Exh. JL-2
Dockets UE-170033/UG-170034
Witness: Jing Liu

BEFORE THE WASHINGTON
UTILITIES AND TRANSPORTATION COMMISSION

WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION, **Complainant,** **v.** **PUGET SOUND ENERGY,** **Respondent.**	**DOCKETS UE-170033 and UG-170034 (*Consolidated*)**

EXHIBIT TO TESTIMONY OF

Jing Liu

STAFF OF
WASHINGTON UTILITIES AND
TRANSPORTATION COMMISSION

Model Output

June 30, 2017

Output of Electric Temperature Normalization Models

Dependent Variable: UPC07
Method: ARMA Conditional Least Squares (Marquardt - EViews legacy)
Date: 05/17/17 Time: 11:42
Sample (adjusted): 1/02/2012 12/31/2015
Included observations: 1460 after adjustments
Convergence achieved after 16 iterations

Variable	Coefficient	Std. Error	t-Statistic	Prob.
JAN	26.27452	0.847822	30.99063	0
FEB	28.11411	1.46933	19.13397	0
MAR	24.35127	0.708657	34.36258	0
APR	24.12174	0.599957	40.2058	0
MAY	23.73473	0.38288	61.99003	0
JUN	24.11677	0.292892	82.34012	0
JUL	23.35859	0.347542	67.21088	0
AUG	23.68848	0.384376	61.62844	0
SEP	22.99934	0.530595	43.34632	0
OCT	23.61423	0.53342	44.26944	0
NOV	25.1982	0.854205	29.49902	0
DEC	29.97779	1.364289	21.9732	0
JAN*HDD65	0.655939	0.034209	19.17458	0
FEB*HDD65	0.477404	0.080015	5.966412	0
FEB*HDD45	0.263877	0.111696	2.362467	0.0183
MAR*HDD65	0.577258	0.036396	15.86033	0
APR*HDD65	0.394575	0.039057	10.10245	0
APR*HDD45	0.896671	0.35401	2.532896	0.0114
MAY*HDD65	0.219445	0.035666	6.152831	0
SEP*HDD65	0.283942	0.074289	3.822101	0.0001
OCT*HDD65	0.474909	0.043375	10.94891	0
NOV*HDD65	0.603689	0.050663	11.91581	0
NOV*HDD45	0.272986	0.088967	3.068411	0.0022
DEC*HDD65	0.53151	0.07377	7.204985	0
DEC*HDD45	0.260122	0.099003	2.627405	0.0087
JUN*CDD60	0.187709	0.040697	4.61238	0
JUL*CDD60	0.284026	0.031421	9.039254	0
AUG*CDD60	0.210531	0.036126	5.827761	0
SEP*CDD60	0.200224	0.069879	2.865303	0.0042
HOL	2.161773	0.274539	7.874198	0
SEMHOL	1.156708	0.302114	3.828708	0.0001
SAT	0.836571	0.102571	8.156006	0
SUN	1.542428	0.102573	15.03731	0
D011912	-5.243076	1.422748	-3.685175	0.0002
D012012	-15.16313	1.400517	-10.82681	0
D030814	6.654197	1.30657	5.092873	0
TREND	-0.034532	0.005233	-6.598753	0
AR(1)	0.453607	0.023925	18.95925	0

R-squared	0.966287	Mean dependent var	31.11712
Adjusted R-squared	0.96541	S.D. dependent var	7.624291
S.E. of regression	1.417997	Akaike info criterion	3.562051
Sum squared resid	2859.239	Schwarz criterion	3.699637
Log likelihood	-2562.297	Hannan-Quinn criter.	3.613376
Durbin-Watson stat	2.087285		

Inverted AR Roots	0.45
MAPE	3.774337

Dependent Variable: UPC05
Method: ARMA Conditional Least Squares (Marquardt - EViews legacy)
Date: 05/23/17 Time: 15:00
Sample (adjusted): 1/02/2012 12/31/2015
Included observations: 1460 after adjustments
Convergence achieved after 14 iterations

Variable	Coefficient	Std. Error	t-Statistic	Prob.
JAN	2714.009	92.58044	29.31515	0
FEB	2580.208	94.55796	27.28705	0
MAR	2231.7	75.69183	29.48403	0
APR	1786.61	61.04388	29.26763	0
MAY	1508.597	44.72193	33.73283	0
JUN	1350.923	35.36098	38.20378	0
JUL	1194.667	35.32027	33.82384	0
AUG	1164.081	35.81413	32.50341	0
SEP	1253.615	42.62361	29.41128	0
OCT	1566.567	61.54841	25.4526	0
NOV	1841.236	67.58499	27.24326	0
DEC	2698.928	135.3581	19.93917	0
JAN*HDD65	39.10546	3.60014	10.86221	0
FEB*HDD65	38.8831	4.258892	9.129863	0
MAR*HDD65	39.95445	3.715206	10.7543	0
APR*HDD65	33.94289	3.532462	9.608848	0
MAY*HDD65	23.60887	3.573154	6.607291	0
SEP*HDD65	26.17476	5.359515	4.883793	0
OCT*HDD65	29.2855	4.722411	6.201387	0
NOV*HDD65	52.64198	3.025648	17.39858	0
DEC*HDD65	33.0337	7.135863	4.62925	0
DEC*HDD45	22.07775	9.586427	2.303022	0.0214
SAT	29.21879	9.122193	3.203045	0.0014
SUN	33.70638	9.081467	3.711557	0.0002
D011912	-645.3854	129.978	-4.965344	0
D012012	876.1502	128.2394	6.832146	0
D030814	496.3212	115.3919	4.301178	0
TREND	-4.615515	0.742732	-6.214237	0
AR(1)	0.641669	0.02092	30.67271	0

R-squared	0.981502	Mean dependent var	2160.097
Adjusted R-squared	0.98114	S.D. dependent var	985.849
S.E. of regression	135.3871	Akaike info criterion	12.67382
Sum squared resid	26229765	Schwarz criterion	12.77882
Log likelihood	-9222.886	Hannan-Quinn criter.	12.71299
Durbin-Watson stat	2.302485		

Inverted AR Roots	0.64
MAPE	6.44

Dependent Variable: UPC08
Method: Least Squares
Date: 05/30/17 Time: 13:38
Sample: 1/01/2012 12/31/2015
Included observations: 1461

Variable	Coefficient	Std. Error	t-Statistic	Prob.
JAN	22.53357	1.216582	18.52203	0
FEB	18.94126	1.2013	15.76731	0
MAR	21.4132	1.084353	19.74745	0
APR	19.14998	0.961571	19.9153	0
MAY	20.40282	0.307175	66.42075	0
JUN	20.54418	0.31401	65.42528	0
JUL	20.83104	0.312975	66.55821	0
AUG	19.92711	0.597979	33.32409	0
SEP	20.88832	0.404646	51.62126	0
OCT	19.09191	0.746917	25.56094	0
NOV	20.47972	0.934795	21.90825	0
DEC	27.64579	0.41747	66.22227	0
JAN*HDD65	0.294443	0.04993	5.897133	0
FEB*HDD65	0.443435	0.055971	7.922586	0
MAR*HDD65	0.241803	0.057256	4.223161	0
APR*HDD65	0.229721	0.063666	3.608213	0.0003
OCT*HDD65	0.266606	0.062789	4.24608	0
NOV*HDD65	0.322198	0.046449	6.936661	0
DEC*HDD45	0.532847	0.063016	8.455781	0
AUG*CDD60	0.157937	0.063957	2.469435	0.0136
SEP*CDD60	0.160109	0.079916	2.003469	0.0453
D012012	-8.795803	3.062828	-2.871792	0.0041
TREND	-0.02899	0.006121	-4.736355	0

R-squared	0.611001	Mean dependent var	23.28554
Adjusted R-squared	0.60505	S.D. dependent var	4.837601
S.E. of regression	3.040195	Akaike info criterion	5.077338
Sum squared resid	13291.12	Schwarz criterion	5.160567
Log likelihood	-3685.995	Hannan-Quinn criter.	5.108385
Durbin-Watson stat	1.90773		
MAPE	4.821181		

Dependent Variable: UPC10
Method: ARMA Conditional Least Squares (Marquardt - EViews legacy)
Date: 05/30/17 Time: 13:43
Sample (adjusted): 1/02/2012 12/31/2015
Included observations: 1460 after adjustments
Convergence achieved after 8 iterations

Variable	Coefficient	Std. Error	t-Statistic	Prob.
JAN	8562.812	397.3606	21.54922	0
FEB	7830.129	408.3383	19.17559	0
MAR	8118.347	327.372	24.79854	0
APR	6425.458	277.9595	23.11653	0
MAY	7480.528	235.1642	31.80981	0
JUN	7317.963	224.8608	32.54441	0
JUL	7089.349	239.7235	29.57302	0
AUG	7244.999	237.1408	30.55146	0
SEP	7703.524	223.4661	34.4729	0
OCT	8202.691	226.1569	36.26991	0
NOV	7511.736	313.8142	23.93689	0
DEC	7729.209	388.2162	19.90955	0
JAN*HDD65	60.94213	14.0072	4.350771	0
FEB*HDD65	83.30088	17.02214	4.89368	0
MAR*HDD65	50.12218	13.98274	3.584574	0.0003
APR*HDD65	40.55014	12.99363	3.120772	0.0018
MAY*HDD65	32.97943	13.41151	2.459039	0.014
NOV*HDD65	98.63061	11.63879	8.4743	0
DEC*HDD65	100.7268	13.30569	7.570202	0
JUN*CDD60	41.7256	16.66143	2.504323	0.0124
JUL*CDD60	57.29161	11.51279	4.976346	0
AUG*CDD60	41.59132	12.77447	3.255816	0.0012
SAT	-92.99362	32.01055	-2.905093	0.0037
SUN	-229.7037	32.01843	-7.174108	0
D011912	-1066.648	462.0452	-2.308535	0.0211
D012012	-8446.222	456.5462	-18.50026	0
D030914	-932.4497	400.0124	-2.331052	0.0199
TREND	-15.92449	5.197585	-3.063825	0.0022
AR(1)	0.80923	0.015709	51.51485	0

R-squared	0.889141	Mean dependent var	7983.155
Adjusted R-squared	0.886972	S.D. dependent var	1521.741
S.E. of regression	511.6042	Akaike info criterion	15.33264
Sum squared resid	3.75E+08	Schwarz criterion	15.43764
Log likelihood	-11163.83	Hannan-Quinn criter.	15.37181
Durbin-Watson stat	2.284365		

Inverted AR Roots	0.81
MAPE	8.490278

Dependent Variable: UPC11
Method: ARMA Conditional Least Squares (Marquardt - EViews legacy)
Date: 05/30/17 Time: 13:45
Sample (adjusted): 1/02/2012 12/31/2015
Included observations: 1460 after adjustments
Convergence achieved after 14 iterations

Variable	Coefficient	Std. Error	t-Statistic	Prob.
JAN	1129.584	22.70479	49.7509	0
FEB	1179.827	38.40355	30.72181	0
MAR	1114.59	18.83873	59.16482	0
APR	1128.277	15.74197	71.6732	0
MAY	1151.994	7.172818	160.6055	0
JUN	1134.904	8.172306	138.8719	0
JUL	1169.337	9.530804	122.6903	0
AUG	1176.474	10.34476	113.7266	0
SEP	1179.203	8.430656	139.8708	0
OCT	1184.021	14.45201	81.92774	0
NOV	1187.682	22.21331	53.46713	0
DEC	1264.857	35.50445	35.62531	0
JAN*HDD65	17.06299	0.90934	18.76415	0
FEB*HDD65	11.9247	2.081805	5.728057	0
FEB*HDD45	9.014786	2.917572	3.089825	0.002
MAR*HDD65	12.84066	0.958867	13.39149	0
APR*HDD65	7.123099	1.007245	7.071862	0
APR*HDD45	25.17167	9.014337	2.792404	0.0053
OCT*HDD65	7.386798	1.163345	6.34962	0
NOV*HDD65	11.70172	1.304051	8.973359	0
NOV*HDD45	10.02888	2.275453	4.407422	0
DEC*HDD65	9.500115	1.909762	4.974501	0
DEC*HDD45	12.46531	2.565024	4.859724	0
JUN*CDD60	9.530852	1.079692	8.827381	0
JUL*CDD60	9.471623	0.818878	11.56658	0
AUG*CDD60	8.318466	0.934817	8.898499	0
SEP*CDD60	5.441901	1.267172	4.294523	0
HOL	-29.84121	6.716379	-4.44305	0
SAT	-28.55802	2.572396	-11.10172	0
SUN	-45.43713	2.575453	-17.64239	0
D011912	-91.18429	36.14903	-2.522455	0.0118
D012012	-325.9268	35.60285	-9.154514	0
D030814	136.3868	35.86319	3.802974	0.0001
D030914	-86.31091	35.59447	-2.42484	0.0154
TREND	-0.745433	0.148659	-5.014366	0
AR(1)	0.509748	0.02309	22.07671	0

R-squared	0.948205	Mean dependent var	1284.396
Adjusted R-squared	0.946932	S.D. dependent var	157.9826
S.E. of regression	36.39354	Akaike info criterion	10.05101
Sum squared resid	1886074	Schwarz criterion	10.18135
Log likelihood	-7301.236	Hannan-Quinn criter.	10.09963
Durbin-Watson stat	2.135661		

Inverted AR Roots	0.51
MAPE	2.373126

Dependent Variable: UPC12
Method: ARMA Conditional Least Squares (Marquardt - EViews legacy)
Date: 05/30/17 Time: 13:54
Sample (adjusted): 1/02/2012 12/31/2015
Included observations: 1460 after adjustments
Convergence achieved after 14 iterations

Variable	Coefficient	Std. Error	t-Statistic	Prob.
JAN	2950.499	140.6731	20.97416	0
FEB	3007.868	145.0342	20.73902	0
MAR	3144.39	112.8539	27.86248	0
APR	3042.454	93.42864	32.56447	0
MAY	3230.842	69.66743	46.37522	0
JUN	3273.961	63.73284	51.37007	0
JUL	3785.823	69.81151	54.22921	0
AUG	3570.354	67.57115	52.83844	0
SEP	3445.921	57.69025	59.73144	0
OCT	3153.817	91.09811	34.62001	0
NOV	2954.766	122.2865	24.16266	0
DEC	3317.239	194.0399	17.09566	0
JAN*HDD65	79.32291	5.407893	14.66799	0
FEB*HDD65	70.05844	6.489925	10.79495	0
MAR*HDD65	56.95092	5.448249	10.45307	0
APR*HDD65	38.1087	5.349317	7.124032	0
APR*HDD45	113.5548	45.61752	2.489281	0.0129
MAY*HDD65	20.52666	5.207019	3.942113	0.0001
OCT*HDD65	36.87588	7.172539	5.141259	0
NOV*HDD65	67.21006	6.938877	9.686015	0
NOV*HDD45	31.96435	11.97956	2.66824	0.0077
DEC*HDD65	56.37647	10.23672	5.507278	0
DEC*HDD45	33.33515	13.7646	2.421802	0.0156
JUN*CDD60	33.30509	6.389463	5.212502	0
JUL*CDD60	37.37885	4.483788	8.336444	0
AUG*CDD60	21.75339	4.992531	4.357187	0
HOL	-154.5055	32.79737	-4.710913	0
SAT	-170.1436	12.7072	-13.38954	0
SUN	-238.871	12.69927	-18.80982	0
D011912	-865.4397	182.0982	-4.7526	0
D012012	-1564.93	179.8305	-8.70225	0
D030814	735.4835	159.4916	4.611425	0
AR(1)	0.752921	0.018336	41.0632	0

R-squared	0.925775	Mean dependent var	3906.587
Adjusted R-squared	0.924111	S.D. dependent var	715.5324
S.E. of regression	197.1149	Akaike info criterion	13.42779
Sum squared resid	55445040	Schwarz criterion	13.54728
Log likelihood	-9769.289	Hannan-Quinn criter.	13.47237
Durbin-Watson stat	2.149583		

Inverted AR Roots	0.75
MAPE	5.741035

Dependent Variable: UPC24
Method: ARMA Conditional Least Squares (Marquardt - EViews legacy)
Date: 05/30/17 Time: 14:19
Sample (adjusted): 1/02/2012 12/31/2015
Included observations: 1460 after adjustments
Convergence achieved after 10 iterations

Variable	Coefficient	Std. Error	t-Statistic	Prob.
JAN	84.89427	1.491335	56.925	0
FEB	87.47856	2.748383	31.8291	0
MAR	82.48449	1.274973	64.69507	0
APR	86.00726	1.122294	76.63526	0
MAY	86.3392	0.405195	213.0808	0
JUN	85.22872	0.475854	179.1067	0
JUL	86.28184	0.592666	145.5826	0
AUG	88.78467	0.686013	129.4214	0
SEP	86.41633	0.505419	170.9796	0
OCT	84.82639	0.916446	92.56016	0
NOV	83.77737	1.633711	51.2804	0
DEC	91.29543	2.58393	35.332	0
JAN*HDD65	0.806078	0.060905	13.23503	0
FEB*HDD65	0.568234	0.150933	3.764798	0.0002
FEB*HDD45	0.476337	0.208864	2.280611	0.0227
MAR*HDD65	0.686709	0.066471	10.33098	0
APR*HDD65	0.250559	0.075433	3.321619	0.0009
APR*HDD45	2.02539	0.713051	2.840454	0.0046
OCT*HDD65	0.378646	0.075782	4.996508	0
NOV*HDD65	0.686279	0.098479	6.968786	0
NOV*HDD45	0.507314	0.174063	2.914535	0.0036
DEC*HDD65	0.439621	0.141197	3.113518	0.0019
DEC*HDD45	0.558737	0.189502	2.94845	0.0032
JUN*CDD60	0.83323	0.073128	11.3941	0
JUL*CDD60	0.783084	0.059163	13.23594	0
AUG*CDD60	0.524233	0.069231	7.572225	0
SEP*CDD60	0.637148	0.09013	7.069194	0
HOL	-16.78447	0.579726	-28.9524	0
SEMHOL	-5.827083	0.640312	-9.10038	0
SAT	-11.49588	0.213936	-53.73513	0
SUN	-16.01305	0.213525	-74.99383	0
D011912	-11.32136	2.925311	-3.870139	0.0001
D012012	-27.80413	2.863302	-9.71051	0
D030814	7.07893	2.766346	2.558946	0.0106
TREND	-0.238769	0.0082	-29.11836	0
AR(1)	0.291915	0.026081	11.19274	0

R-squared	0.928234	Mean dependent var	83.72222
Adjusted R-squared	0.92647	S.D. dependent var	10.50277
S.E. of regression	2.847979	Akaike info criterion	4.955444
Sum squared resid	11550.04	Schwarz criterion	5.085789
Log likelihood	-3581.474	Hannan-Quinn criter.	5.004068
Durbin-Watson stat	2.08282		

Inverted AR Roots	0.29
MAPE	2.515996

Dependent Variable: UPC25
Method: ARMA Conditional Least Squares (Marquardt - EViews legacy)
Date: 05/17/17 Time: 12:13
Sample (adjusted): 1/02/2012 12/31/2015
Included observations: 1460 after adjustments
Convergence achieved after 8 iterations

Variable	Coefficient	Std. Error	t-Statistic	Prob.
JAN	1249.899	32.99045	37.88668	0
FEB	1200.422	22.96334	52.27558	0
MAR	1186.54	22.19755	53.45364	0
APR	1159.657	21.94486	52.84414	0
MAY	1156.126	22.08775	52.34242	0
JUN	1144.347	23.83902	48.00311	0
JUL	1154.078	25.82797	44.68328	0
AUG	1151.661	25.80546	44.62857	0
SEP	1169.096	24.13947	48.43089	0
OCT	1165.884	23.63506	49.32857	0
NOV	1163.008	27.16173	42.81788	0
DEC	1232.596	26.21302	47.02228	0
JAN*HDD55	8.856204	1.767808	5.00971	0
FEB*HDD45	6.69759	3.030434	2.210109	0.0273
MAR*HDD45	6.937908	3.601718	1.926278	0.0543
NOV*HDD55	7.366621	1.494887	4.927877	0
DEC*HDD45	8.933482	2.233992	3.998887	0.0001
JUN*CDD60	9.396757	2.076307	4.525707	0
JUL*CDD60	8.547664	1.457256	5.86559	0
AUG*CDD60	8.859943	1.622646	5.460181	0
SEP*CDD60	6.262128	2.28396	2.741786	0.0062
HOL	-222.0007	11.11092	-19.9804	0
SEMHOL	-47.40329	12.0492	-3.934144	0.0001
SAT	-207.166	4.138796	-50.05465	0
SUN	-260.9563	4.147628	-62.91701	0
D011912	-150.8953	59.15612	-2.550797	0.0109
D012012	-331.9472	58.43869	-5.680264	0
TREND	-1.917086	0.514134	-3.728767	0.0002
AR(1)	0.757147	0.017969	42.1366	0

R-squared	0.843611	Mean dependent var	1095.466
Adjusted R-squared	0.840551	S.D. dependent var	160.5686
S.E. of regression	64.11666	Akaike info criterion	11.17895
Sum squared resid	5882765	Schwarz criterion	11.28395
Log likelihood	-8131.633	Hannan-Quinn criter.	11.21812
Durbin-Watson stat	1.926603		

Inverted AR Roots	0.76
MAPE	3.395322

Dependent Variable: UPC26
Method: ARMA Conditional Least Squares (Marquardt - EViews legacy)
Date: 05/17/17 Time: 12:18
Sample (adjusted): 1/02/2012 12/31/2015
Included observations: 1460 after adjustments
Convergence achieved after 10 iterations

Variable	Coefficient	Std. Error	t-Statistic	Prob.
JAN	6837.934	38.35455	178.2822	0
FEB	6676.609	35.11538	190.1335	0
MAR	6632.863	33.39531	198.6166	0
APR	6604.265	31.76167	207.9319	0
MAY	6671.273	31.71699	210.3375	0
JUN	6721.041	36.33557	184.9714	0
JUL	6841.573	42.89086	159.5112	0
AUG	6860.56	47.12685	145.5765	0
SEP	6840.06	37.55395	182.1396	0
OCT	6713.593	33.33607	201.3912	0
NOV	6729.662	36.46461	184.5532	0
DEC	6754.834	40.6972	165.9779	0
JAN*HDD45	12.16081	5.085108	2.391455	0.0169
FEB*HDD45	26.98896	6.669856	4.046408	0.0001
MAR*HDD45	18.30261	9.680622	1.890644	0.0589
NOV*HDD45	15.94751	6.281077	2.538977	0.0112
DEC*HDD45	13.90981	5.185277	2.682558	0.0074
JUN*CDD60	48.45974	4.957898	9.77425	0
JUL*CDD60	43.17378	3.795967	11.37359	0
AUG*CDD60	47.95444	4.362808	10.99164	0
SEP*CDD60	44.78584	5.867355	7.633054	0
HOL	-1260.752	33.10367	-38.08498	0
SEMHOL	-501.7733	36.35051	-13.80375	0
SAT	-1138.383	12.44822	-91.44944	0
SUN	-1403.261	12.37684	-113.378	0
D011912	-730.7371	171.7745	-4.254049	0
D012012	-1330.143	167.8815	-7.923102	0
TREND	-5.225243	0.647543	-8.06934	0
AR(1)	0.477796	0.024615	19.41103	0

R-squared	0.938724	Mean dependent var	6325.473
Adjusted R-squared	0.937525	S.D. dependent var	681.1008
S.E. of regression	170.2405	Akaike info criterion	13.13196
Sum squared resid	41472999	Schwarz criterion	13.23696
Log likelihood	-9557.334	Hannan-Quinn criter.	13.17113
Durbin-Watson stat	2.062634		

Inverted AR Roots	0.48
MAPE	2.222988

Dependent Variable: UPC29
Method: ARMA Conditional Least Squares (Marquardt - EViews legacy)
Date: 05/17/17 Time: 12:36
Sample (adjusted): 1/02/2012 12/31/2015
Included observations: 1460 after adjustments
Convergence achieved after 6 iterations

Variable	Coefficient	Std. Error	t-Statistic	Prob.
JAN	39.99179	8.064115	4.959228	0
FEB	33.08117	8.404504	3.936124	0.0001
MAR	44.48016	8.102023	5.490007	0
APR	62.21295	8.157503	7.62647	0
MAY	104.6422	8.035825	13.02197	0
JUN	108.8662	10.20588	10.66701	0
JUL	173.1631	13.6412	12.69413	0
AUG	205.3511	8.050695	25.50725	0
SEP	97.90598	10.53964	9.289307	0
OCT	61.28045	8.022154	7.638901	0
NOV	71.36008	8.178448	8.725381	0
DEC	51.63757	8.030176	6.430441	0
JUN*CDD60	6.539993	1.744641	3.748618	0.0002
JUL*CDD60	3.552709	1.465583	2.424093	0.0155
SEP*CDD60	4.658585	2.225987	2.092817	0.0365
SAT	-16.84639	5.942861	-2.834727	0.0047
SUN	-26.05046	5.929094	-4.393667	0
D030814	428.1327	78.85197	5.429575	0
D030914	390.9325	78.84968	4.957947	0
AR(1)	0.116005	0.026258	4.417843	0

R-squared	0.38435	Mean dependent var	88.0494
Adjusted R-squared	0.376227	S.D. dependent var	99.25239
S.E. of regression	78.38885	Akaike info criterion	11.57484
Sum squared resid	8848529	Schwarz criterion	11.64726
Log likelihood	-8429.636	Hannan-Quinn criter.	11.60186
Durbin-Watson stat	2.01322		

Inverted AR Roots	0.12
MAPE	86.99917

Dependent Variable: UPC31
Method: ARMA Conditional Least Squares (Marquardt - EViews legacy)
Date: 05/17/17 Time: 12:40
Sample (adjusted): 1/02/2012 12/31/2015
Included observations: 1460 after adjustments
Convergence achieved after 9 iterations

Variable	Coefficient	Std. Error	t-Statistic	Prob.
JAN	7979.624	52.13828	153.0473	0
FEB	7801.248	57.29061	136.1698	0
MAR	7557.258	53.53347	141.1688	0
APR	7715.872	51.33723	150.2978	0
MAY	7453.377	50.76907	146.8094	0
JUN	7438.384	59.14517	125.7648	0
JUL	7457.068	68.89651	108.2358	0
AUG	7527.069	71.71455	104.9587	0
SEP	7698.816	57.35516	134.2306	0
OCT	7585.484	50.71152	149.5811	0
NOV	7530.664	56.18841	134.0252	0
DEC	7570.673	62.31829	121.484	0
FEB*HDD45	32.66991	10.90365	2.996237	0.0028
MAR*HDD45	41.47757	14.52929	2.854756	0.0044
NOV*HDD45	33.73617	9.760468	3.456409	0.0006
DEC*HDD45	15.8292	8.284979	1.91059	0.0563
JUN*CDD60	28.12828	7.806236	3.603309	0.0003
JUL*CDD60	35.64697	5.766224	6.18203	0
AUG*CDD60	31.75115	6.555749	4.843252	0
SEP*CDD60	36.45493	9.009779	4.046152	0.0001
HOL	-1775.109	47.13416	-37.66078	0
SEMHOL	-1077.952	51.81396	-20.80427	0
SAT	-1586.27	18.0265	-87.99657	0
SUN	-1975.988	17.93539	-110.1726	0
D011912	-1087.839	244.1045	-4.456448	0
D012012	-2107.493	244.2308	-8.629105	0
AR(1)	0.587932	0.022742	25.85242	0

R-squared	0.932369	Mean dependent var	7137.389
Adjusted R-squared	0.931142	S.D. dependent var	968.1842
S.E. of regression	254.0602	Akaike info criterion	13.93134
Sum squared resid	92495263	Schwarz criterion	14.0291
Log likelihood	-10142.88	Hannan-Quinn criter.	13.96781
Durbin-Watson stat	2.025434		

Inverted AR Roots	0.59
MAPE	3.458016

Dependent Variable: UPC43
Method: ARMA Conditional Least Squares (Marquardt - EViews legacy)
Date: 05/17/17 Time: 12:56
Sample (adjusted): 1/02/2012 12/31/2015
Included observations: 1460 after adjustments
Convergence achieved after 10 iterations

Variable	Coefficient	Std. Error	t-Statistic	Prob.
JAN	1883.608	205.1039	9.18368	0
FEB	3080.766	71.67179	42.98436	0
MAR	2011.157	168.7612	11.91717	0
APR	2190.397	137.7801	15.89778	0
MAY	2175.184	65.34564	33.28737	0
JUN	1865.807	66.6828	27.98034	0
JUL	1445.088	66.51926	21.72436	0
AUG	1639.364	67.31589	24.3533	0
SEP	2063.937	68.87461	29.96659	0
OCT	1971.757	130.7289	15.08279	0
NOV	1692.412	148.8766	11.36788	0
DEC	2212.583	320.3155	6.907512	0
JAN*HDD65	76.0411	8.223088	9.247268	0
FEB*HDD45	113.2728	13.28701	8.525075	0
MAR*HDD65	55.04955	8.589421	6.408994	0
APR*HDD65	29.4972	8.49951	3.470459	0.0005
OCT*HDD65	36.01579	10.52452	3.422084	0.0006
NOV*HDD65	71.54168	7.01842	10.19342	0
DEC*HDD65	38.7702	17.21808	2.251715	0.0245
DEC*HDD45	63.33811	23.11444	2.740196	0.0062
HOL	-797.3742	62.14431	-12.83101	0
SEMHOL	-782.6995	68.29863	-11.45996	0
SAT	-1192.741	23.27173	-51.25279	0
SUN	-1209.508	23.32433	-51.85607	0
D011912	-976.7684	324.9361	-3.006033	0.0027
D012012	-1151.013	320.1331	-3.595421	0.0003
D030914	-604.4798	292.365	-2.067552	0.0389
TREND	-3.396806	1.341931	-2.531282	0.0115
AR(1)	0.516998	0.023083	22.39756	0

R-squared	0.895924	Mean dependent var	2089.613
Adjusted R-squared	0.893888	S.D. dependent var	1005.99
S.E. of regression	327.7001	Akaike info criterion	14.44174
Sum squared resid	1.54E+08	Schwarz criterion	14.54674
Log likelihood	-10513.47	Hannan-Quinn criter.	14.48091
Durbin-Watson stat	1.857957		

Inverted AR Roots	0.52
MAPE	16.804

Dependent Variable: UPC4025
Method: ARMA Conditional Least Squares (Marquardt - EViews legacy)
Date: 05/17/17 Time: 13:02
Sample (adjusted): 1/02/2012 12/31/2015
Included observations: 1460 after adjustments
Convergence achieved after 8 iterations

Variable	Coefficient	Std. Error	t-Statistic	Prob.
JAN	1437.151	25.7377	55.83838	0
FEB	1411.308	24.39966	57.84132	0
MAR	1458.787	19.9615	73.08006	0
APR	1412.479	18.08054	78.1215	0
MAY	1399.698	15.12511	92.54134	0
JUN	1330.499	16.69776	79.68129	0
JUL	1379.733	18.56881	74.30383	0
AUG	1335.051	19.05371	70.06777	0
SEP	1341.355	16.94473	79.16059	0
OCT	1348.802	17.0933	78.90822	0
NOV	1353.677	20.99346	64.4809	0
DEC	1384.519	30.56003	45.30491	0
JAN*HDD55	10.63712	1.515976	7.016681	0
FEB*HDD55	11.18127	1.798593	6.216675	0
MAR*HDD55	5.48444	1.60957	3.407395	0.0007
APR*HDD55	9.719281	2.002794	4.852861	0
OCT*HDD55	8.838203	2.94649	2.99957	0.0028
NOV*HDD55	9.303764	2.13037	4.367206	0
NOV*HDD45	8.838773	3.609381	2.448833	0.0145
DEC*HDD55	6.870947	3.042359	2.258428	0.0241
DEC*HDD45	8.680127	4.056683	2.13971	0.0325
JUN*CDD60	6.87411	1.786823	3.847113	0.0001
JUL*CDD60	8.810563	1.289553	6.832262	0
AUG*CDD60	7.412617	1.447557	5.120778	0
SEP*CDD60	4.300363	2.014079	2.135151	0.0329
HOL	-198.9967	10.13819	-19.62843	0
SEMHOL	-89.42801	11.10257	-8.054713	0
SAT	-259.624	3.797695	-68.36357	0
SUN	-266.5084	3.818893	-69.78682	0
D011912	-117.2726	47.69781	-2.458659	0.0141
D030914	-123.421	47.19087	-2.615358	0.009
TREND	-4.227021	0.329486	-12.82913	0
AR(1)	0.663121	0.020388	32.52564	0

R-squared	0.901705	Mean dependent var	1262.566
Adjusted R-squared	0.899501	S.D. dependent var	177.6834
S.E. of regression	56.32856	Akaike info criterion	10.92262
Sum squared resid	4527738	Schwarz criterion	11.04211
Log likelihood	-7940.515	Hannan-Quinn criter.	10.9672
Durbin-Watson stat	2.521576		

Inverted AR Roots	0.66
MAPE	4.611871

Dependent Variable: UPC4026
Method: ARMA Conditional Least Squares (Marquardt - EViews legacy)
Date: 05/17/17 Time: 13:14
Sample (adjusted): 1/02/2012 12/31/2015
Included observations: 1460 after adjustments
Convergence achieved after 6 iterations

Variable	Coefficient	Std. Error	t-Statistic	Prob.
JAN	12693.35	86.5681	146.6285	0
FEB	12543.42	77.05962	162.7755	0
MAR	12642.38	66.39604	190.4086	0
APR	12077.43	67.64669	178.5368	0
MAY	12459.42	67.52552	184.5142	0
JUN	12517.38	79.97309	156.52	0
JUL	12754.55	101.3537	125.8419	0
AUG	12653.48	118.9515	106.3751	0
SEP	12597.93	85.42015	147.4819	0
OCT	12527.34	70.64562	177.3264	0
NOV	12472.4	79.22752	157.4251	0
DEC	12501.66	90.05747	138.8187	0
JAN*HDD45	45.36589	12.89935	3.516913	0.0005
FEB*HDD45	81.88474	16.02579	5.10956	0
NOV*HDD45	68.19466	16.5276	4.126107	0
DEC*HDD45	83.57278	12.92951	6.463724	0
JUN*CDD60	78.23524	12.64037	6.189316	0
JUL*CDD60	67.03742	10.40056	6.445561	0
AUG*CDD60	76.25656	12.25003	6.225009	0
SEP*CDD60	86.00198	15.77123	5.453093	0
HOL	-1091.403	106.2214	-10.27479	0
SEMHOL	-444.1285	116.6502	-3.807355	0.0001
SAT	-1407.859	39.07601	-36.02874	0
SUN	-1495.512	39.01696	-38.32979	0
D011912	-1347.093	535.5968	-2.515125	0.012
D012012	-1789.074	521.7835	-3.428767	0.0006
TREND	-53.56035	1.335696	-40.09919	0
AR(1)	0.224764	0.025865	8.689872	0

R-squared	0.807403	Mean dependent var	10993.23
Adjusted R-squared	0.803772	S.D. dependent var	1169.778
S.E. of regression	518.1846	Akaike info criterion	15.35753
Sum squared resid	3.85E+08	Schwarz criterion	15.45891
Log likelihood	-11183	Hannan-Quinn criter.	15.39535
Durbin-Watson stat	2.105521		

Inverted AR Roots	0.22
MAPE	3.064685

Dependent Variable: UPC4031
Method: ARMA Conditional Least Squares (Marquardt - EViews legacy)
Date: 05/17/17 Time: 13:23
Sample (adjusted): 1/02/2012 12/31/2015
Included observations: 1460 after adjustments
Convergence achieved after 8 iterations

Variable	Coefficient	Std. Error	t-Statistic	Prob.
JAN	38270.45	214.9237	178.0653	0
FEB	37474.06	248.7944	150.6226	0
MAR	38159.29	214.7392	177.7006	0
APR	38452.71	218.7695	175.7682	0
MAY	38324.49	218.4046	175.4747	0
JUN	38767.23	258.1825	150.1544	0
JUL	39622.56	325.4145	121.7603	0
AUG	39995.15	379.8953	105.2794	0
SEP	39010.2	274.8719	141.9214	0
OCT	38312.78	228.4182	167.7309	0
NOV	38148.53	256.0858	148.9678	0
DEC	38023.36	235.0312	161.7801	0
FEB*HDD45	144.0922	51.49468	2.798196	0.0052
NOV*HDD45	127.9377	52.81333	2.42245	0.0155
JUN*CDD60	207.6166	40.4581	5.131644	0
JUL*CDD60	139.4354	33.0718	4.216142	0
AUG*CDD60	180.3591	38.88174	4.638657	0
SEP*CDD60	250.0437	50.33326	4.967764	0
HOL	-3574.685	333.3	-10.72513	0
SEMHOL	-2416.125	364.0498	-6.636797	0
SAT	-3595.118	122.5937	-29.32547	0
SUN	-4022.644	122.0954	-32.94672	0
D011912	-3292.489	1629.107	-2.021039	0.0435
D012012	-4485.703	1629.535	-2.75275	0.006
TREND	-103.8864	4.309259	-24.10772	0
AR(1)	0.250755	0.026132	9.595775	0

R-squared	0.720829	Mean dependent var	35204.58
Adjusted R-squared	0.715962	S.D. dependent var	3049.428
S.E. of regression	1625.198	Akaike info criterion	17.64229
Sum squared resid	3.79E+09	Schwarz criterion	17.73643
Log likelihood	-12852.88	Hannan-Quinn criter.	17.67741
Durbin-Watson stat	2.110926		

Inverted AR Roots	0.25
MAPE	3.512544