        629362        0.24210    |                .   |*****               |
-15       -258734        -.09953    |                . **|   .                |
-14     40555.883        0.01560    |                .   |   .                |
-13    -75310.925        -.02897    |                .  *|   .                |
-12        117703        0.04528    |                .   |*  .                |
-11    -43804.483        -.01685    |                .   |   .                |
-10     63108.533        0.02428    |                .   |   .                |
 -9       -300340        -.11553    |                . **|   .                |
 -8        461058        0.17736    |                .   |****                |
 -7       -475072        -.18275    |                ****|   .                |
 -6        294140        0.11315    |                .   |** .                |
 -5        134244        0.05164    |                .   |*  .                |
 -4       -436490        -.16790    |                .***|   .                |
 -3        418512        0.16099    |                .   |***.                |
 -2       -159872        -.06150    |                .  *|   .                |
 -1       -316959        -.12192    |                . **|   .                |
  0        640348        0.24632    |                .   |*****               |
  1       -448144        -.17239    |                .***|   .                |
  2        142097        0.05466    |                .   |*  .                |
  3       -106346        -.04091    |                .  *|   .                |
  4        132893        0.05112    |                .   |*  .                |
  5    -67715.242        -.02605    |                .  *|   .                |
  6    -24132.058        -.00928    |                .   |   .                |
  7     76702.308        0.02951    |                .   |*  .                |
  8    -36376.700        -.01399    |                .   |   .                |
  9    -12283.817        -.00473    |                .   |   .                |
 10    -66.775000        -.00003    |                .   |   .                |
 11    -35122.400        -.01351    |                .   |   .                |
 12     78805.083        0.03031    |                .   |*  .                |
 13    -52359.692        -.02014    |                .   |   .                |
 14     46643.658        0.01794    |                .   |   .                |
 15    -69188.750        -.02661    |                .  *|   .                |
 16     56233.775        0.02163    |                .   |   .                |
 17     27992.308        0.01077    |                .   |   .                |
 18    -93313.758        -.03589    |                .  *|   .                |
 19    -10280.117        -.00395    |                .   |   .                |
 20     87517.758        0.03367    |                .   |*  .                |
 21      5090.467        0.00196    |                .   |   .                |
```

Kentucky Power Company
Industrial

The ARIMA Procedure

Crosscorrelations

```
Lag    Covariance    Correlation    -1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1

 22    -13017.567        -.00501    |                .   |   .                |
 23    -88684.067        -.03411    |                .  *|   .                |
 24        136561        0.05253    |                .   |*  .                |
```

"." marks two standard errors

Variable MET_DAYS has been differenced.

Correlation of KWH and MET_DAYS

Period(s) of Differencing	1
Variance of input =	2.350395
Number of Observations	120
Observation(s) eliminated by differencing	1

Crosscorrelations

```
Lag    Covariance    Correlation    -1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1

-24       2969407        0.14564    |                .   |***.                |
-23       -612655        -.03005    |                .  *|   .                |
-22      -1062613        -.05212    |                .  *|   .                |
-21       1711247        0.08393    |                .   |** .                |
-20      -1623710        -.07964    |                . **|   .                |
-19      -1303226        -.06392    |                .  *|   .                |
-18       4652205        0.22818    |                .   |*****               |
-17      -2058350        -.10096    |                . **|   .                |
-16      -1885386        -.09247    |                . **|   .                |
-15       1507071        0.07392    |                .   |*  .                |
-14        173092        0.00849    |                .   |   .                |
-13       -338767        -.01662    |                .   |   .                |
-12       -462867        -.02270    |                .   |   .                |
-11       1965046        0.09638    |                .   |** .                |
-10       -795882        -.03904    |                .  *|   .                |
 -9       -987284        -.04842    |                .  *|   .                |
 -8       -441351        -.02165    |                .   |   .                |
 -7        498785        0.02446    |                .   |   .                |
 -6        686356        0.03366    |                .   |*  .                |
 -5        393622        0.01931    |                .   |   .                |
 -4      -1245495        -.06109    |                .  *|   .                |
 -3        483802        0.02373    |                .   |   .                |
 -2        733989        0.03600    |                .   |*  .                |
 -1      -1887732        -.09259    |                . **|   .                |
  0        565217        0.02772    |                .   |*  .                |
```

Kentucky Power Company
Industrial

The ARIMA Procedure

Crosscorrelations

```
Lag    Covariance    Correlation    -1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1

  1       -332089        -.01629    |                .   |  .                |
  2       3236129        0.15872    |                .   |***.               |
  3      -3071683        -.15066    |                .***|   .               |
  4        419942        0.02060    |                .   |   .               |
  5       -205100        -.01006    |                .   |   .               |
  6       1482178        0.07270    |                .   |*  .               |
  7      -1295833        -.06356    |                .  *|   .               |
  8        125078        0.00613    |                .   |   .               |
  9        442715        0.02171    |                .   |   .               |
 10        271367        0.01331    |                .   |   .               |
 11       -546729        -.02682    |                .  *|   .               |
 12       -771040        -.03782    |                .  *|   .               |
 13       2175335        0.10669    |                .   |** .               |
 14       -564632        -.02769    |                .  *|   .               |
 15       -636165        -.03120    |                .  *|   .               |
 16       -460768        -.02260    |                .   |   .               |
 17        228405        0.01120    |                .   |   .               |
 18        606302        0.02974    |                .   |*  .               |
 19       -176755        -.00867    |                .   |   .               |
 20      -1855415        -.09100    |                . **|   .               |
 21       2426103        0.11899    |                .   |** .               |
 22       -491392        -.02410    |                .   |   .               |
 23       -721096        -.03537    |                .  *|   .               |
 24       -359184        -.01762    |                .   |   .               |

                    "." marks two standard errors
```

Conditional Least Squares Estimation

Parameter	Estimate	Standard Error	t Value	Approx Pr > |t|	Lag	Variable	Shift
MU	-69360.6	41339.5	-1.68	0.0962	0	KWH	0
MA1,1	0.92076	0.04352	21.16	<.0001	1	KWH	0
AR1,1	0.25955	0.10857	2.39	0.0185	2	KWH	0
NUM1	15964139	2550635.6	6.26	<.0001	0	ind1	0
NUM2	16238928	2551584.9	6.36	<.0001	0	ind2	0
NUM3	19323935	2564627.4	7.53	<.0001	0	ind3	0
NUM4	32884539	2595245.6	12.67	<.0001	0	ind4	0
NUM5	19799649	2298393.3	8.61	<.0001	0	ind5	0
NUM6	14478399	2577859.6	5.62	<.0001	0	ind6	0
NUM7	-3397.8	160266.0	-0.02	0.9831	0	MET_DAYS	0

Kentucky Power Company
Industrial

The ARIMA Procedure

Constant Estimate	-51358.1
Variance Estimate	1.503E13
Std Error Estimate	3877019
AIC	3991.042
SBC	4018.917
Number of Residuals	120

* AIC and SBC do not include log determinant.

Correlations of Parameter Estimates

Variable		KWH	KWH	KWH	ind1	ind2
Parameter		MU	MA1,1	AR1,1	NUM1	NUM2
KWH	MU	1.000	0.140	0.078	-0.001	0.001
KWH	MA1,1	0.140	1.000	0.481	0.007	-0.006
KWH	AR1,1	0.078	0.481	1.000	0.009	-0.014
ind1	NUM1	-0.001	0.007	0.009	1.000	-0.000
ind2	NUM2	0.001	-0.006	-0.014	-0.000	1.000
ind3	NUM3	0.002	0.039	0.075	0.001	-0.003
ind4	NUM4	0.012	0.055	0.177	0.001	-0.001
ind5	NUM5	-0.001	-0.008	-0.078	-0.001	0.002
ind6	NUM6	0.012	0.077	0.144	0.001	-0.002
MET_DAYS	NUM7	0.059	-0.002	0.081	-0.004	0.024

Correlations of Parameter Estimates

Variable		ind3	ind4	ind5	ind6	MET_DAYS
Parameter		NUM3	NUM4	NUM5	NUM6	NUM7
KWH	MU	0.002	0.012	-0.001	0.012	0.059
KWH	MA1,1	0.039	0.055	-0.008	0.077	-0.002
KWH	AR1,1	0.075	0.177	-0.078	0.144	0.081
ind1	NUM1	0.001	0.001	-0.001	0.001	-0.004
ind2	NUM2	-0.003	-0.001	0.002	-0.002	0.024
ind3	NUM3	1.000	0.010	-0.007	0.012	-0.067
ind4	NUM4	0.010	1.000	-0.014	0.024	0.058
ind5	NUM5	-0.007	-0.014	1.000	-0.011	0.009
ind6	NUM6	0.012	0.024	-0.011	1.000	-0.006
MET_DAYS	NUM7	-0.067	0.058	0.009	-0.006	1.000

Kentucky Power Company
Industrial

The ARIMA Procedure

Autocorrelation Check of Residuals

To Lag	Chi-Square	DF	Pr > ChiSq	Autocorrelations					
6	0.82	4	0.9360	0.017	0.016	0.017	-0.061	0.039	-0.019
12	3.73	10	0.9586	0.056	0.003	-0.004	0.106	-0.071	0.049
18	9.98	16	0.8674	-0.080	-0.095	-0.132	-0.081	0.002	-0.075
24	11.04	22	0.9742	0.007	0.005	-0.039	0.024	0.054	0.045

Autocorrelation Plot of Residuals

```
Lag    Covariance    Correlation    -1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1      Std Error

  0    1.50313E13        1.00000    |                    |********************|             0
  1    2.61105E11        0.01737    |                .   |   .                |      0.091287
  2     2.4771E11        0.01648    |                .   |   .                |      0.091315
  3    2.58011E11        0.01716    |                .   |   .                |      0.091339
  4      -9.15E11        -.06087    |                .  *|   .                |      0.091366
  5    5.92594E11        0.03942    |                .   |*  .                |      0.091704
  6    -2.8222E11        -.01878    |                .   |   .                |      0.091845
  7    8.44792E11        0.05620    |                .   |*  .                |      0.091877
  8    4.84293E10        0.00322    |                .   |   .                |      0.092163
  9    -5.9016E10        -.00393    |                .   |   .                |      0.092164
 10    1.59722E12        0.10626    |                .   |** .                |      0.092165
 11    -1.0597E12        -.07050    |                .  *|   .                |      0.093180
 12    7.42942E11        0.04943    |                .   |*  .                |      0.093624
 13    -1.2034E12        -.08006    |                . **|   .                |      0.093841
 14    -1.4214E12        -.09457    |                . **|   .                |      0.094409
 15    -1.9788E12        -.13165    |               .***|   .                |      0.095195
 16    -1.2142E12        -.08078    |                . **|   .                |      0.096700
 17    3.04866E10        0.00203    |                .   |   .                |      0.097261
 18    -1.1253E12        -.07487    |                .  *|   .                |      0.097261
 19    1.09398E11        0.00728    |                .   |   .                |      0.097740
 20    7.98057E10        0.00531    |                .   |   .                |      0.097745
 21    -5.8014E11        -.03860    |                .  *|   .                |      0.097747
 22    3.55831E11        0.02367    |                .   |   .                |      0.097874
 23    8.04507E11        0.05352    |                .   |*  .                |      0.097922
 24    6.76169E11        0.04498    |                .   |*  .                |      0.098165
```

"." marks two standard errors

Kentucky Power Company
Industrial

The ARIMA Procedure

Inverse Autocorrelations

```
Lag    Correlation    -1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1

  1        0.02613    |                 .   |*  .                |
  2        0.05420    |                 .   |*  .                |
  3        0.00192    |                 .   |   .                |
  4        0.05659    |                 .   |*  .                |
  5       -0.05374    |                 .  *|   .                |
  6       -0.04058    |                 .  *|   .                |
  7       -0.06663    |                 .  *|   .                |
  8       -0.07676    |                 . **|   .                |
  9       -0.03677    |                 .  *|   .                |
 10       -0.12224    |                 . **|   .                |
 11        0.06003    |                 .   |*  .                |
 12       -0.04535    |                 .  *|   .                |
 13        0.08465    |                 .   |** .                |
 14        0.09177    |                 .   |** .                |
 15        0.14214    |                 .   |***.                |
 16        0.06923    |                 .   |*  .                |
 17        0.02657    |                 .   |*  .                |
 18        0.06976    |                 .   |*  .                |
 19       -0.00213    |                 .   |   .                |
 20       -0.00744    |                 .   |   .                |
 21        0.00668    |                 .   |   .                |
 22       -0.01690    |                 .   |   .                |
 23       -0.08944    |                 . **|   .                |
 24       -0.05108    |                 .  *|   .                |
```

Partial Autocorrelations

```
Lag    Correlation    -1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1

  1        0.01737    |                 .   |   .                |
  2        0.01618    |                 .   |   .                |
  3        0.01661    |                 .   |   .                |
  4       -0.06176    |                 .  *|   .                |
  5        0.04119    |                 .   |*  .                |
  6       -0.01869    |                 .   |   .                |
  7        0.05816    |                 .   |*  .                |
  8       -0.00388    |                 .   |   .                |
  9        0.00013    |                 .   |   .                |
 10        0.10120    |                 .   |** .                |
 11       -0.06780    |                 .  *|   .                |
 12        0.04653    |                 .   |*  .                |
 13       -0.08526    |                 . **|   .                |
 14       -0.08090    |                 . **|   .                |
 15       -0.14853    |                 .***|   .                |
 16       -0.06000    |                 .  *|   .                |
```

Kentucky Power Company
Industrial

The ARIMA Procedure

Partial Autocorrelations

```
Lag    Correlation    -1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1

 17       -0.01938    |                .   |   .                |
 18       -0.07001    |                .  *|   .                |
 19       -0.00426    |                .   |   .                |
 20        0.00210    |                .   |   .                |
 21       -0.00982    |                .   |   .                |
 22        0.01699    |                .   |   .                |
 23        0.09782    |                .   |** .                |
 24        0.05576    |                .   |*  .                |
```

Model for variable KWH

```
Estimated Intercept          -69360.6
Period(s) of Differencing           1
```

Autoregressive Factors

Factor 1: 1 - 0.25955 B**(2)

Moving Average Factors

Factor 1: 1 - 0.92076 B**(1)

Input Number 1

```
Input Variable                   ind1
Period(s) of Differencing           1
Overall Regression Factor    15964139
```

Input Number 2

```
Input Variable                   ind2
Period(s) of Differencing           1
Overall Regression Factor    16238928
```

Input Number 3

```
Input Variable                   ind3
Period(s) of Differencing           1
Overall Regression Factor    19323935
```

Kentucky Power Company
Industrial

The ARIMA Procedure

Input Number 4

Input Variable	ind4
Period(s) of Differencing	1
Overall Regression Factor	32884539

Input Number 5

Input Variable	ind5
Period(s) of Differencing	1
Overall Regression Factor	19799649

Input Number 6

Input Variable	ind6
Period(s) of Differencing	1
Overall Regression Factor	14478399

Input Number 7

Input Variable	MET_DAYS
Period(s) of Differencing	1
Overall Regression Factor	-3397.84

Outlier Detection Summary

Maximum number searched	3
Number found	3
Significance used	0.05

Outlier Details

Obs	Time ID	Type	Estimate	Chi-Square	Approx Prob> ChiSq
80	AUG2010	Additive	12426286	18.10	<.0001
78	JUN2010	Additive	14070462	24.17	<.0001
45	SEP2007	Shift	4771944.6	10.94	0.0009

Kentucky Power Company
Industrial

The ARIMA Procedure

Forecasts for variable KWH

Obs	Forecast	Std Error	95% Confidence Limits	
122	23957256.6	3877019	16358439.3	31556073.9
123	23884204.3	3889171	16261568.3	31506840.3
124	23602439.0	4104986	15556813.6	31648064.5
125	23533462.6	4123184	15452171.2	31614753.9
126	23407933.0	4173813	15227410.2	31588455.7
127	23337825.7	4193672	15118378.9	31557272.5
128	23255283.5	4220536	14983184.7	31527382.4
129	23190257.8	4240697	14878645.1	31501870.5
130	23117171.7	4262503	14762818.9	31471524.6
131	23047566.8	4282601	14653823.3	31441310.3
132	22972847.0	4303047	14539030.1	31406663.9
133	22904212.1	4322991	14431306.0	31377118.2
134	22837693.9	4342956	14325655.8	31349731.9
135	22766723.0	4362727	14215935.9	31317510.2
136	22695559.7	4382437	14106141.1	31284978.3
137	22627123.5	4402032	13999298.8	31254948.3
138	22556255.5	4421548	13890180.2	31222330.9
139	22486288.5	4440972	13782144.1	31190432.9
140	22417933.7	4460312	13675882.3	31159985.2
141	22352944.4	4479568	13573153.0	31132735.8
142	22283540.7	4498741	13466169.9	31100911.4
143	22213945.2	4517833	13359155.5	31068734.9
144	22140181.1	4536844	13248129.6	31032232.7
145	22071548.7	4555776	13142391.1	31000706.2
146	22005278.5	4574630	13039168.4	30971388.6
147	21934308.3	4593406	12931397.3	30937219.2
148	21863209.4	4612106	12823647.4	30902771.4
149	21794773.3	4630730	12718708.3	30870838.3
150	21723922.1	4649280	12611500.3	30836343.8
151	21653955.0	4667756	12505321.0	30802589.1
152	21585604.6	4686159	12400901.0	30770308.3
153	21520615.3	4704491	12299983.3	30741247.4
154	21451212.7	4722751	12194791.7	30707633.7
155	21381617.2	4740940	12089545.1	30673689.4
156	21307853.5	4759060	11980266.4	30635440.5
157	21239221.0	4777112	11876253.8	30602188.2

Kentucky Power Company
Industrial Mine Power

The ARIMA Procedure

Name of Variable = KWH

Period(s) of Differencing	12
Mean of Working Series	-2772514
Standard Deviation	6749610
Number of Observations	109
Observation(s) eliminated by differencing	12

Autocorrelations

Lag	Covariance	Correlation	-1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1	Std Error
0	4.55572E13	1.00000	| |********** |	0
1	3.55194E13	0.77966	| . |********** |	0.095783
2	3.13984E13	0.68921	| . |********** |	0.142576
3	2.78039E13	0.61031	| . |********** |	0.170422
4	2.16427E13	0.47507	| . |********** |	0.189415
5	2.01267E13	0.44179	| . |********* |	0.200048
6	1.7331E13	0.38042	| . |******** |	0.208807
7	1.42883E13	0.31363	| . |****** . |	0.215072
8	9.68105E12	0.21250	| . |**** . |	0.219228
9	4.53554E12	0.09956	| . |** . |	0.221109
10	-5.3515E11	-.01175	| . | . |	0.221520
11	-2.6234E12	-.05758	| . * | . |	0.221526
12	-8.4614E12	-.18573	| . **** | . |	0.221663
13	-5.9847E12	-.13137	| . *** | . |	0.223086
14	-4.1503E12	-.09110	| . ** | . |	0.223795
15	-6.0027E12	-.13176	| . *** | . |	0.224135
16	-5.8074E12	-.12748	| . *** | . |	0.224845
17	-7.313E12	-.16052	| . *** | . |	0.225507
18	-6.7522E12	-.14821	| . *** | . |	0.226553
19	-7.2852E12	-.15991	| . *** | . |	0.227440
20	-5.34E12	-.11721	| . ** | . |	0.228470
21	-4.5145E12	-.09909	| . ** | . |	0.229021
22	-4.6528E12	-.10213	| . ** | . |	0.229414
23	-4.2405E12	-.09308	| . ** | . |	0.229830
24	-4.0933E12	-.08985	| . ** | . |	0.230176

"." marks two standard errors

Kentucky Power Company
Industrial Mine Power

The ARIMA Procedure

Inverse Autocorrelations

```
Lag    Correlation    -1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1

  1       -0.43817    |           *********|   .                |
  2        0.03230    |               .   |*  .                |
  3       -0.29719    |              ******|   .                |
  4        0.40358    |               .   |********            |
  5       -0.18886    |               ****|   .                |
  6        0.04274    |               .   |*  .                |
  7       -0.24710    |              *****|   .                |
  8        0.27910    |               .   |******             |
  9       -0.14282    |               .***|   .                |
 10        0.12674    |               .   |***.                |
 11       -0.31204    |              ******|   .                |
 12        0.42546    |               .   |*********          |
 13       -0.10209    |               . **|   .                |
 14       -0.05297    |               .  *|   .                |
 15       -0.11762    |               . **|   .                |
 16        0.12866    |               .   |***.                |
 17        0.00975    |               .   |   .                |
 18       -0.02204    |               .   |   .                |
 19       -0.05851    |               .  *|   .                |
 20        0.03511    |               .   |*  .                |
 21       -0.02017    |               .   |   .                |
 22        0.07225    |               .   |*  .                |
 23       -0.08203    |               . **|   .                |
 24        0.03810    |               .   |*  .                |
```

Partial Autocorrelations

```
Lag    Correlation    -1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1

  1        0.77966    |               .   |****************    |
  2        0.20741    |               .   |****               |
  3        0.06049    |               .   |*  .               |
  4       -0.15718    |               .***|   .               |
  5        0.12301    |               .   |** .               |
  6        0.00049    |               .   |   .               |
  7       -0.03163    |               .  *|   .               |
  8       -0.19351    |               ****|   .               |
  9       -0.13433    |               .***|   .               |
 10       -0.13147    |               .***|   .               |
 11        0.08546    |               .   |** .               |
 12       -0.26050    |              *****|   .               |
 13        0.33323    |               .   |*******            |
 14        0.12267    |               .   |** .               |
 15       -0.01628    |               .   |   .               |
 16       -0.16806    |               .***|   .               |
```

Kentucky Power Company
Industrial Mine Power

The ARIMA Procedure

Partial Autocorrelations

```
Lag    Correlation    -1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1

 17        0.04415    |                .   |*  .                |
 18        0.07563    |                .   |** .                |
 19       -0.08785    |                . **|   .                |
 20       -0.05587    |                .  *|   .                |
 21       -0.06016    |                .  *|   .                |
 22       -0.06196    |                .  *|   .                |
 23        0.07507    |                .   |** .                |
 24       -0.09237    |                . **|   .                |
```

Autocorrelation Check for White Noise

To Lag	Chi-Square	DF	Pr > ChiSq	Autocorrelations					
6	230.04	6	<.0001	0.780	0.689	0.610	0.475	0.442	0.380
12	253.04	12	<.0001	0.314	0.213	0.100	-0.012	-0.058	-0.186
18	266.93	18	<.0001	-0.131	-0.091	-0.132	-0.127	-0.161	-0.148
24	277.41	24	<.0001	-0.160	-0.117	-0.099	-0.102	-0.093	-0.090

Variable bcdd65 has been differenced.

Correlation of KWH and bcdd65

Period(s) of Differencing	12
Variance of input =	1934.094
Number of Observations	109
Observation(s) eliminated by differencing	12

Crosscorrelations

```
Lag    Covariance    Correlation    -1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1

-24      37293029        0.10584    |                .   |** .                |
-23      45589822        0.12938    |                .   |***.                |
-22      65382351        0.18555    |                .   |****                |
-21      64845898        0.18403    |                .   |****                |
-20      53824024        0.15275    |                .   |***.                |
-19      53053943        0.15057    |                .   |***.                |
-18      43872601        0.12451    |                .   |** .                |
-17      22999828        0.06527    |                .   |*  .                |
-16      -3847277        -.01092    |                .   |   .                |
-15       -390046        -.00111    |                .   |   .                |
-14     -24075800        -.06833    |                .  *|   .                |
```

Kentucky Power Company
Industrial Mine Power

The ARIMA Procedure

Crosscorrelations

```
Lag    Covariance    Correlation    -1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1

-13     -18612157        -.05282    |                 .  *|   .                |
-12      -5942103        -.01686    |                 .   |   .                |
-11     -14192694        -.04028    |                 .  *|   .                |
-10     -34014535        -.09653    |                 . **|   .                |
 -9     -47923199        -.13601    |                .***|   .                |
 -8     -39427349        -.11189    |                . **|   .                |
 -7     -41399618        -.11749    |                . **|   .                |
 -6     -39562565        -.11228    |                . **|   .                |
 -5     -12020530        -.03411    |                .  *|   .                |
 -4       3384273        0.00960    |                .   |   .                |
 -3       5274511        0.01497    |                .   |   .                |
 -2      39610093        0.11241    |                .   |** .                |
 -1       5864192        0.01664    |                .   |   .                |
  0     -47166389        -.13386    |                .***|   .                |
  1     -37047691        -.10514    |                . **|   .                |
  2     -14168947        -.04021    |                .  *|   .                |
  3      27035465        0.07673    |                .   |** .                |
  4      40687364        0.11547    |                .   |** .                |
  5      24531776        0.06962    |                .   |*  .                |
  6      19553976        0.05549    |                .   |*  .                |
  7       9232528        0.02620    |                .   |*  .                |
  8       8912015        0.02529    |                .   |*  .                |
  9      20210447        0.05736    |                .   |*  .                |
 10      40223288        0.11415    |                .   |** .                |
 11      83120891        0.23590    |                .   |*****               |
 12     122688974        0.34819    |                .   |*******             |
 13     125059033        0.35492    |                .   |*******             |
 14     114925254        0.32616    |                .   |*******             |
 15      81590689        0.23155    |                .   |*****               |
 16      58771148        0.16679    |                .   |***.                |
 17      57000988        0.16177    |                .   |***.                |
 18      33698618        0.09564    |                .   |** .                |
 19       5692008        0.01615    |                .   |   .                |
 20     -37664471        -.10689    |                . **|   .                |
 21     -65236185        -.18514    |               ****|   .                |
 22    -102951968        -.29218    |             ******|   .                |
 23    -120659541        -.34243    |            *******|   .                |
 24    -122944743        -.34892    |            *******|   .                |

                    "." marks two standard errors

                Variable bhdd55 has been differenced.
```

Kentucky Power Company
Industrial Mine Power

The ARIMA Procedure

Correlation of KWH and bhdd55

Period(s) of Differencing	12
Variance of input =	6123.297
Number of Observations	109
Observation(s) eliminated by differencing	12

Crosscorrelations

Lag	Covariance	Correlation	-1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1
-24	82192487	0.13189	| . |***. |
-23	23691133	0.03801	| . |* . |
-22	13919805	0.02234	| . | . |
-21	17974174	0.02884	| . |* . |
-20	-15482366	-.02484	| . | . |
-19	-68083889	-.10925	| . **| . |
-18	-70730750	-.11349	| . **| . |
-17	-15643961	-.02510	| . *| . |
-16	-38417670	-.06165	| . *| . |
-15	-12258151	-.01967	| . | . |
-14	-42617288	-.06838	| . *| . |
-13	-118565391	-.19025	| ****| . |
-12	-116242805	-.18652	| ****| . |
-11	-75907499	-.12180	| . **| . |
-10	-113323127	-.18184	| ****| . |
-9	-103028191	-.16532	| .***| . |
-8	-92642757	-.14865	| .***| . |
-7	-68699613	-.11024	| . **| . |
-6	-67800394	-.10879	| . **| . |
-5	-118243671	-.18973	| ****| . |
-4	-94274416	-.15127	| .***| . |
-3	-128671232	-.20647	| ****| . |
-2	-142084701	-.22799	| *****| . |
-1	-49160274	-.07888	| . **| . |
0	50008211	0.08024	| . |** . |
1	10552643	0.01693	| . | . |
2	71680988	0.11502	| . |** . |
3	83657375	0.13424	| . |***. |
4	71576219	0.11485	| . |** . |
5	40620747	0.06518	| . |* . |
6	53996056	0.08664	| . |** . |
7	92425680	0.14831	| . |***. |
8	67557825	0.10840	| . |** . |
9	86934885	0.13950	| . |***. |
10	106325262	0.17061	| . |***. |
11	126088162	0.20232	| . |**** |
12	23030984	0.03696	| . |* . |
13	18644400	0.02992	| . |* . |

Kentucky Power Company
Industrial Mine Power

The ARIMA Procedure

Crosscorrelations

Lag	Covariance	Correlation	-1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1
14	27937179	0.04483	| . |* . |
15	45979200	0.07378	| . |* . |
16	63604883	0.10206	| . |** . |
17	94040640	0.15090	| . |***. |
18	47406203	0.07607	| . |** . |
19	-15328582	-.02460	| . | . |
20	33543936	0.05382	| . |* . |
21	45651010	0.07325	| . |* . |
22	73968835	0.11869	| . |** . |
23	17287214	0.02774	| . |* . |
24	17780579	0.02853	| . |* . |

"." marks two standard errors

Variable min1 has been differenced.

Correlation of KWH and min1

Period(s) of Differencing	12
Variance of input =	0.012821
Number of Observations	109
Observation(s) eliminated by differencing	12

Crosscorrelations

Lag	Covariance	Correlation	-1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1
-24	0	0.00000	| . | . |
-23	-2249.692	-.00246	| . | . |
-22	15128.143	0.01655	| . | . |
-21	-76603.371	-.08379	| . **| . |
-20	9082.079	0.00993	| . | . |
-19	-43060.068	-.04710	| . *| . |
-18	-98708.958	-.10796	| . **| . |
-17	-36924.775	-.04039	| . *| . |
-16	-31018.646	-.03393	| . *| . |
-15	-66232.573	-.07244	| . *| . |
-14	-38609.894	-.04223	| . *| . |
-13	-91144.380	-.09969	| . **| . |
-12	-140087	-.15322	| .***| . |
-11	-49312.550	-.05394	| . *| . |
-10	-113523	-.12417	| . **| . |
-9	55769.055	0.06100	| . |* . |
-8	-59471.624	-.06505	| . *| . |

Kentucky Power Company
Industrial Mine Power

The ARIMA Procedure

Crosscorrelations

Lag	Covariance	Correlation	-1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1
-7	36930.385	0.04039	| . |* . |
-6	116653	0.12759	| . |***. |
-5	-16809.991	-.01839	| . | . |
-4	-5226.982	-.00572	| . | . |
-3	10681.826	0.01168	| . | . |
-2	-20225.651	-.02212	| . | . |
-1	42771.752	0.04678	| . |* . |
0	183739	0.20097	| . |**** |
1	59198.798	0.06475	| . |* . |
2	88852.560	0.09718	| . |** . |
3	37724.183	0.04126	| . |* . |
4	46394.936	0.05074	| . |* . |
5	3017.422	0.00330	| . | . |
6	15247.119	0.01668	| . | . |
7	76827.807	0.08403	| . |** . |
8	52701.367	0.05764	| . |* . |
9	91103.257	0.09964	| . |** . |
10	97152.440	0.10626	| . |** . |
11	102966	0.11262	| . |** . |
12	-1804.936	-.00197	| . | . |
13	-50495.468	-.05523	| . *| . |
14	25142.394	0.02750	| . |* . |
15	-15852.688	-.01734	| . | . |
16	-27217.000	-.02977	| . *| . |
17	-46328.468	-.05067	| . *| . |
18	-101881	-.11143	| . **| . |
19	-72048.101	-.07880	| . **| . |
20	-82412.963	-.09014	| . **| . |
21	-82728.248	-.09048	| . **| . |
22	-95130.615	-.10405	| . **| . |
23	-134295	-.14689	| .***| . |
24	-128626	-.14069	| .***| . |

"." marks two standard errors

Variable min2 has been differenced.

Correlation of KWH and min2

Period(s) of Differencing	12
Variance of input =	0.071006
Number of Observations	109
Observation(s) eliminated by differencing	12

Kentucky Power Company
Industrial Mine Power

The ARIMA Procedure

Crosscorrelations

Lag	Covariance	Correlation	-1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1
-24	-367375	-.17389	| .***| . |
-23	-320941	-.15191	| .***| . |
-22	-215841	-.10217	| . **| . |
-21	-136237	-.06449	| . *| . |
-20	-45634.300	-.02160	| . | . |
-19	49561.672	0.02346	| . | . |
-18	161118	0.07626	| . |** . |
-17	309236	0.14637	| . |***. |
-16	452042	0.21397	| . |**** |
-15	472449	0.22363	| . |**** |
-14	563239	0.26660	| . |***** |
-13	652302	0.30876	| . |****** |
-12	657895	0.31141	| . |****** |
-11	598634	0.28336	| . |****** |
-10	495132	0.23436	| . |***** |
-9	407021	0.19266	| . |**** |
-8	293208	0.13879	| . |***. |
-7	230328	0.10902	| . |** . |
-6	142542	0.06747	| . |* . |
-5	-4550.314	-.00215	| . | . |
-4	-170413	-.08066	| . **| . |
-3	-302834	-.14334	| .***| . |
-2	-407331	-.19281	| ****| . |
-1	-528478	-.25015	| *****| . |
0	-557031	-.26366	| *****| . |
1	-412795	-.19539	| ****| . |
2	-319635	-.15130	| .***| . |
3	-221500	-.10484	| . **| . |
4	-146788	-.06948	| . *| . |
5	-120052	-.05683	| . *| . |
6	-46450.656	-.02199	| . | . |
7	63703.732	0.03015	| . |* . |
8	228093	0.10797	| . |** . |
9	383199	0.18138	| . |**** |
10	463646	0.21946	| . |**** |
11	543344	0.25719	| . |***** |
12	587323	0.27800	| . |****** |
13	397777	0.18828	| . |**** |
14	404636	0.19153	| . |**** |
15	424608	0.20098	| . |**** |
16	458855	0.21719	| . |**** |
17	522734	0.24743	| . |***** |
18	477670	0.22610	| . |***** |
19	490493	0.23217	| . |***** |
20	411286	0.19468	| . |**** |
21	348942	0.16517	| . |***. |

Kentucky Power Company
Industrial Mine Power

The ARIMA Procedure

Crosscorrelations

```
Lag    Covariance    Correlation    -1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1

 22        329965        0.15619    |                .   |***.                |
 23        290301        0.13741    |                .   |***.                |
 24        199094        0.09424    |                .   |** .                |

                        "." marks two standard errors
```

Variable min3 has been differenced.

Correlation of KWH and min3

Period(s) of Differencing	12
Variance of input =	0.071006
Number of Observations	109
Observation(s) eliminated by differencing	12

Crosscorrelations

```
Lag    Covariance    Correlation    -1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1

-24        307794        0.14569    |                .   |***.                |
-23        336455        0.15926    |                .   |***.                |
-22        144451        0.06837    |                .   |*  .                |
-21        148034        0.07007    |                .   |*  .                |
-20        173902        0.08231    |                .   |** .                |
-19        215069        0.10180    |                .   |** .                |
-18        294698        0.13949    |                .   |***.                |
-17        265434        0.12564    |                .   |***.                |
-16        286520        0.13562    |                .   |***.                |
-15        214770        0.10166    |                .   |** .                |
-14        164691        0.07795    |                .   |** .                |
-13        156815        0.07423    |                .   |*  .                |
-12        127306        0.06026    |                .   |*  .                |
-11     52775.313        0.02498    |                .   |   .                |
-10     57638.852        0.02728    |                .   |*  .                |
 -9       -103170        -.04883    |                .  *|   .                |
 -8       -313674        -.14847    |               .***|   .                |
 -7       -484221        -.22920    |              *****|   .                |
 -6       -676293        -.32012    |             ******|   .                |
 -5       -770624        -.36477    |            *******|   .                |
 -4       -982827        -.46521    |          *********|   .                |
 -3      -1136192        -.53780    |        ***********|   .                |
 -2      -1268014        -.60020    |       ************|   .                |
 -1      -1371676        -.64927    |      *************|   .                |
  0      -1396340        -.66094    |      *************|   .                |
```

Kentucky Power Company
Industrial Mine Power

The ARIMA Procedure

Crosscorrelations

```
Lag    Covariance    Correlation    -1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1

  1      -1347013        -.63759    |        *************|   .                 |
  2      -1317607        -.62367    |         ************|   .                 |
  3      -1257709        -.59532    |         ************|   .                 |
  4      -1104270        -.52269    |           **********|   .                 |
  5       -963898        -.45625    |            *********|   .                 |
  6       -837555        -.39645    |             ********|   .                 |
  7       -761614        -.36050    |              *******|   .                 |
  8       -627659        -.29709    |               ******|   .                 |
  9       -489874        -.23188    |                *****|   .                 |
 10       -377357        -.17862    |                 ****|   .                 |
 11       -259495        -.12283    |                  . **|   .                 |
 12       -186610        -.08833    |                  . **|   .                 |
 13       -161377        -.07639    |                  . **|   .                 |
 14       -107228        -.05076    |                  .  *|   .                 |
 15    -43150.356        -.02042    |                  .   |   .                 |
 16    -42840.823        -.02028    |                  .   |   .                 |
 17    -52235.641        -.02473    |                  .   |   .                 |
 18    -40885.142        -.01935    |                  .   |   .                 |
 19     -2872.236        -.00136    |                  .   |   .                 |
 20     37532.627        0.01777    |                  .   |   .                 |
 21     72828.421        0.03447    |                  .   |*  .                 |
 22        111651        0.05285    |                  .   |*  .                 |
 23        116976        0.05537    |                  .   |*  .                 |
 24        112171        0.05309    |                  .   |*  .                 |
```

"." marks two standard errors

Variable min4 has been differenced.

Correlation of KWH and min4

Period(s) of Differencing	12
Variance of input =	0.071006
Number of Observations	109
Observation(s) eliminated by differencing	12

Kentucky Power Company
Industrial Mine Power

The ARIMA Procedure

Crosscorrelations

```
Lag    Covariance    Correlation    -1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1

-24     49457.021        0.02538    |                .   |*  .                |
-23     30823.544        0.01582    |                .   |   .                |
-22     77194.153        0.03962    |                .   |*  .                |
-21    -34857.413        -.01789    |                .   |   .                |
-20       -168493        -.08648    |                . **|   .                |
-19       -323138        -.16585    |               .***|   .                |
-18       -521344        -.26758    |              *****|   .                |
-17       -624637        -.32060    |             ******|   .                |
-16       -788337        -.40461    |           ********|   .                |
-15       -879997        -.45166    |          *********|   .                |
-14      -1026854        -.52703    |        ***********|   .                |
-13      -1170924        -.60098    |       ************|   .                |
-12      -1269398        -.65152    |      *************|   .                |
-11      -1298699        -.66656    |      *************|   .                |
-10      -1276501        -.65517    |      *************|   .                |
 -9      -1181015        -.60616    |       ************|   .                |
 -8      -1071156        -.54977    |        ***********|   .                |
 -7      -1001710        -.51413    |         **********|   .                |
 -6       -868150        -.44558    |          *********|   .                |
 -5       -755032        -.38752    |           ********|   .                |
 -4       -600180        -.30804    |             ******|   .                |
 -3       -469660        -.24105    |              *****|   .                |
 -2       -362122        -.18586    |               ****|   .                |
 -1       -280797        -.14412    |               .***|   .                |
  0       -252712        -.12970    |               .***|   .                |
  1       -232950        -.11956    |               . **|   .                |
  2       -191021        -.09804    |               . **|   .                |
  3       -122209        -.06272    |               .  *|   .                |
  4       -128280        -.06584    |               .  *|   .                |
  5       -134399        -.06898    |               .  *|   .                |
  6       -112018        -.05749    |               .  *|   .                |
  7     -76532.865        -.03928    |               .  *|   .                |
  8     -37272.599        -.01913    |               .   |   .                |
  9      -2016.101        -.00103    |               .   |   .                |
 10      33871.354        0.01738    |               .   |   .                |
 11      42233.223        0.02168    |               .   |   .                |
 12      55085.267        0.02827    |               .   |*  .                |
 13      59815.748        0.03070    |               .   |*  .                |
 14      68842.832        0.03533    |               .   |*  .                |
 15      70754.237        0.03631    |               .   |*  .                |
 16      75377.131        0.03869    |               .   |*  .                |
 17      75939.488        0.03898    |               .   |*  .                |
 18      74293.255        0.03813    |               .   |*  .                |
 19      79223.050        0.04066    |               .   |*  .                |
 20      82548.337        0.04237    |               .   |*  .                |
 21      87644.736        0.04498    |               .   |*  .                |
```

Kentucky Power Company
Industrial Mine Power

The ARIMA Procedure

Crosscorrelations

```
Lag    Covariance    Correlation    -1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1

 22     93042.492        0.04775    |                 .   |*  .                |
 23     97480.348        0.05003    |                 .   |*  .                |
 24     93475.561        0.04798    |                 .   |*  .                |
```

"." marks two standard errors

Variable MET_DAYS has been differenced.

Correlation of KWH and MET_DAYS

Period(s) of Differencing	12
Variance of input =	0.282096
Number of Observations	109
Observation(s) eliminated by differencing	12

Crosscorrelations

```
Lag    Covariance    Correlation    -1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1

-24       -320199        -.07559    |                 . **|   .                |
-23        117540        0.02775    |                 .   |*  .                |
-22     -7512.474        -.00177    |                 .   |   .                |
-21    -82065.067        -.01937    |                 .   |   .                |
-20       -229695        -.05422    |                 .  *|   .                |
-19       -223985        -.05287    |                 .  *|   .                |
-18       -194967        -.04602    |                 .  *|   .                |
-17       -199934        -.04720    |                 .  *|   .                |
-16        178524        0.04214    |                 .   |*  .                |
-15        107794        0.02545    |                 .   |*  .                |
-14    -42785.409        -.01010    |                 .   |   .                |
-13     22148.608        0.00523    |                 .   |   .                |
-12        379568        0.08960    |                 .   |** .                |
-11        118225        0.02791    |                 .   |*  .                |
-10     64108.121        0.01513    |                 .   |   .                |
 -9        448297        0.10582    |                 .   |** .                |
 -8        679804        0.16047    |                 .   |***.                |
 -7        568950        0.13431    |                 .   |***.                |
 -6        677297        0.15988    |                 .   |***.                |
 -5        539061        0.12725    |                 .   |***.                |
 -4        187170        0.04418    |                 .   |*  .                |
 -3    -95100.980        -.02245    |                 .   |   .                |
 -2        549001        0.12960    |                 .   |***.                |
 -1        130501        0.03081    |                 .   |*  .                |
  0       -113613        -.02682    |                 .  *|   .                |
```

Kentucky Power Company
Industrial Mine Power

The ARIMA Procedure

Crosscorrelations

Lag	Covariance	Correlation	-1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1
1	282358	0.06665	| . |* . |
2	108074	0.02551	| . |* . |
3	-1478.345	-.00035	| . | . |
4	-451670	-.10662	| . **| . |
5	-281324	-.06641	| . *| . |
6	-535111	-.12632	| .***| . |
7	-447882	-.10573	| . **| . |
8	-127818	-.03017	| . *| . |
9	274323	0.06476	| . |* . |
10	-175971	-.04154	| . *| . |
11	-360091	-.08500	| . **| . |
12	113190	0.02672	| . |* . |
13	-136543	-.03223	| . *| . |
14	-75883.498	-.01791	| . | . |
15	12843.480	0.00303	| . | . |
16	149819	0.03537	| . |* . |
17	-46297.989	-.01093	| . | . |
18	-104117	-.02458	| . | . |
19	240663	0.05681	| . |* . |
20	-13410.778	-.00317	| . | . |
21	-267003	-.06303	| . *| . |
22	-57943.112	-.01368	| . | . |
23	512228	0.12092	| . |** . |
24	274424	0.06478	| . |* . |

"." marks two standard errors

Conditional Least Squares Estimation

Parameter	Estimate	Standard Error	t Value	Approx Pr > |t|	Lag	Variable	Shift
MU	-29360.3	345177.9	-0.09	0.9324	0	KWH	0
MA1,1	0.71251	0.08252	8.63	<.0001	12	KWH	0
AR1,1	0.44296	0.09418	4.70	<.0001	1	KWH	0
NUM1	9315126.6	2673985.4	3.48	0.0007	0	min1	0
NUM2	-5989918.6	1679268.1	-3.57	0.0006	0	min2	0
NUM3	-14525401	1683888.1	-8.63	<.0001	0	min3	0
NUM4	-5909917.1	1867665.1	-3.16	0.0021	0	min4	0
NUM5	43173.3	481678.4	0.09	0.9288	0	MET_DAYS	0

Constant Estimate	-16354.8
Variance Estimate	9.755E12
Std Error Estimate	3123260

Kentucky Power Company
Industrial Mine Power

The ARIMA Procedure

AIC	3577.076
SBC	3598.607
Number of Residuals	109

* AIC and SBC do not include log determinant.

Correlations of Parameter Estimates

Variable		KWH	KWH	KWH	min1	min2	min3	min4	MET_DAYS
Parameter		MU	MA1,1	AR1,1	NUM1	NUM2	NUM3	NUM4	NUM5
KWH	MU	1.000	0.126	-0.164	0.036	-0.711	-0.401	-0.160	-0.080
KWH	MA1,1	0.126	1.000	0.064	-0.007	-0.033	-0.057	0.054	-0.058
KWH	AR1,1	-0.164	0.064	1.000	-0.095	0.102	0.237	-0.074	0.110
min1	NUM1	0.036	-0.007	-0.095	1.000	-0.015	-0.026	-0.000	0.102
min2	NUM2	-0.711	-0.033	0.102	-0.015	1.000	0.121	0.104	0.023
min3	NUM3	-0.401	-0.057	0.237	-0.026	0.121	1.000	-0.356	0.082
min4	NUM4	-0.160	0.054	-0.074	-0.000	0.104	-0.356	1.000	-0.036
MET_DAYS	NUM5	-0.080	-0.058	0.110	0.102	0.023	0.082	-0.036	1.000

Autocorrelation Check of Residuals

To Lag	Chi-Square	DF	Pr > ChiSq	Autocorrelations					
6	7.23	4	0.1242	-0.049	0.082	0.109	-0.146	0.130	-0.058
12	7.63	10	0.6647	-0.027	0.025	-0.005	0.017	0.017	0.037
18	11.33	16	0.7885	-0.057	0.027	-0.034	0.024	-0.150	0.006
24	20.14	22	0.5740	-0.191	-0.014	0.027	-0.115	0.111	-0.038

Autocorrelation Plot of Residuals

Lag	Covariance	Correlation	-1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1	Std Error
0	9.75475E12	1.00000	|**********|	0
1	-4.8001E11	-.04921	. *| . |	0.095783
2	8.0421E11	0.08244	. |** . |	0.096014
3	1.06702E12	0.10938	. |** . |	0.096662
4	-1.4265E12	-.14624	.***| . |	0.097791
5	1.26845E12	0.13003	. |***. |	0.099777
6	-5.6451E11	-.05787	. *| . |	0.101319
7	-2.5858E11	-.02651	. *| . |	0.101622
8	2.44658E11	0.02508	. |* . |	0.101686
9	-4.4066E10	-.00452	. | . |	0.101742
10	1.69756E11	0.01740	. | . |	0.101744
11	1.68545E11	0.01728	. | . |	0.101772
12	3.56855E11	0.03658	. |* . |	0.101798
13	-5.518E11	-.05657	. *| . |	0.101919

Kentucky Power Company
Industrial Mine Power

The ARIMA Procedure

Autocorrelation Plot of Residuals

Lag	Covariance	Correlation	-1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1	Std Error
14	2.66154E11	0.02728	. |* .	0.102207
15	-3.2968E11	-.03380	. *| .	0.102273
16	2.29994E11	0.02358	. | .	0.102376
17	-1.4679E12	-.15049	.***| .	0.102426
18	5.55683E10	0.00570	. | .	0.104434
19	-1.863E12	-.19099	****| .	0.104437
20	-1.3783E11	-.01413	. | .	0.107594
21	2.62599E11	0.02692	. |* .	0.107611
22	-1.1234E12	-.11516	. **| .	0.107672
23	1.08102E12	0.11082	. |** .	0.108797
24	-3.7482E11	-.03842	. *| .	0.109827

"." marks two standard errors

Inverse Autocorrelations

Lag	Correlation	-1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1
1	-0.08461	. **| .
2	0.03789	. |* .
3	-0.13130	.***| .
4	0.15788	. |***.
5	-0.13562	.***| .
6	0.06456	. |* .
7	0.00668	. | .
8	-0.02705	. *| .
9	0.00834	. | .
10	-0.03906	. *| .
11	0.02025	. | .
12	-0.08332	. **| .
13	0.12676	. |***.
14	-0.09360	. **| .
15	0.07564	. |** .
16	-0.08286	. **| .
17	0.14138	. |***.
18	-0.01650	. | .
19	0.17024	. |***.
20	-0.03057	. *| .
21	0.01684	. | .
22	0.02438	. | .
23	-0.02790	. *| .
24	-0.01217	. | .

Kentucky Power Company
Industrial Mine Power

The ARIMA Procedure

Partial Autocorrelations

```
Lag    Correlation    -1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1

  1       -0.04921    |                 .  *|  .                |
  2        0.08022    |                 .   |** .                |
  3        0.11811    |                 .   |** .                |
  4       -0.14477    |                 .***|  .                |
  5        0.10201    |                 .   |** .                |
  6       -0.03859    |                 .  *|  .                |
  7       -0.01919    |                 .   |  .                |
  8       -0.01334    |                 .   |  .                |
  9        0.04475    |                 .   |*  .                |
 10       -0.00531    |                 .   |  .                |
 11        0.01876    |                 .   |  .                |
 12        0.03926    |                 .   |*  .                |
 13       -0.06063    |                 .  *|  .                |
 14        0.01243    |                 .   |  .                |
 15       -0.02645    |                 .  *|  .                |
 16        0.04128    |                 .   |*  .                |
 17       -0.18446    |                 ****|  .                |
 18        0.03077    |                 .   |*  .                |
 19       -0.21039    |                 ****|  .                |
 20        0.03639    |                 .   |*  .                |
 21       -0.01472    |                 .   |  .                |
 22       -0.02643    |                 .  *|  .                |
 23        0.03265    |                 .   |*  .                |
 24        0.01408    |                 .   |  .                |
```

Model for variable KWH

```
Estimated Intercept          -29360.3
Period(s) of Differencing          12
```

Autoregressive Factors

Factor 1: 1 - 0.44296 B**(1)

Moving Average Factors

Factor 1: 1 - 0.71251 B**(12)

Input Number 1

```
Input Variable                   min1
Period(s) of Differencing          12
```

Kentucky Power Company
Industrial Mine Power

The ARIMA Procedure

Input Number 1

Overall Regression Factor	9315127

Input Number 2

Input Variable	min2
Period(s) of Differencing	12
Overall Regression Factor	-5989919

Input Number 3

Input Variable	min3
Period(s) of Differencing	12
Overall Regression Factor	-1.453E7

Input Number 4

Input Variable	min4
Period(s) of Differencing	12
Overall Regression Factor	-5909917

Input Number 5

Input Variable	MET_DAYS
Period(s) of Differencing	12
Overall Regression Factor	43173.27

Outlier Detection Summary

Maximum number searched	3
Number found	3
Significance used	0.05

Kentucky Power Company
Industrial Mine Power

The ARIMA Procedure

Outlier Details

Obs	Time ID	Type	Estimate	Chi-Square	Approx Prob> ChiSq
77	MAY2010	Additive	10128581	18.41	<.0001
15	MAR2005	Additive	7487088.7	10.03	0.0015
99	MAR2012	Additive	-6787307.3	8.11	0.0044

Forecasts for variable KWH

Obs	Forecast	Std Error	95% Confidence Limits	
122	54422414.0	3123260	48300936.4	60543891.6
123	52147916.8	3415959	45452759.3	58843074.3
124	53497383.4	3470495	46695337.4	60299429.5
125	49085634.0	3481096	42262811.4	55908456.6
126	46810606.6	3483172	39983714.8	53637498.5
127	40780078.6	3483579	33952388.6	47607768.6
128	43114717.7	3483659	36286871.1	49942564.2
129	44896911.3	3483675	38069034.0	51724788.6
130	42789895.9	3483678	35962012.5	49617779.2
131	47594771.3	3483679	40766886.7	54422655.8
132	54015445.3	3483679	47187560.5	60843330.0
133	54722696.1	3483679	47894811.3	61550580.9
134	55664866.5	3597577	48613745.8	62715987.3
135	52681920.0	3619505	45587821.5	59776018.5
136	53717571.2	3623792	46615070.4	60820072.1
137	49166813.8	3624632	42062665.4	56270962.1
138	46830211.3	3624797	39725739.7	53934682.8
139	40772407.8	3624829	33667872.9	47876942.8
140	43094965.0	3624836	35990417.6	50199512.4
141	44871806.8	3624837	37767256.9	51976356.6
142	42762420.7	3624837	35657870.4	49866971.0
143	47566246.0	3624837	40461695.6	54670796.4
144	53986454.8	3624837	46881904.4	61091005.3
145	54693499.6	3624837	47588949.2	61798050.1
146	55635578.8	3734402	48316285.5	62954872.0
147	52652591.9	3755525	45291898.2	60013285.6
148	53688225.2	3759656	46319435.4	61057014.9
149	49137459.7	3760466	41767082.4	56507837.0
150	46800853.7	3760625	39430165.0	54171542.5
151	40743048.7	3760656	33372298.9	48113798.6
152	43065605.2	3760662	35694843.3	50436367.0
153	44842446.7	3760663	37471682.5	52213210.9
154	42733060.5	3760663	35362295.8	50103825.1
155	47536885.7	3760663	40166121.0	54907650.5
156	53957094.5	3760663	46586329.8	61327859.3
157	54664139.3	3760663	47293374.6	62034904.1

Kentucky Power Company
Other Retail

The ARIMA Procedure

Name of Variable = KWH

Period(s) of Differencing	12
Mean of Working Series	-4752.08
Standard Deviation	126133.4
Number of Observations	109
Observation(s) eliminated by differencing	12

Autocorrelations

Lag	Covariance	Correlation	-1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1	Std Error
0	1.59096E10	1.00000	||**********	0
1	-2.07668E9	-.13053	|.***|. |	0.095783
2	-1.99566E9	-.12544	|.***|. |	0.097401
3	496286181	0.03119	|. |*. |	0.098872
4	704675581	0.04429	|. |*. |	0.098962
5	2755627805	0.17321	|. |***. |	0.099144
6	438661144	0.02757	|. |*. |	0.101882
7	-1.40687E9	-.08843	|. **|. |	0.101950
8	1722222982	0.10825	|. |**. |	0.102652
9	606751031	0.03814	|. |*. |	0.103694
10	1108899299	0.06970	|. |*. |	0.103822
11	2624711178	0.16498	|. |***. |	0.104251
12	-8.28901E9	-.52101	|**********|. |	0.106619
13	1559456798	0.09802	|. |**. |	0.127860
14	2606458105	0.16383	|. |***. |	0.128548
15	782902109	0.04921	|. |*. |	0.130449
16	-217799309	-.01369	|. |. |	0.130620
17	-1.47968E9	-.09301	|. **|. |	0.130633
18	837968026	0.05267	|. |*. |	0.131239
19	1730274333	0.10876	|. |**. |	0.131433
20	-1.61545E9	-.10154	|. **|. |	0.132256
21	-116847318	-.00734	|. |. |	0.132969
22	149826126	0.00942	|. |. |	0.132973
23	-1.04762E9	-.06585	|. *|. |	0.132979
24	1792957370	0.11270	|. |**. |	0.133278

"." marks two standard errors

Kentucky Power Company
Other Retail

The ARIMA Procedure

Inverse Autocorrelations

```
Lag    Correlation    -1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1

  1        0.16792    |                .   |***.                |
  2        0.14119    |                .   |***.                |
  3       -0.07604    |                . **|   .                |
  4       -0.17627    |               ****|   .                |
  5       -0.22563    |              *****|   .                |
  6       -0.26118    |              *****|   .                |
  7       -0.19144    |               ****|   .                |
  8       -0.14402    |               .***|   .                |
  9       -0.05973    |               .  *|   .                |
 10        0.12276    |                .   |** .                |
 11        0.08348    |                .   |** .                |
 12        0.54904    |                .   |***********         |
 13        0.04851    |                .   |*  .                |
 14        0.01253    |                .   |   .                |
 15       -0.07681    |                . **|   .                |
 16       -0.10223    |                . **|   .                |
 17       -0.09892    |                . **|   .                |
 18       -0.12373    |                . **|   .                |
 19       -0.08846    |                . **|   .                |
 20       -0.03081    |                .  *|   .                |
 21       -0.01406    |                .   |   .                |
 22        0.05255    |                .   |*  .                |
 23        0.03062    |                .   |*  .                |
 24        0.16489    |                .   |***.                |
```

Partial Autocorrelations

```
Lag    Correlation    -1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1

  1       -0.13053    |                .***|   .                |
  2       -0.14495    |                .***|   .                |
  3       -0.00673    |                .   |   .                |
  4        0.03097    |                .   |*  .                |
  5        0.19561    |                .   |****                |
  6        0.10080    |                .   |** .                |
  7       -0.02379    |                .   |   .                |
  8        0.10028    |                .   |** .                |
  9        0.03443    |                .   |*  .                |
 10        0.07617    |                .   |** .                |
 11        0.19659    |                .   |****                |
 12       -0.50392    |          **********|   .                |
 13       -0.04583    |                .  *|   .                |
 14        0.00919    |                .   |   .                |
 15        0.09113    |                .   |** .                |
 16        0.05317    |                .   |*  .                |
```

Kentucky Power Company
Other Retail

The ARIMA Procedure

Partial Autocorrelations

```
Lag    Correlation    -1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1

 17        0.07160    |                .   |*  .                |
 18        0.10201    |                .   |** .                |
 19        0.02999    |                .   |*  .                |
 20       -0.01505    |                .   |   .                |
 21        0.00377    |                .   |   .                |
 22       -0.02511    |                .  *|   .                |
 23        0.02287    |                .   |   .                |
 24       -0.29886    |              ******|   .                |
```

Autocorrelation Check for White Noise

To Lag	Chi-Square	DF	Pr > ChiSq	Autocorrelations					
6	7.60	6	0.2685	-0.131	-0.125	0.031	0.044	0.173	0.028
12	47.92	12	<.0001	-0.088	0.108	0.038	0.070	0.165	-0.521
18	54.40	18	<.0001	0.098	0.164	0.049	-0.014	-0.093	0.053
24	59.82	24	<.0001	0.109	-0.102	-0.007	0.009	-0.066	0.113

Variable bcdd65 has been differenced.

Correlation of KWH and bcdd65

Period(s) of Differencing	12
Variance of input =	1934.094
Number of Observations	109
Observation(s) eliminated by differencing	12

Crosscorrelations

```
Lag    Covariance    Correlation    -1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1

-24     39057.090        0.00593    |                .   |   .                |
-23       -889483        -.13508    |                .***|   .                |
-22      -1048687        -.15926    |                .***|   .                |
-21       -939514        -.14268    |                .***|   .                |
-20    -51763.873        -.00786    |                .   |   .                |
-19       -635491        -.09651    |                . **|   .                |
-18       -153547        -.02332    |                .   |   .                |
-17       -539636        -.08195    |                . **|   .                |
-16        489514        0.07434    |                .   |*  .                |
-15        407993        0.06196    |                .   |*  .                |
-14    -56617.661        -.00860    |                .   |   .                |
```

Kentucky Power Company
Other Retail

The ARIMA Procedure

Crosscorrelations

```
Lag    Covariance    Correlation    -1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1

-13        775397        0.11776    |                 .   |** .                |
-12     35044.176        0.00532    |                 .   |   .                |
-11        323248        0.04909    |                 .   |*  .                |
-10        698008        0.10600    |                 .   |** .                |
 -9        717416        0.10895    |                 .   |** .                |
 -8       -294920        -.04479    |                 .  *|   .                |
 -7    -89127.735        -.01354    |                 .   |   .                |
 -6       -223689        -.03397    |                 .  *|   .                |
 -5        352463        0.05353    |                 .   |*  .                |
 -4       -414517        -.06295    |                 .  *|   .                |
 -3      -1129856        -.17159    |                 .***|   .                |
 -2       -808894        -.12284    |                 . **|   .                |
 -1       -278204        -.04225    |                 .  *|   .                |
  0        374766        0.05691    |                 .   |*  .                |
  1       -888766        -.13497    |                 .***|   .                |
  2       -948936        -.14411    |                 .***|   .                |
  3     68011.623        0.01033    |                 .   |   .                |
  4        240517        0.03653    |                 .   |*  .                |
  5       -267146        -.04057    |                 .  *|   .                |
  6       -543093        -.08248    |                 . **|   .                |
  7       -187758        -.02851    |                 .  *|   .                |
  8        265746        0.04036    |                 .   |*  .                |
  9       1253712        0.19040    |                 .   |****                |
 10       1057001        0.16052    |                 .   |***.                |
 11       -901316        -.13688    |                 .***|   .                |
 12       -936025        -.14215    |                 .***|   .                |
 13        686750        0.10429    |                 .   |** .                |
 14        301766        0.04583    |                 .   |*  .                |
 15       -364343        -.05533    |                 .  *|   .                |
 16       -374171        -.05682    |                 .  *|   .                |
 17        333710        0.05068    |                 .   |*  .                |
 18        443485        0.06735    |                 .   |*  .                |
 19       -445186        -.06761    |                 .  *|   .                |
 20       -458337        -.06961    |                 .  *|   .                |
 21       -992061        -.15066    |                 .***|   .                |
 22      -1400033        -.21262    |                 ****|   .                |
 23        584595        0.08878    |                 .   |** .                |
 24        557331        0.08464    |                 .   |** .                |
```

"." marks two standard errors

Variable bhdd55 has been differenced.

Kentucky Power Company
Other Retail

The ARIMA Procedure

Correlation of KWH and bhdd55

Period(s) of Differencing	12
Variance of input =	6123.297
Number of Observations	109
Observation(s) eliminated by differencing	12

Crosscorrelations

Lag	Covariance	Correlation	-1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1
-24	573316	0.04923	| . |* . |
-23	291176	0.02500	| . |* . |
-22	286407	0.02459	| . | . |
-21	-1416465	-.12162	| . **| . |
-20	-426931	-.03666	| . *| . |
-19	747620	0.06419	| . |* . |
-18	-1347683	-.11572	| . **| . |
-17	-999587	-.08583	| . **| . |
-16	-1080886	-.09281	| . **| . |
-15	3648253	0.31326	| . |****** |
-14	1185536	0.10180	| . |** . |
-13	-628059	-.05393	| . *| . |
-12	-236672	-.02032	| . | . |
-11	415405	0.03567	| . |* . |
-10	-7448.979	-.00064	| . | . |
-9	-39503.415	-.00339	| . | . |
-8	-1042621	-.08952	| . **| . |
-7	505030	0.04336	| . |* . |
-6	410383	0.03524	| . |* . |
-5	539559	0.04633	| . |* . |
-4	679006	0.05830	| . |* . |
-3	-2885431	-.24776	| *****| . |
-2	-1766032	-.15164	| .***| . |
-1	486171	0.04174	| . |* . |
0	-431084	-.03701	| . *| . |
1	-875028	-.07513	| . **| . |
2	-449158	-.03857	| . *| . |
3	383911	0.03296	| . |* . |
4	1610179	0.13826	| . |***. |
5	-1512302	-.12985	| .***| . |
6	793798	0.06816	| . |* . |
7	1582936	0.13592	| . |***. |
8	-538927	-.04627	| . *| . |
9	128931	0.01107	| . | . |
10	1446421	0.12420	| . |** . |
11	-210489	-.01807	| . | . |
12	121574	0.01044	| . | . |
13	184299	0.01582	| . | . |

Kentucky Power Company
Other Retail

The ARIMA Procedure

Crosscorrelations

```
Lag    Covariance    Correlation    -1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1

 14       1579969        0.13566    |                .   |***.                |
 15    -40037.016        -.00344    |                .   |   .                 |
 16      -1926669        -.16543    |                .***|   .                 |
 17       2059458        0.17684    |                .   |****                 |
 18       -477967        -.04104    |                .  *|   .                 |
 19      -2507058        -.21527    |               ****|   .                 |
 20       -565517        -.04856    |                .  *|   .                 |
 21       1541117        0.13233    |                .   |***.                 |
 22        517334        0.04442    |                .   |*  .                 |
 23       -813491        -.06985    |                .  *|   .                 |
 24      -1045491        -.08977    |                . **|   .                 |
```

"." marks two standard errors

Variable or1 has been differenced.

Correlation of KWH and or1

Period(s) of Differencing	12
Variance of input =	0.071006
Number of Observations	109
Observation(s) eliminated by differencing	12

Crosscorrelations

```
Lag    Covariance    Correlation    -1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1

-24     16.335980        0.00041    |                .   |   .                 |
-23      -175.464        -.00444    |                .   |   .                 |
-22    -75.601902        -.00191    |                .   |   .                 |
-21       141.883        0.00359    |                .   |   .                 |
-20       128.914        0.00327    |                .   |   .                 |
-19       130.476        0.00330    |                .   |   .                 |
-18     70.433956        0.00178    |                .   |   .                 |
-17     26.949654        0.00068    |                .   |   .                 |
-16      -287.553        -.00728    |                .   |   .                 |
-15      -241.275        -.00611    |                .   |   .                 |
-14      -318.316        -.00806    |                .   |   .                 |
-13      -938.063        -.02376    |                .   |   .                 |
-12     -1566.153        -.03967    |                .  *|   .                 |
-11     -2521.632        -.06387    |                .  *|   .                 |
-10     -3488.309        -.08836    |                . **|   .                 |
 -9     -4325.425        -.10956    |                . **|   .                 |
 -8     -6050.572        -.15326    |                .***|   .                 |
```

Kentucky Power Company
Other Retail

The ARIMA Procedure

Crosscorrelations

```
Lag    Covariance    Correlation    -1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1

 -7     -7814.908        -.19794    |                 ****|   .                 |
 -6     -7263.536        -.18398    |                 ****|   .                 |
 -5     -8441.197        -.21381    |                 ****|   .                 |
 -4     -9185.084        -.23265    |                *****|   .                 |
 -3     -9801.392        -.24826    |                *****|   .                 |
 -2    -10585.503        -.26812    |                *****|   .                 |
 -1    -10414.553        -.26379    |                *****|   .                 |
  0    -10004.615        -.25341    |                *****|   .                 |
  1     -9113.939        -.23085    |                *****|   .                 |
  2     -8137.669        -.20612    |                 ****|   .                 |
  3     -7319.092        -.18539    |                 ****|   .                 |
  4     -4796.386        -.12149    |                  . **|   .                 |
  5     -2076.823        -.05260    |                  .  *|   .                 |
  6     -4119.508        -.10434    |                  . **|   .                 |
  7     -2898.172        -.07341    |                  .  *|   .                 |
  8     -1752.815        -.04440    |                  .  *|   .                 |
  9     -1275.552        -.03231    |                  .  *|   .                 |
 10      -470.306        -.01191    |                  .   |   .                 |
 11       146.794        0.00372    |                  .   |   .                 |
 12       416.634        0.01055    |                  .   |   .                 |
 13    -64.299564        -.00163    |                  .   |   .                 |
 14     -1101.559        -.02790    |                  .  *|   .                 |
 15     -3485.088        -.08827    |                  . **|   .                 |
 16     83.896124        0.00213    |                  .   |   .                 |
 17      -317.166        -.00803    |                  .   |   .                 |
 18       720.430        0.01825    |                  .   |   .                 |
 19      1052.928        0.02667    |                  .   |*  .                 |
 20      1480.382        0.03750    |                  .   |*  .                 |
 21      2138.614        0.05417    |                  .   |*  .                 |
 22      2409.280        0.06102    |                  .   |*  .                 |
 23      2768.073        0.07011    |                  .   |*  .                 |
 24      2343.001        0.05935    |                  .   |*  .                 |
```

"." marks two standard errors

Variable or2 has been differenced.

Correlation of KWH and or2

Period(s) of Differencing	12
Variance of input =	0.025641
Number of Observations	109
Observation(s) eliminated by differencing	12

Kentucky Power Company
Other Retail

The ARIMA Procedure

Crosscorrelations

```
Lag    Covariance    Correlation    -1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1

-24             0        0.00000    |                 .   |   .                |
-23             0        0.00000    |                 .   |   .                |
-22       327.366        0.01355    |                 .   |   .                |
-21     61.705665        0.00255    |                 .   |   .                |
-20      -247.440        -.01024    |                 .   |   .                |
-19       557.633        0.02308    |                 .   |   .                |
-18       533.881        0.02210    |                 .   |   .                |
-17       328.211        0.01358    |                 .   |   .                |
-16       341.817        0.01415    |                 .   |   .                |
-15      -126.128        -.00522    |                 .   |   .                |
-14       760.991        0.03149    |                 .   |*  .                |
-13       929.257        0.03846    |                 .   |*  .                |
-12     -2277.193        -.09424    |                 . **|   .                |
-11      -590.642        -.02444    |                 .   |   .                |
-10      1293.863        0.05355    |                 .   |*  .                |
 -9      -549.467        -.02274    |                 .   |   .                |
 -8     40.678899        0.00168    |                 .   |   .                |
 -7      -800.349        -.03312    |                 .  *|   .                |
 -6     -1190.872        -.04929    |                 .  *|   .                |
 -5      -736.936        -.03050    |                 .  *|   .                |
 -4      -566.156        -.02343    |                 .   |   .                |
 -3     99.339450        0.00411    |                 .   |   .                |
 -2     -1607.826        -.06654    |                 .  *|   .                |
 -1     -1959.761        -.08111    |                 . **|   .                |
  0      4529.257        0.18745    |                 .   |****                |
  1      1460.596        0.06045    |                 .   |*  .                |
  2     -3174.156        -.13137    |                 .***|   .                |
  3       660.294        0.02733    |                 .   |*  .                |
  4       237.807        0.00984    |                 .   |   .                |
  5       110.862        0.00459    |                 .   |   .                |
  6       600.431        0.02485    |                 .   |   .                |
  7       919.550        0.03806    |                 .   |*  .                |
  8      1360.798        0.05632    |                 .   |*  .                |
  9      1925.358        0.07968    |                 .   |** .                |
 10     -4579.523        -.18953    |                ****|   .                |
 11     -1910.138        -.07905    |                 . **|   .                |
 12      2576.385        0.10663    |                 .   |** .                |
 13      -708.862        -.02934    |                 .  *|   .                |
 14       613.092        0.02537    |                 .   |*  .                |
 15      -232.505        -.00962    |                 .   |   .                |
 16       270.239        0.01118    |                 .   |   .                |
 17     51.504587        0.00213    |                 .   |   .                |
 18       599.963        0.02483    |                 .   |   .                |
 19    -27.522936        -.00114    |                 .   |   .                |
 20     -3388.651        -.14024    |                 .***|   .                |
 21     -4668.156        -.19320    |                ****|   .                |
```

Kentucky Power Company
Other Retail

The ARIMA Procedure

Crosscorrelations

```
Lag    Covariance    Correlation    -1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1

 22     12241.532        0.50663    |                 .   |**********          |
 23      5731.615        0.23721    |                 .   |*****               |
 24     -8998.771        -.37242    |              *******|   .                |
```

"." marks two standard errors

Variable or3 has been differenced.

Correlation of KWH and or3

Period(s) of Differencing	12
Variance of input =	0.020256
Number of Observations	109
Observation(s) eliminated by differencing	12

Crosscorrelations

```
Lag    Covariance    Correlation    -1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1

-24     -2593.237        -.12075    |                 . **|   .                |
-23      -575.552        -.02680    |                 .  *|   .                |
-22      4260.100        0.19836    |                 .   |****                |
-21     -2483.524        -.11564    |                 . **|   .                |
-20     -7.815596        -.00036    |                 .   |   .                |
-19       365.420        0.01702    |                 .   |   .                |
-18      -412.343        -.01920    |                 .   |   .                |
-17     33.952294        0.00158    |                 .   |   .                |
-16      -297.755        -.01386    |                 .   |   .                |
-15    -44.406422        -.00207    |                 .   |   .                |
-14      1793.215        0.08350    |                 .   |** .                |
-13      1501.434        0.06991    |                 .   |*  .                |
-12     -4906.974        -.22848    |                *****|   .                |
-11      3009.621        0.14014    |                 .   |***.                |
-10     -1177.420        -.05482    |                 .  *|   .                |
 -9      567.040        0.02640    |                 .   |*  .                |
 -8      -149.196        -.00695    |                 .   |   .                |
 -7      -110.080        -.00513    |                 .   |   .                |
 -6       103.806        0.00483    |                 .   |   .                |
 -5      -239.485        -.01115    |                 .   |   .                |
 -4      1684.312        0.07843    |                 .   |** .                |
 -3       713.464        0.03322    |                 .   |*  .                |
 -2     -5357.533        -.24946    |                *****|   .                |
 -1     -3302.120        -.15376    |                 .***|   .                |
  0     12851.339        0.59840    |                 .   |************        |
```

Kentucky Power Company
Other Retail

The ARIMA Procedure

Crosscorrelations

```
Lag    Covariance    Correlation    -1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1

  1     -5693.189        -.26509    |               *****|   .                |
  2      -584.722        -.02723    |                .  *|   .                |
  3     -1381.169        -.06431    |                .  *|   .                |
  4      2558.651        0.11914    |                .   |** .                |
  5      -878.516        -.04091    |                .  *|   .                |
  6      -937.641        -.04366    |                .  *|   .                |
  7      1937.073        0.09020    |                .   |** .                |
  8     -2216.589        -.10321    |                . **|   .                |
  9     -1755.502        -.08174    |                . **|   .                |
 10      5671.191        0.26407    |                .   |*****               |
 11      1510.507        0.07033    |                .   |*  .                |
 12     -8421.670        -.39214    |            ********|   .                |
 13      3855.848        0.17954    |                .   |****                |
 14     -2115.495        -.09850    |                . **|   .                |
 15      4878.262        0.22715    |                .   |*****               |
 16     -2952.347        -.13747    |                .***|   .                |
 17     -1198.207        -.05579    |                .  *|   .                |
 18      2980.424        0.13878    |                .   |***.                |
 19     -2922.303        -.13607    |                .***|   .                |
 20      1402.591        0.06531    |                .   |*  .                |
 21      3251.947        0.15142    |                .   |***.                |
 22     -5983.319        -.27860    |              ******|   .                |
 23       827.196        0.03852    |                .   |*  .                |
 24      3438.072        0.16009    |                .   |***.                |
```

"." marks two standard errors

Variable or4 has been differenced.

Correlation of KWH and or4

Period(s) of Differencing	12
Variance of input =	0.025641
Number of Observations	109
Observation(s) eliminated by differencing	12

Kentucky Power Company
Other Retail

The ARIMA Procedure

Crosscorrelations

```
Lag    Covariance    Correlation    -1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1

-24      1419.275        0.05874    |                 .   |*  .                |
-23      -710.413        -.02940    |                 .  *|   .                |
-22     97.321101        0.00403    |                 .   |   .                |
-21       135.183        0.00559    |                 .   |   .                |
-20      -405.422        -.01678    |                 .   |   .                |
-19       353.917        0.01465    |                 .   |   .                |
-18      -953.881        -.03948    |                 .  *|   .                |
-17       981.404        0.04062    |                 .   |*  .                |
-16      2407.248        0.09963    |                 .   |** .                |
-15      2260.908        0.09357    |                 .   |** .                |
-14    -14502.440        -.60020    |         ************|   .                |
-13      8770.826        0.36299    |                 .   |*******             |
-12       227.945        0.00943    |                 .   |   .                |
-11      1260.018        0.05215    |                 .   |*  .                |
-10     -2677.220        -.11080    |                 . **|   .                |
 -9      1013.367        0.04194    |                 .   |*  .                |
 -8      1268.624        0.05250    |                 .   |*  .                |
 -7     -1832.486        -.07584    |                 . **|   .                |
 -6      1667.138        0.06900    |                 .   |*  .                |
 -5       513.972        0.02127    |                 .   |   .                |
 -4     -4012.615        -.16607    |                 .***|   .                |
 -3      -639.789        -.02648    |                 .  *|   .                |
 -2     10180.991        0.42135    |                 .   |********            |
 -1     -6638.807        -.27475    |               *****|   .                |
  0      2322.220        0.09611    |                 .   |** .                |
  1     -4959.945        -.20527    |                ****|   .                |
  2      3326.807        0.13768    |                 .   |***.                |
  3      1360.862        0.05632    |                 .   |*  .                |
  4     -3439.468        -.14235    |                .***|   .                |
  5      2620.789        0.10846    |                 .   |** .                |
  6      -711.468        -.02944    |                 .  *|   .                |
  7     -2914.367        -.12061    |                 . **|   .                |
  8      5929.578        0.24540    |                 .   |*****               |
  9     -1889.945        -.07822    |                 . **|   .                |
 10     -4218.771        -.17460    |                .***|   .                |
 11      2566.220        0.10621    |                 .   |** .                |
 12      -949.780        -.03931    |                 .  *|   .                |
 13      2163.523        0.08954    |                 .   |** .                |
 14       487.881        0.02019    |                 .   |   .                |
 15     -6275.651        -.25972    |               *****|   .                |
 16      6736.495        0.27880    |                 .   |******              |
 17      -142.927        -.00592    |                 .   |   .                |
 18     -2224.862        -.09208    |                 . **|   .                |
 19      3266.697        0.13520    |                 .   |***.                |
 20     -7174.890        -.29694    |               ******|   .                |
 21      3409.881        0.14112    |                 .   |***.                |
```

Kentucky Power Company
Other Retail

The ARIMA Procedure

Crosscorrelations

```
Lag    Covariance    Correlation    -1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1

 22      2697.486        0.11164    |                .   |** .                |
 23      -262.450        -.01086    |                .   |   .                |
 24     -1840.312        -.07616    |                . **|   .                |

                        "." marks two standard errors

                      Variable or5 has been differenced.
```

Correlation of KWH and or5

Period(s) of Differencing	12
Variance of input =	0.025641
Number of Observations	109
Observation(s) eliminated by differencing	12

Crosscorrelations

```
Lag    Covariance    Correlation    -1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1

-24      4012.615        0.16607    |                .   |***.                |
-23       639.789        0.02648    |                .   |*  .                |
-22    -10180.991        -.42135    |            ********|   .                |
-21      6638.807        0.27475    |                .   |*****               |
-20     -2322.220        -.09611    |                . **|   .                |
-19      4959.945        0.20527    |                .   |****                |
-18     -3326.807        -.13768    |                .***|   .                |
-17     -1360.862        -.05632    |                .  *|   .                |
-16      3439.468        0.14235    |                .   |***.                |
-15     -2620.789        -.10846    |                . **|   .                |
-14       711.468        0.02944    |                .   |*  .                |
-13      2914.367        0.12061    |                .   |** .                |
-12     -5929.578        -.24540    |               *****|   .                |
-11      1889.945        0.07822    |                .   |** .                |
-10      4218.771        0.17460    |                .   |***.                |
 -9     -2566.220        -.10621    |                . **|   .                |
 -8       949.780        0.03931    |                .   |*  .                |
 -7     -2163.523        -.08954    |                . **|   .                |
 -6      -487.881        -.02019    |                .   |   .                |
 -5      6275.651        0.25972    |                .   |*****               |
 -4     -6736.495        -.27880    |              ******|   .                |
 -3       142.927        0.00592    |                .   |   .                |
 -2      2224.862        0.09208    |                .   |** .                |
 -1     -3266.697        -.13520    |                .***|   .                |
  0      7174.890        0.29694    |                .   |******              |
```

Kentucky Power Company
Other Retail

The ARIMA Procedure

Crosscorrelations

```
Lag    Covariance    Correlation    -1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1

  1     -3409.881        -.14112    |                 .***|   .                |
  2     -2697.486        -.11164    |                 . **|   .                |
  3       262.450        0.01086    |                 .   |   .                |
  4      1840.312        0.07616    |                 .   |** .                |
  5     -1397.064        -.05782    |                 .  *|   .                |
  6       832.376        0.03445    |                 .   |*  .                |
  7     -4553.817        -.18846    |                 ****|   .                |
  8      6959.615        0.28803    |                 .   |******              |
  9      2049.431        0.08482    |                 .   |** .                |
 10     -4241.532        -.17554    |                 ****|   .                |
 11      1394.046        0.05769    |                 .   |*  .                |
 12     -3961.064        -.16393    |                 .***|   .                |
 13      1943.697        0.08044    |                 .   |** .                |
 14      1443.211        0.05973    |                 .   |*  .                |
 15      1466.321        0.06069    |                 .   |*  .                |
 16     -2189.550        -.09062    |                 . **|   .                |
 17       664.633        0.02751    |                 .   |*  .                |
 18       285.009        0.01180    |                 .   |   .                |
 19       664.138        0.02749    |                 .   |*  .                |
 20     -2677.651        -.11082    |                 . **|   .                |
 21     -1110.560        -.04596    |                 .  *|   .                |
 22      2158.330        0.08932    |                 .   |** .                |
 23      -178.532        -.00739    |                 .   |   .                |
 24       600.009        0.02483    |                 .   |   .                |
```

"." marks two standard errors

Variable or6 has been differenced.

Correlation of KWH and or6

Period(s) of Differencing	12
Variance of input =	0.025641
Number of Observations	109
Observation(s) eliminated by differencing	12

Kentucky Power Company
Other Retail

The ARIMA Procedure

Crosscorrelations

```
Lag    Covariance    Correlation    -1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1

-24     -1013.367        -.04194    |                .  *|   .               |
-23     -1268.624        -.05250    |                .  *|   .               |
-22      1832.486        0.07584    |                .   |** .               |
-21     -1667.138        -.06900    |                .  *|   .               |
-20      -513.972        -.02127    |                .   |   .               |
-19      4012.615        0.16607    |                .   |***.               |
-18       639.789        0.02648    |                .   |*  .               |
-17    -10180.991        -.42135    |            ********|   .               |
-16      6638.807        0.27475    |                .   |*****              |
-15     -2322.220        -.09611    |                . **|   .               |
-14      4959.945        0.20527    |                .   |****               |
-13     -3326.807        -.13768    |                .***|   .               |
-12     -1360.862        -.05632    |                .  *|   .               |
-11      3439.468        0.14235    |                .   |***.               |
-10     -2620.789        -.10846    |                . **|   .               |
 -9       711.468        0.02944    |                .   |*  .               |
 -8      2914.367        0.12061    |                .   |** .               |
 -7     -5929.578        -.24540    |               *****|   .               |
 -6      1889.945        0.07822    |                .   |** .               |
 -5      4218.771        0.17460    |                .   |***.               |
 -4     -2566.220        -.10621    |                . **|   .               |
 -3       949.780        0.03931    |                .   |*  .               |
 -2     -2163.523        -.08954    |                . **|   .               |
 -1      -487.881        -.02019    |                .   |   .               |
  0      6275.651        0.25972    |                .   |*****              |
  1     -6736.495        -.27880    |              ******|   .               |
  2       142.927        0.00592    |                .   |   .               |
  3      2224.862        0.09208    |                .   |** .               |
  4     -3266.697        -.13520    |                .***|   .               |
  5      7174.890        0.29694    |                .   |******             |
  6     -3409.881        -.14112    |                .***|   .               |
  7     -2697.486        -.11164    |                . **|   .               |
  8       262.450        0.01086    |                .   |   .               |
  9      1840.312        0.07616    |                .   |** .               |
 10     -1397.064        -.05782    |                .  *|   .               |
 11       832.376        0.03445    |                .   |*  .               |
 12     -4553.817        -.18846    |                ****|   .               |
 13      6959.615        0.28803    |                .   |******             |
 14      2049.431        0.08482    |                .   |** .               |
 15     -4241.532        -.17554    |                ****|   .               |
 16      1394.046        0.05769    |                .   |*  .               |
 17     -3961.064        -.16393    |                .***|   .               |
 18      1943.697        0.08044    |                .   |** .               |
 19      1443.211        0.05973    |                .   |*  .               |
 20      1466.321        0.06069    |                .   |*  .               |
 21     -2189.550        -.09062    |                . **|   .               |
```

Kentucky Power Company
Other Retail

The ARIMA Procedure

Crosscorrelations

```
Lag    Covariance    Correlation    -1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1

 22       664.633        0.02751    |                 .   |*  .                |
 23       285.009        0.01180    |                 .   |   .                |
 24       664.138        0.02749    |                 .   |*  .                |

                        "." marks two standard errors

                      Variable or7 has been differenced.
```

Correlation of KWH and or7

Period(s) of Differencing	12
Variance of input =	0.025641
Number of Observations	109
Observation(s) eliminated by differencing	12

Crosscorrelations

```
Lag    Covariance    Correlation    -1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1

-24      3439.468        0.14235    |                 .   |***.                |
-23     -2620.789        -.10846    |                 . **|   .                |
-22       711.468        0.02944    |                 .   |*  .                |
-21      2914.367        0.12061    |                 .   |** .                |
-20     -5929.578        -.24540    |               *****|   .                |
-19      1889.945        0.07822    |                 .   |** .                |
-18      4218.771        0.17460    |                 .   |***.                |
-17     -2566.220        -.10621    |                 . **|   .                |
-16       949.780        0.03931    |                 .   |*  .                |
-15     -2163.523        -.08954    |                 . **|   .                |
-14      -487.881        -.02019    |                 .   |   .                |
-13      6275.651        0.25972    |                 .   |*****               |
-12     -6736.495        -.27880    |              ******|   .                |
-11       142.927        0.00592    |                 .   |   .                |
-10      2224.862        0.09208    |                 .   |** .                |
 -9     -3266.697        -.13520    |                 .***|   .                |
 -8      7174.890        0.29694    |                 .   |******              |
 -7     -3409.881        -.14112    |                 .***|   .                |
 -6     -2697.486        -.11164    |                 . **|   .                |
 -5       262.450        0.01086    |                 .   |   .                |
 -4      1840.312        0.07616    |                 .   |** .                |
 -3     -1397.064        -.05782    |                 .  *|   .                |
 -2       832.376        0.03445    |                 .   |*  .                |
 -1     -4553.817        -.18846    |                 ****|   .                |
  0      6959.615        0.28803    |                 .   |******              |
```

Kentucky Power Company
Other Retail

The ARIMA Procedure

Crosscorrelations

```
Lag    Covariance    Correlation    -1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1

  1      2049.431        0.08482    |                 .   |** .                |
  2     -4241.532        -.17554    |                ****|   .                |
  3      1394.046        0.05769    |                 .   |*  .                |
  4     -3961.064        -.16393    |                .***|   .                |
  5      1943.697        0.08044    |                 .   |** .                |
  6      1443.211        0.05973    |                 .   |*  .                |
  7      1466.321        0.06069    |                 .   |*  .                |
  8     -2189.550        -.09062    |                 . **|   .                |
  9       664.633        0.02751    |                 .   |*  .                |
 10       285.009        0.01180    |                 .   |   .                |
 11       664.138        0.02749    |                 .   |*  .                |
 12     -2677.651        -.11082    |                 . **|   .                |
 13     -1110.560        -.04596    |                 .  *|   .                |
 14      2158.330        0.08932    |                 .   |** .                |
 15      -178.532        -.00739    |                 .   |   .                |
 16       600.009        0.02483    |                 .   |   .                |
 17      -226.881        -.00939    |                 .   |   .                |
 18      -448.028        -.01854    |                 .   |   .                |
 19      -819.835        -.03393    |                 .  *|   .                |
 20       914.606        0.03785    |                 .   |*  .                |
 21    -48.954128        -.00203    |                 .   |   .                |
 22       233.761        0.00967    |                 .   |   .                |
 23      5.587913        0.00023    |                 .   |   .                |
 24     28.385321        0.00117    |                 .   |   .                |
```

"." marks two standard errors

Variable or8 has been differenced.

Correlation of KWH and or8

Period(s) of Differencing	12
Variance of input =	0.012821
Number of Observations	109
Observation(s) eliminated by differencing	12

Kentucky Power Company
Other Retail

The ARIMA Procedure

Crosscorrelations

```
Lag    Covariance    Correlation    -1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1

-24     -1036.945        -.06069    |                 .  *|   .                |
-23      -325.477        -.01905    |                 .   |   .                |
-22      2588.890        0.15152    |                 .   |***.                |
-21     -3340.688        -.19553    |                ****|   .                |
-20     -1450.743        -.08491    |                . **|   .                |
-19      2768.028        0.16201    |                .   |***.                |
-18       201.807        0.01181    |                .   |   .                |
-17      1151.587        0.06740    |                .   |*  .                |
-16     -1011.936        -.05923    |                .  *|   .                |
-15     -1499.817        -.08778    |                . **|   .                |
-14      4775.835        0.27952    |                .   |******              |
-13     -1960.661        -.11475    |                . **|   .                |
-12     -1817.734        -.10639    |                . **|   .                |
-11       407.128        0.02383    |                .   |   .                |
-10     -2859.569        -.16737    |                .***|   .                |
 -9      4315.321        0.25257    |                .   |*****               |
 -8       905.440        0.05299    |                .   |*  .                |
 -7     -1792.046        -.10489    |                . **|   .                |
 -6     -1529.596        -.08953    |                . **|   .                |
 -5       310.716        0.01819    |                .   |   .                |
 -4     -1086.349        -.06358    |                .  *|   .                |
 -3      -253.972        -.01486    |                .   |   .                |
 -2     -4807.789        -.28139    |              ******|   .                |
 -1      2151.826        0.12594    |                .   |***.                |
  0      4201.257        0.24589    |                .   |*****               |
  1    -40.275229        -.00236    |                .   |   .                |
  2      1353.771        0.07923    |                .   |** .                |
  3     -2607.294        -.15260    |                .***|   .                |
  4      -663.596        -.03884    |                .  *|   .                |
  5       779.615        0.04563    |                .   |*  .                |
  6      2245.936        0.13145    |                .   |***.                |
  7     56.385321        0.00330    |                .   |   .                |
  8       721.018        0.04220    |                .   |*  .                |
  9      1006.028        0.05888    |                .   |*  .                |
 10      1670.165        0.09775    |                .   |** .                |
 11     -1007.486        -.05897    |                .  *|   .                |
 12     -2118.046        -.12397    |                . **|   .                |
 13     40.284404        0.00236    |                .   |   .                |
 14      -138.248        -.00809    |                .   |   .                |
 15       461.761        0.02703    |                .   |*  .                |
 16       234.881        0.01375    |                .   |   .                |
 17      -213.147        -.01248    |                .   |   .                |
 18     -1032.982        -.06046    |                .  *|   .                |
 19      -118.376        -.00693    |                .   |   .                |
 20      -167.330        -.00979    |                .   |   .                |
 21     66.431193        0.00389    |                .   |   .                |
```

Kentucky Power Company
Other Retail

The ARIMA Procedure

Crosscorrelations

```
Lag    Covariance    Correlation    -1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1

 22     72.019106        0.00422    |                .   |   .                |
 23       100.404        0.00588    |                .   |   .                |
 24       142.560        0.00834    |                .   |   .                |
```

"." marks two standard errors

Variable or9 has been differenced.

Correlation of KWH and or9

Period(s) of Differencing	12
Variance of input =	0.012821
Number of Observations	109
Observation(s) eliminated by differencing	12

Crosscorrelations

```
Lag    Covariance    Correlation    -1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1

-24      -329.477        -.01928    |                .   |   .                |
-23      -426.798        -.02498    |                .   |   .                |
-22      -561.982        -.03289    |                .  *|   .                |
-21      -156.560        -.00916    |                .   |   .                |
-20      -510.477        -.02988    |                .  *|   .                |
-19       443.404        0.02595    |                .   |*  .                |
-18      -538.000        -.03149    |                .  *|   .                |
-17     -2945.248        -.17238    |               .***|   .                |
-16     -5206.156        -.30471    |             ******|   .                |
-15      9296.284        0.54410    |                .   |***********         |
-14       525.459        0.03075    |                .   |*  .                |
-13       297.514        0.01741    |                .   |   .                |
-12      -962.505        -.05633    |                .  *|   .                |
-11      1714.716        0.10036    |                .   |** .                |
-10       701.349        0.04105    |                .   |*  .                |
 -9      -567.275        -.03320    |                .  *|   .                |
 -8      1265.211        0.07405    |                .   |*  .                |
 -7      -401.927        -.02352    |                .   |   .                |
 -6      -915.899        -.05361    |                .  *|   .                |
 -5      3096.716        0.18125    |                .   |****                |
 -4      3736.505        0.21869    |                .   |****                |
 -3     -6444.486        -.37719    |            ********|   .                |
 -2       194.321        0.01137    |                .   |   .                |
 -1     -2127.899        -.12454    |                . **|   .                |
  0      2832.046        0.16576    |                .   |***.                |
```

Kentucky Power Company
Other Retail

The ARIMA Procedure

Crosscorrelations

```
Lag    Covariance    Correlation    -1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1

  1      -494.761        -.02896    |                 .  *|   .                |
  2     -1855.624        -.10861    |                 . **|   .                |
  3      1583.844        0.09270    |                 .   |** .                |
  4     -1036.945        -.06069    |                 .  *|   .                |
  5      -325.477        -.01905    |                 .   |   .                |
  6      2588.890        0.15152    |                 .   |***.                |
  7     -3340.688        -.19553    |                 ****|   .                |
  8     -1450.743        -.08491    |                 . **|   .                |
  9      2768.028        0.16201    |                 .   |***.                |
 10       201.807        0.01181    |                 .   |   .                |
 11      1151.587        0.06740    |                 .   |*  .                |
 12     -1011.936        -.05923    |                 .  *|   .                |
 13     -1499.817        -.08778    |                 . **|   .                |
 14      4775.835        0.27952    |                 .   |******              |
 15     -1960.661        -.11475    |                 . **|   .                |
 16     -1817.734        -.10639    |                 . **|   .                |
 17       407.128        0.02383    |                 .   |   .                |
 18     -2859.569        -.16737    |                 .***|   .                |
 19      4315.321        0.25257    |                 .   |*****               |
 20       905.440        0.05299    |                 .   |*  .                |
 21     -1792.046        -.10489    |                 . **|   .                |
 22     -1529.596        -.08953    |                 . **|   .                |
 23       310.716        0.01819    |                 .   |   .                |
 24     -1086.349        -.06358    |                 .  *|   .                |
```

"." marks two standard errors

Variable or10 has been differenced.

Correlation of KWH and or10

Period(s) of Differencing	12
Variance of input =	0.012821
Number of Observations	109
Observation(s) eliminated by differencing	12

Kentucky Power Company
Other Retail

The ARIMA Procedure

Crosscorrelations

```
Lag    Covariance    Correlation    -1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1

-24       201.807        0.01181    |                .   |   .                |
-23      1151.587        0.06740    |                .   |*  .                |
-22     -1011.936        -.05923    |                .  *|   .                |
-21     -1499.817        -.08778    |                . **|   .                |
-20      4775.835        0.27952    |                .   |******              |
-19     -1960.661        -.11475    |                . **|   .                |
-18     -1817.734        -.10639    |                . **|   .                |
-17       407.128        0.02383    |                .   |   .                |
-16     -2859.569        -.16737    |               .***|   .                |
-15      4315.321        0.25257    |                .   |*****               |
-14       905.440        0.05299    |                .   |*  .                |
-13     -1792.046        -.10489    |                . **|   .                |
-12     -1529.596        -.08953    |                . **|   .                |
-11       310.716        0.01819    |                .   |   .                |
-10     -1086.349        -.06358    |                .  *|   .                |
 -9      -253.972        -.01486    |                .   |   .                |
 -8     -4807.789        -.28139    |             ******|   .                |
 -7      2151.826        0.12594    |                .   |***.                |
 -6      4201.257        0.24589    |                .   |*****               |
 -5    -40.275229        -.00236    |                .   |   .                |
 -4      1353.771        0.07923    |                .   |** .                |
 -3     -2607.294        -.15260    |               .***|   .                |
 -2      -663.596        -.03884    |                .  *|   .                |
 -1       779.615        0.04563    |                .   |*  .                |
  0      2245.936        0.13145    |                .   |***.                |
  1     56.385321        0.00330    |                .   |   .                |
  2       721.018        0.04220    |                .   |*  .                |
  3      1006.028        0.05888    |                .   |*  .                |
  4      1670.165        0.09775    |                .   |** .                |
  5     -1007.486        -.05897    |                .  *|   .                |
  6     -2118.046        -.12397    |                . **|   .                |
  7     40.284404        0.00236    |                .   |   .                |
  8      -138.248        -.00809    |                .   |   .                |
  9       461.761        0.02703    |                .   |*  .                |
 10       234.881        0.01375    |                .   |   .                |
 11      -213.147        -.01248    |                .   |   .                |
 12     -1032.982        -.06046    |                .  *|   .                |
 13      -118.376        -.00693    |                .   |   .                |
 14      -167.330        -.00979    |                .   |   .                |
 15     66.431193        0.00389    |                .   |   .                |
 16     72.019106        0.00422    |                .   |   .                |
 17       100.404        0.00588    |                .   |   .                |
 18       142.560        0.00834    |                .   |   .                |
 19     77.514519        0.00454    |                .   |   .                |
 20       124.056        0.00726    |                .   |   .                |
 21     83.624611        0.00489    |                .   |   .                |
```

Kentucky Power Company
Other Retail

The ARIMA Procedure

Crosscorrelations

Lag	Covariance	Correlation	-1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1
22	160.102	0.00937	| . | . |
23	96.303510	0.00564	| . | . |
24	52.129198	0.00305	| . | . |

"." marks two standard errors

Variable MET_DAYS has been differenced.

Correlation of KWH and MET_DAYS

Period(s) of Differencing	12
Variance of input =	1.470056
Number of Observations	109
Observation(s) eliminated by differencing	12

Crosscorrelations

Lag	Covariance	Correlation	-1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1
-24	21527.141	0.11839	| . |** . |
-23	-5009.747	-.02755	| . *| . |
-22	-17979.422	-.09888	| . **| . |
-21	34846.070	0.19164	| . |**** |
-20	-12918.730	-.07105	| . *| . |
-19	-20748.117	-.11410	| . **| . |
-18	16190.882	0.08904	| . |** . |
-17	4089.746	0.02249	| . | . |
-16	7990.454	0.04394	| . |* . |
-15	27989.832	0.15393	| . |***. |
-14	-36862.429	-.20273	| ****| . |
-13	38644.465	0.21253	| . |**** |
-12	21.545291	0.00012	| . | . |
-11	-31095.106	-.17101	| .***| . |
-10	25873.976	0.14229	| . |***. |
-9	-41790.429	-.22983	| *****| . |
-8	14684.399	0.08076	| . |** . |
-7	28030.484	0.15415	| . |***. |
-6	-2719.115	-.01495	| . | . |
-5	-20981.613	-.11539	| . **| . |
-4	29997.450	0.16497	| . |***. |
-3	-41535.867	-.22843	| *****| . |
-2	35748.537	0.19660	| . |**** |
-1	-44084.701	-.24245	| *****| . |
0	-3679.636	-.02024	| . | . |

Kentucky Power Company
Other Retail

The ARIMA Procedure

Crosscorrelations

```
Lag    Covariance    Correlation    -1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1

  1     51124.158        0.28116    |                 .   |******              |
  2     -4460.433        -.02453    |                 .   |   .                |
  3     21016.569        0.11558    |                 .   |** .                |
  4    -15810.429        -.08695    |                 . **|   .                |
  5    -17216.633        -.09468    |                 . **|   .                |
  6     -4818.483        -.02650    |                 .  *|   .                |
  7     25004.072        0.13751    |                 .   |***.                |
  8    -11682.671        -.06425    |                 .  *|   .                |
  9     11847.580        0.06516    |                 .   |*  .                |
 10     -4438.643        -.02441    |                 .   |   .                |
 11     14101.846        0.07755    |                 .   |** .                |
 12      2758.965        0.01517    |                 .   |   .                |
 13    -22201.064        -.12210    |                 . **|   .                |
 14     -6976.073        -.03837    |                 .  *|   .                |
 15     -2579.213        -.01418    |                 .   |   .                |
 16     11889.563        0.06539    |                 .   |*  .                |
 17      8222.721        0.04522    |                 .   |*  .                |
 18     -2124.593        -.01168    |                 .   |   .                |
 19     -6850.957        -.03768    |                 .  *|   .                |
 20     -2827.478        -.01555    |                 .   |   .                |
 21     -2220.286        -.01221    |                 .   |   .                |
 22       680.560        0.00374    |                 .   |   .                |
 23      1974.069        0.01086    |                 .   |   .                |
 24     -4339.105        -.02386    |                 .   |   .                |

                    "." marks two standard errors
```

Conditional Least Squares Estimation

Parameter	Estimate	Standard Error	t Value	Approx Pr > |t|	Lag	Variable	Shift
MU	6884.9	2987.7	2.30	0.0234	0	KWH	0
MA1,1	-0.56933	0.09522	-5.98	<.0001	1	KWH	0
MA2,1	0.88820	0.06144	14.46	<.0001	12	KWH	0
AR1,1	0.24334	0.10926	2.23	0.0283	3	KWH	0
NUM1	-109125.8	17885.7	-6.10	<.0001	0	or1	0
NUM2	125761.2	29873.9	4.21	<.0001	0	or2	0
NUM3	388938.5	21652.2	17.96	<.0001	0	or3	0
NUM4	127574.9	21025.4	6.07	<.0001	0	or4	0
NUM5	158002.0	17278.3	9.14	<.0001	0	or5	0
NUM6	180991.9	17556.0	10.31	<.0001	0	or6	0
NUM7	123172.8	26296.8	4.68	<.0001	0	or7	0
NUM8	255947.5	45439.0	5.63	<.0001	0	or8	0
NUM9	211538.3	40707.1	5.20	<.0001	0	or9	0

Kentucky Power Company
Other Retail

The ARIMA Procedure

Conditional Least Squares Estimation

Parameter	Estimate	Standard Error	t Value	Approx Pr > |t|	Lag	Variable	Shift
NUM10	113646.9	30494.1	3.73	0.0003	0	or10	0
NUM11	1682.7	4798.3	0.35	0.7266	0	MET_DAYS	0

Constant Estimate	5209.529
Variance Estimate	1.5636E9
Std Error Estimate	39542.15
AIC	2630.748
SBC	2671.118
Number of Residuals	109

* AIC and SBC do not include log determinant.

Correlations of Parameter Estimates

Variable		KWH	KWH	KWH	KWH	or1	or2	or3	or4
Parameter		MU	MA1,1	MA2,1	AR1,1	NUM1	NUM2	NUM3	NUM4
KWH	MU	1.000	-0.013	-0.098	-0.099	-0.765	0.033	-0.003	0.000
KWH	MA1,1	-0.013	1.000	0.038	0.138	0.005	-0.330	0.229	-0.048
KWH	MA2,1	-0.098	0.038	1.000	-0.105	-0.041	-0.033	0.017	0.011
KWH	AR1,1	-0.099	0.138	-0.105	1.000	0.138	0.086	0.084	-0.208
or1	NUM1	-0.765	0.005	-0.041	0.138	1.000	-0.035	0.001	-0.001
or2	NUM2	0.033	-0.330	-0.033	0.086	-0.035	1.000	-0.093	-0.031
or3	NUM3	-0.003	0.229	0.017	0.084	0.001	-0.093	1.000	-0.060
or4	NUM4	0.000	-0.048	0.011	-0.208	-0.001	-0.031	-0.060	1.000
or5	NUM5	-0.015	0.007	0.125	-0.017	-0.007	-0.031	0.023	0.002
or6	NUM6	0.011	0.124	0.098	-0.017	-0.021	-0.044	0.043	-0.016

Correlations of Parameter Estimates

Variable		or5	or6	or7	or8	or9	or10	MET_DAYS
Parameter		NUM5	NUM6	NUM7	NUM8	NUM9	NUM10	NUM11
KWH	MU	-0.015	0.011	0.020	-0.078	0.034	-0.017	-0.077
KWH	MA1,1	0.007	0.124	0.130	0.011	0.028	0.094	-0.042
KWH	MA2,1	0.125	0.098	-0.164	0.036	-0.069	0.004	0.189
KWH	AR1,1	-0.017	-0.017	0.152	0.155	0.217	0.035	-0.035
or1	NUM1	-0.007	-0.021	0.001	0.050	-0.023	0.003	0.035
or2	NUM2	-0.031	-0.044	0.029	-0.020	0.047	-0.021	-0.065
or3	NUM3	0.023	0.043	0.091	-0.049	0.053	-0.002	-0.103
or4	NUM4	0.002	-0.016	-0.105	0.031	-0.597	0.035	0.124
or5	NUM5	1.000	0.131	-0.144	0.066	-0.066	-0.042	0.188
or6	NUM6	0.131	1.000	0.069	-0.126	0.101	0.058	-0.198

Kentucky Power Company
Other Retail

The ARIMA Procedure

Correlations of Parameter Estimates

Variable		KWH	KWH	KWH	KWH	or1	or2	or3	or4
Parameter		MU	MA1,1	MA2,1	AR1,1	NUM1	NUM2	NUM3	NUM4
or7	NUM7	0.020	0.130	-0.164	0.152	0.001	0.029	0.091	-0.105
or8	NUM8	-0.078	0.011	0.036	0.155	0.050	-0.020	-0.049	0.031
or9	NUM9	0.034	0.028	-0.069	0.217	-0.023	0.047	0.053	-0.597
or10	NUM10	-0.017	0.094	0.004	0.035	0.003	-0.021	-0.002	0.035
MET_DAYS	NUM11	-0.077	-0.042	0.189	-0.035	0.035	-0.065	-0.103	0.124

Correlations of Parameter Estimates

Variable		or5	or6	or7	or8	or9	or10	MET_DAYS
Parameter		NUM5	NUM6	NUM7	NUM8	NUM9	NUM10	NUM11
or7	NUM7	-0.144	0.069	1.000	0.069	0.236	0.049	-0.599
or8	NUM8	0.066	-0.126	0.069	1.000	-0.178	-0.103	0.550
or9	NUM9	-0.066	0.101	0.236	-0.178	1.000	0.038	-0.383
or10	NUM10	-0.042	0.058	0.049	-0.103	0.038	1.000	-0.100
MET_DAYS	NUM11	0.188	-0.198	-0.599	0.550	-0.383	-0.100	1.000

Autocorrelation Check of Residuals

To Lag	Chi-Square	DF	Pr > ChiSq	Autocorrelations					
6	4.58	3	0.2051	-0.096	-0.166	0.003	-0.018	-0.049	0.032
12	15.92	9	0.0685	0.129	-0.031	-0.132	0.000	0.117	-0.209
18	20.35	15	0.1587	-0.049	0.081	-0.008	-0.105	0.099	0.065
24	28.01	21	0.1399	0.035	-0.046	0.029	-0.121	-0.040	0.184

Autocorrelation Plot of Residuals

```
Lag    Covariance    Correlation    -1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1      Std Error

  0    1563581526        1.00000    |                    |********************|             0
  1    -149706891        -.09575    |                . **|   .                |      0.095783
  2    -259521051        -.16598    |                .***|   .                |      0.096657
  3       4523322        0.00289    |                .   |   .                |      0.099237
  4     -27778172        -.01777    |                .   |   .                |      0.099238
  5     -76869041        -.04916    |                .  *|   .                |      0.099267
  6      50312221        0.03218    |                .   |*  .                |      0.099490
  7     201901986        0.12913    |                .   |***.                |      0.099586
  8     -48969162        -.03132    |                .  *|   .                |      0.101110
  9    -206485867        -.13206    |                .***|   .                |      0.101199
 10        102871        0.00007    |                .   |   .                |      0.102768
 11     182665562        0.11683    |                .   |** .                |      0.102768
```

Kentucky Power Company
Other Retail

The ARIMA Procedure

Autocorrelation Plot of Residuals

```
Lag    Covariance    Correlation    -1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1      Std Error

 12    -326801090        -.20901    |                 ****|   .                 |      0.103979
 13     -76432309        -.04888    |                .  *|   .                 |      0.107765
 14     127314161        0.08142    |                .   |** .                 |      0.107968
 15     -12968679        -.00829    |                .   |   .                 |      0.108530
 16    -163832127        -.10478    |                . **|   .                 |      0.108536
 17     155267900        0.09930    |                .   |** .                 |      0.109460
 18     100931288        0.06455    |                .   |*  .                 |      0.110283
 19      55198007        0.03530    |                .   |*  .                 |      0.110629
 20     -72420566        -.04632    |                .  *|   .                 |      0.110732
 21      44613132        0.02853    |                .   |*  .                 |      0.110910
 22    -188606007        -.12062    |                . **|   .                 |      0.110977
 23     -62367880        -.03989    |                .  *|   .                 |      0.112174
 24     288144734        0.18429    |                .   |****                 |      0.112304
```

"." marks two standard errors

Inverse Autocorrelations

```
Lag    Correlation    -1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1

  1        0.15014    |                .   |***.                |
  2        0.14079    |                .   |***.                |
  3        0.02514    |                .   |*  .                |
  4        0.08051    |                .   |** .                |
  5       -0.04190    |                .  *|   .                |
  6       -0.04096    |                .  *|   .                |
  7       -0.09743    |                . **|   .                |
  8        0.05327    |                .   |*  .                |
  9        0.09305    |                .   |** .                |
 10        0.11514    |                .   |** .                |
 11       -0.02172    |                .   |   .                |
 12        0.20566    |                .   |****                |
 13        0.11081    |                .   |** .                |
 14        0.01648    |                .   |   .                |
 15       -0.05055    |                .  *|   .                |
 16        0.03392    |                .   |*  .                |
 17       -0.06972    |                .  *|   .                |
 18       -0.03101    |                .  *|   .                |
 19       -0.09486    |                . **|   .                |
 20        0.02567    |                .   |*  .                |
 21        0.01928    |                .   |   .                |
 22        0.10539    |                .   |** .                |
 23       -0.01131    |                .   |   .                |
 24       -0.07757    |                . **|   .                |
```

Kentucky Power Company
Other Retail

The ARIMA Procedure

Partial Autocorrelations

```
Lag    Correlation    -1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1

  1       -0.09575    |                . **|   .                |
  2       -0.17677    |                ****|   .                |
  3       -0.03410    |                .  *|   .                |
  4       -0.05284    |                .  *|   .                |
  5       -0.06539    |                .  *|   .                |
  6        0.00680    |                .   |   .                |
  7        0.11852    |                .   |** .                |
  8        0.00269    |                .   |   .                |
  9       -0.10023    |                . **|   .                |
 10       -0.03000    |                .  *|   .                |
 11        0.09052    |                .   |** .                |
 12       -0.20099    |                ****|   .                |
 13       -0.08911    |                . **|   .                |
 14       -0.01777    |                .   |   .                |
 15       -0.01576    |                .   |   .                |
 16       -0.09843    |                . **|   .                |
 17        0.05671    |                .   |*  .                |
 18        0.03700    |                .   |*  .                |
 19        0.12995    |                .   |***.                |
 20        0.00414    |                .   |   .                |
 21        0.00962    |                .   |   .                |
 22       -0.15572    |                .***|   .                |
 23       -0.01048    |                .   |   .                |
 24        0.09286    |                .   |** .                |
```

Model for variable KWH

```
Estimated Intercept          6884.861
Period(s) of Differencing          12
```

Autoregressive Factors

```
Factor 1:  1 - 0.24334 B**(3)
```

Moving Average Factors

```
Factor 1:  1 + 0.56933 B**(1)
Factor 2:  1 - 0.8882 B**(12)
```

Kentucky Power Company
Other Retail

The ARIMA Procedure

Input Number 1

Input Variable	or1
Period(s) of Differencing	12
Overall Regression Factor	-109126

Input Number 2

Input Variable	or2
Period(s) of Differencing	12
Overall Regression Factor	125761.2

Input Number 3

Input Variable	or3
Period(s) of Differencing	12
Overall Regression Factor	388938.5

Input Number 4

Input Variable	or4
Period(s) of Differencing	12
Overall Regression Factor	127574.9

Input Number 5

Input Variable	or5
Period(s) of Differencing	12
Overall Regression Factor	158002

Input Number 6

Input Variable	or6
Period(s) of Differencing	12
Overall Regression Factor	180991.9

Input Number 7

Input Variable	or7
Period(s) of Differencing	12
Overall Regression Factor	123172.8

Kentucky Power Company
Other Retail

The ARIMA Procedure

Input Number 8

Input Variable	or8
Period(s) of Differencing	12
Overall Regression Factor	255947.5

Input Number 9

Input Variable	or9
Period(s) of Differencing	12
Overall Regression Factor	211538.3

Input Number 10

Input Variable	or10
Period(s) of Differencing	12
Overall Regression Factor	113646.9

Input Number 11

Input Variable	MET_DAYS
Period(s) of Differencing	12
Overall Regression Factor	1682.664

Forecasts for variable KWH

Obs	Forecast	Std Error	95% Confidence Limits	
122	942887.5	39542.15	865386.3	1020388.7
123	943325.7	45501.51	854144.4	1032507.0
124	814380.2	45501.51	725198.9	903561.5
125	715424.5	46507.75	624271.0	806578.0
126	675955.2	46829.26	584171.5	767738.9
127	695840.1	46829.26	604056.4	787623.8
128	763899.7	46887.76	672001.4	855798.1
129	856166.9	46906.70	764231.4	948102.3
130	963278.2	46906.70	871342.8	1055213.7
131	1028229.7	46910.16	936287.5	1120171.9
132	1115650.8	46911.28	1023706.4	1207595.2
133	1117404.6	46911.28	1025460.1	1209349.0
134	949600.6	47132.33	857223.0	1041978.3
135	945378.5	47203.75	852860.8	1037896.2
136	818114.8	47203.75	725597.2	910632.5
137	722267.5	47216.79	629724.3	814810.7
138	681664.2	47221.02	589112.7	774215.7
139	701958.4	47221.02	609406.9	794509.9

Kentucky Power Company
Other Retail

The ARIMA Procedure

Forecasts for variable KWH

Obs	Forecast	Std Error	95% Confidence Limits	
140	770774.4	47221.79	678221.4	863327.4
141	862765.6	47222.04	770212.1	955319.1
142	969976.6	47222.04	877423.1	1062530.1
143	1035112.1	47222.08	942558.5	1127665.7
144	1122466.0	47222.10	1029912.4	1215019.7
145	1124244.0	47222.10	1031690.4	1216797.7
146	956484.9	47430.07	863523.7	1049446.1
147	952246.4	47497.28	859153.5	1045339.4
148	824988.7	47497.28	731895.7	918081.6
149	729152.2	47509.55	636035.2	822269.2
150	688545.0	47513.52	595420.2	781669.8
151	708840.6	47513.52	615715.8	801965.4
152	777659.3	47514.25	684533.0	870785.5
153	869649.5	47514.49	776522.8	962776.1
154	976860.8	47514.49	883734.1	1069987.5
155	1041996.9	47514.53	948870.2	1135123.7
156	1129350.7	47514.54	1036223.9	1222477.5
157	1131128.7	47514.54	1038002.0	1224255.5