**Table 1. Variables Employed**

**Mnemonic Description Units Source**

KWHR Arkansas residential electricity Kilowatt Hours EIA, EEI, and author

usage per customer account (KWH) calculations

P Arkansas average residential Real Cents per EIA and author

electricity price, 2009 base year KWH calculations

Y Arkansas real median household Real Dollars US Census Bureau

income, 2009 base year and author

calculations

PG Arkansas average residential Real Dollars per EIA

natural gas price, 2009 base year 1,000 cubic feet

CDD Cooling degree days, difference Number of degrees NCDC

between daily average temperature

and 65o F (when daily average

temperature exceeds 65o F)

HDD Heating degree days, difference Number of degrees NCDC

between daily average temperature

and 65o F (when daily average

temperature is below 65o F)

USP U.S. residential average electricity Cents per KWH EIA

price

EST National fixed asset price deflator Index, 2009=100 BEA

for electric power structures

Notes:

KWH, Kilowatt Hours

EIA, United States Energy Information Administration

BEA, United States Bureau of Economic Analysis

NCDC, National Climatic Data Center

**Table 2. Descriptive Statistics**

**Variable KWHR P Y PG HDD CDD**

Mean 11,188 10.54 32,293 8.24 3,366 1,848

Median 11,191 10.38 33,281 7.76 3,374 1,802

Maximum 14,538 13.71 42,013 14.94 3,960 3,464

Minimum 6,802 8.20 21,022 3.36 2,725 1,397

Std. Dev. 1,854 1.60 5,564 3.28 294 324

Skewness -0.33 0.33 -0.28 0.34 -0.09 2.95

Kurtosis 2.65 1.89 2.00 2.44 2.60 16.79

Observations 44 44 44 44 44 44

Notes:

Units of measure listed in Table 1

**Table 3. Per Customer Residential Electricity Demand Long-Run Cointegrating Equation**

Dependent Variable: KWHR

Method: Nonlinear Least Squares (ARMAX)

Sample: 1970 2013

Included observations: 44

Convergence achieved after 6 iterations

**Variable Coefficient Std. Error t-statistic Prob.**

Constant -801.1972 2336.592 -0.342891 0.7336

Y 0.223767 0.051350 4.357706 0.0001

P -213.4986 97.52420 -2.189186 0.0350

PG 91.82670 83.52555 1.099385 0.2787

CDD 1.109860 0.274230 4.047182 0.0003

HDD 1.247027 0.350305 3.559836 0.0010

MA(1) 0.410537 0.160178 2.562997 0.0146

R-squared 0.902747 Mean dependent variable 11188.45

Adjusted R-squared 0.886976 Std. Dev. dep. variable 1854.233

S.E. of regression 623.3745 Akaike information criterion 15.85728

Sum squared resid. 14378044 Schwarz info. criterion 16.14113

Log likelihood -341.8601 Hannan-Quinn inf. criterion 15.96254

F-statistic 57.24184 Prob. (F-statistic) 0.000000

Durbin-Watson stat. 1.676754 Inverted MA Roots -0.41000

**Table 4. Elasticity Estimates**

Elasticity of demand

with respect to: Long-run Short-run

Y 0.646 0.311

P -0.201 0.168

PG 0.068 -0.092

CDD 0.183 0.156

HDD 0.375 0.251

**Table 5. Per Customer Residential Electricity Demand Short-Run Error Correction Equation**

Dependent Variable: d(KWHR)

Method: Least Squares

Sample (adjusted): 1971 2013

Included observations: 43 after adjustments

**Variable Coefficient Std. Error t-statistic Prob.**

Constant 145.9132 71.67507 2.035759 0.0492

d(Y) 0.107851 0.046864 2.301355 0.0273

d(P) 178.5334 185.0156 0.964964 0.3410

d(PG) -124.2872 91.82530 -1.353518 0.1843

d(CDD) 0.945253 0.151432 6.242101 0.0000

d(HDD) 0.833219 0.207486 4.015795 0.0003

RESIDLR(-1) -0.558461 0.124859 -4.472726 0.0001

R-squared 0.631113 Mean dependent variable 158.0710

Adjusted R-squared 0.569632 S.D. dependent variable 680.4832

S.E. of regression 446.4134 Akaike information criterion 15.18827

Sum squared resid. 7174259 Schwarz info. Criterion 15.47498

Log likelihood -319.5478 Hannan-Quinn inf. criterion 15.29400

F-statistic 10.26516 Prob. (F-statistic) 0.000001

Durbin-Watson stat. 2.239070