

APPENDIX 8-E. MONTHLY ENERGY PRICE FACTOR CALCULATIONS FOR WATER HEATER ANALYSIS

TABLE OF CONTENTS

| | | |
|-------|--|--------|
| 8-E.1 | INTRODUCTION | 8-E-1 |
| 8-E.2 | MONTHLY RESIDENTIAL NATURAL GAS PRICE FACTOR CALCULATIONS | 8-E-1 |
| 8-E.3 | MONTHLY RESIDENTIAL ELECTRICITY PRICE FACTOR CALCULATIONS | 8-E-5 |
| 8-E.4 | MONTHLY RESIDENTIAL LPG PRICE FACTOR CALCULATIONS | 8-E-8 |
| 8-E.5 | MONTHLY RESIDENTIAL OIL PRICE FACTOR CALCULATIONS | 8-E-10 |

LIST OF TABLES

| | | |
|---------------|--|--------|
| Table 8-E.2.1 | Average Residential Natural Gas Prices for Census Division 1 (nominal dollars / thousand cubic feet)..... | 8-E-2 |
| Table 8-E.2.2 | Monthly Natural Gas Price Factors for 1990–2008 for Census Division 1..... | 8-E-3 |
| Table 8-E.2.3 | Monthly Natural Gas Monthly Energy Price Factors | 8-E-4 |
| Table 8-E.2.4 | Monthly Natural Gas Prices for 2009 Using Average Price Factors (2009\$/MMBtu)..... | 8-E-4 |
| Table 8-E.3.1 | Average Residential Electricity Prices for Census Division 1 (nominal cents / kWh) | 8-E-5 |
| Table 8-E.3.2 | Monthly Electricity Price Factors for 1990-2008 for Census Division 1 .. | 8-E-6 |
| Table 8-E.3.3 | Monthly Electricity Price Factors | 8-E-7 |
| Table 8-E.3.4 | Monthly Electricity Prices for 2008 Using Monthly Price Factors (2009\$/kWh) | 8-E-7 |
| Table 8-E.4.1 | Average LPG Prices for the Northeast (nominal cents / gallon) | 8-E-8 |
| Table 8-E.4.2 | Monthly LPG Price Factors for 1995–2009 for the Northeast | 8-E-9 |
| Table 8-E.4.3 | Monthly LPG Energy Price Factors..... | 8-E-10 |
| Table 8-E.4.4 | Monthly LPG Prices for 2007 Using Average Price Factors (2009\$/MMBtu)..... | 8-E-10 |
| Table 8-E.5.1 | Average Residential Oil Prices for the Northeast (nominal cents / gallon) | 8-E-11 |
| Table 8-E.5.2 | Monthly Oil Prices Factors for 1995 – 2009 for Census Division 1 | 8-E-11 |
| Table 8-E.5.3 | Monthly Oil Energy Price Factors | 8-E-12 |
| Table 8-E.5.4 | Monthly Oil Prices for 2008 Using Average Price Factors (2009\$/MMBtu)..... | 8-E-13 |

LIST OF FIGURES

| | | |
|----------------|---|-------|
| Figure 8-E.1.1 | Monthly Energy Price Factor Calculation Process | 8-E-1 |
| Figure 8-E.2.2 | Monthly Natural Gas Price Factors for 1990–2008 for Census Division 1..... | 8-E-3 |

| | | |
|----------------|--|--------|
| Figure 8-E.3.2 | Monthly Electricity Price Factors for 1990–2008 for Census Division 1..... | 8-E-6 |
| Figure 8-E.4.2 | Monthly LPG Factors for 1995–2009 for the Northeast..... | 8-E-9 |
| Figure 8-E.5.2 | Monthly Oil Prices Factors for 1995–2009 for Census Division 1 | 8-E-12 |

APPENDIX 8-E. MONTHLY ENERGY PRICE FACTOR CALCULATIONS FOR WATER HEATER ANALYSIS

8-E.1 INTRODUCTION

For water heaters, DOE developed monthly energy price factors and used monthly energy consumption data for the life-cycle cost and payback period calculations. DOE developed monthly energy price factors to capture robust seasonal trends in monthly energy prices. Figure 8-E.1.1 depicts the monthly energy price factor calculation process.

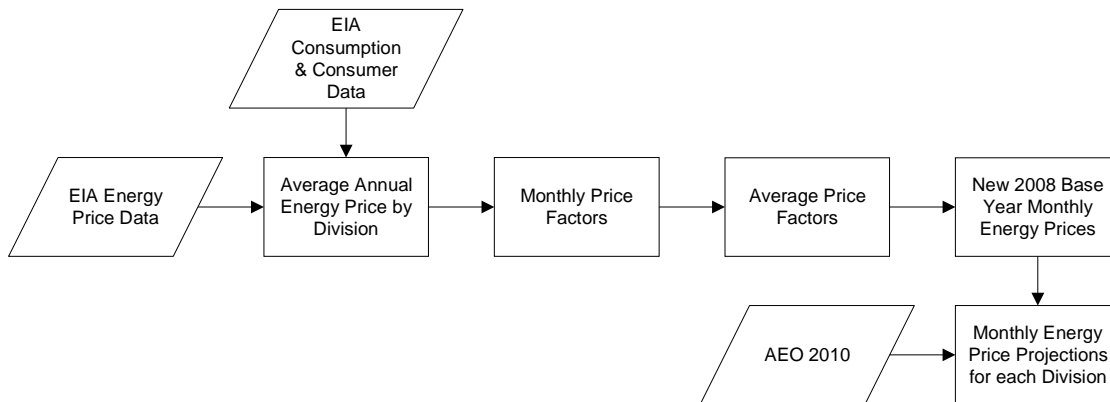


Figure 8-E.1.1 Monthly Energy Price Factor Calculation Process

8-E.2 MONTHLY RESIDENTIAL NATURAL GAS PRICE FACTOR CALCULATIONS

DOE collected historical natural gas prices from 1990 to 2008 from EIA's Natural Gas Navigator.¹ The Natural Gas Navigator includes annual and monthly natural gas prices for residential, commercial, and industrial consumers by State. DOE aggregated the data by thirteen geographic regions: the nine U.S. Census Divisions and four large states: New England, Middle Atlantic, East North Central, West North Central, South Atlantic, East South Central, West South Central, Mountain, Pacific, New York, California, Texas, and Florida.

For each geographic region, DOE determined average natural gas prices from 1990 to 2008 by weighting the average residential natural gas prices for each State by the number of natural gas consumers in each State.² Table 8-E.2.1 shows the results for Census Division 1 (CD 1).

Table 8-E.2.1 Average Residential Natural Gas Prices for Census Division 1 (nominal dollars / thousand cubic feet)

| | Jan | Feb | March | Apr | May | June | July | Aug | Sep | Oct | Nov | Dec | Avg |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1990 | 7.34 | 7.89 | 7.94 | 8.17 | 7.34 | 7.68 | 8.40 | 8.75 | 8.55 | 7.72 | 8.26 | 8.06 | 8.01 |
| 1991 | 7.95 | 7.96 | 8.07 | 8.40 | 7.34 | 8.13 | 8.76 | 8.88 | 8.71 | 7.56 | 8.53 | 8.28 | 8.22 |
| 1992 | 8.16 | 8.13 | 8.08 | 8.30 | 7.19 | 7.96 | 8.46 | 8.78 | 8.53 | 7.32 | 8.34 | 8.20 | 8.12 |
| 1993 | 8.25 | 8.20 | 8.29 | 8.49 | 7.73 | 8.41 | 8.89 | 9.25 | 9.13 | 8.00 | 9.17 | 9.22 | 8.59 |
| 1994 | 8.83 | 8.77 | 9.05 | 9.43 | 8.58 | 9.15 | 10.24 | 10.58 | 10.12 | 8.84 | 9.94 | 9.30 | 9.40 |
| 1995 | 9.13 | 9.03 | 8.88 | 9.20 | 7.93 | 8.77 | 9.84 | 10.19 | 9.75 | 8.92 | 9.40 | 8.76 | 9.15 |
| 1996 | 8.81 | 8.97 | 9.00 | 9.29 | 7.10 | 8.50 | 9.53 | 9.92 | 9.72 | 8.41 | 9.57 | 9.54 | 9.03 |
| 1997 | 9.44 | 9.71 | 9.51 | 9.64 | 8.30 | 8.99 | 10.29 | 10.73 | 10.45 | 9.03 | 9.73 | 9.75 | 9.63 |
| 1998 | 9.24 | 9.28 | 9.37 | 9.40 | 9.39 | 9.75 | 10.76 | 11.35 | 10.98 | 9.81 | 9.73 | 9.78 | 9.90 |
| 1999 | 11.27 | 11.32 | 8.82 | 8.99 | 8.46 | 9.10 | 9.24 | 9.60 | 9.06 | 9.04 | 9.48 | 9.07 | 9.45 |
| 2000 | 9.23 | 9.17 | 9.57 | 9.92 | 9.64 | 10.25 | 11.85 | 12.50 | 12.43 | 11.34 | 11.56 | 11.51 | 10.75 |
| 2001 | 11.27 | 12.42 | 12.96 | 13.50 | 13.57 | 13.87 | 15.03 | 15.77 | 14.71 | 12.57 | 11.95 | 11.22 | 13.24 |
| 2002 | 10.27 | 9.90 | 10.09 | 10.23 | 10.04 | 10.43 | 12.40 | 12.77 | 12.83 | 10.83 | 10.44 | 10.89 | 10.93 |
| 2003 | 11.01 | 11.12 | 12.29 | 13.52 | 13.94 | 13.57 | 14.84 | 15.82 | 15.24 | 13.25 | 12.79 | 12.56 | 13.33 |
| 2004 | 12.77 | 13.75 | 13.90 | 14.37 | 14.85 | 14.87 | 14.35 | 15.31 | 17.39 | 15.43 | 14.88 | 15.00 | 14.74 |
| 2005 | 14.26 | 14.10 | 13.09 | 14.29 | 15.10 | 14.87 | 16.94 | 18.01 | 18.93 | 19.66 | 19.45 | 18.65 | 16.45 |
| 2006 | 18.81 | 17.98 | 16.72 | 17.01 | 17.32 | 17.76 | 19.44 | 19.90 | 19.04 | 16.62 | 16.42 | 16.58 | 17.80 |
| 2007 | 16.47 | 15.83 | 16.66 | 17.06 | 17.36 | 17.63 | 19.46 | 19.63 | 19.05 | 17.97 | 16.74 | 16.49 | 17.53 |
| 2008 | 14.98 | 14.84 | 15.50 | 17.61 | 19.75 | 23.69 | 26.01 | 23.79 | 23.30 | 18.39 | 16.36 | 15.89 | 19.08 |

DOE then calculated monthly energy price factors for each year by dividing the prices for each month by the annual average price for each year. Table 8-E.2.2 and Figure 8-E.2.2 show the calculated results for Census Division 1.

Table 8-E.2.2 Monthly Natural Gas Price Factors for 1990–2008 for Census Division 1

| | Jan | Feb | March | Apr | May | June | July | Aug | Sep | Oct | Nov | Dec |
|----------------|------|------|-------|------|------|------|------|------|------|------|------|------|
| 1990 | 0.92 | 0.98 | 0.99 | 1.02 | 0.92 | 0.96 | 1.05 | 1.09 | 1.07 | 0.96 | 1.03 | 1.01 |
| 1991 | 0.97 | 0.97 | 0.98 | 1.02 | 0.89 | 0.99 | 1.07 | 1.08 | 1.06 | 0.92 | 1.04 | 1.01 |
| 1992 | 1.01 | 1.00 | 1.00 | 1.02 | 0.89 | 0.98 | 1.04 | 1.08 | 1.05 | 0.90 | 1.03 | 1.01 |
| 1993 | 0.96 | 0.95 | 0.97 | 0.99 | 0.90 | 0.98 | 1.04 | 1.08 | 1.06 | 0.93 | 1.07 | 1.07 |
| 1994 | 0.94 | 0.93 | 0.96 | 1.00 | 0.91 | 0.97 | 1.09 | 1.13 | 1.08 | 0.94 | 1.06 | 0.99 |
| 1995 | 1.00 | 0.99 | 0.97 | 1.01 | 0.87 | 0.96 | 1.08 | 1.11 | 1.07 | 0.97 | 1.03 | 0.96 |
| 1996 | 0.98 | 0.99 | 1.00 | 1.03 | 0.79 | 0.94 | 1.06 | 1.10 | 1.08 | 0.93 | 1.06 | 1.06 |
| 1997 | 0.98 | 1.01 | 0.99 | 1.00 | 0.86 | 0.93 | 1.07 | 1.11 | 1.09 | 0.94 | 1.01 | 1.01 |
| 1998 | 0.93 | 0.94 | 0.95 | 0.95 | 0.95 | 0.98 | 1.09 | 1.15 | 1.11 | 0.99 | 0.98 | 0.99 |
| 1999 | 1.19 | 1.20 | 0.93 | 0.95 | 0.89 | 0.96 | 0.98 | 1.02 | 0.96 | 0.96 | 1.00 | 0.96 |
| 2000 | 0.86 | 0.85 | 0.89 | 0.92 | 0.90 | 0.95 | 1.10 | 1.16 | 1.16 | 1.06 | 1.08 | 1.07 |
| 2001 | 0.85 | 0.94 | 0.98 | 1.02 | 1.02 | 1.05 | 1.14 | 1.19 | 1.11 | 0.95 | 0.90 | 0.85 |
| 2002 | 0.94 | 0.91 | 0.92 | 0.94 | 0.92 | 0.95 | 1.13 | 1.17 | 1.17 | 0.99 | 0.96 | 1.00 |
| 2003 | 0.83 | 0.83 | 0.92 | 1.01 | 1.05 | 1.02 | 1.11 | 1.19 | 1.14 | 0.99 | 0.96 | 0.94 |
| 2004 | 0.87 | 0.93 | 0.94 | 0.97 | 1.01 | 1.01 | 0.97 | 1.04 | 1.18 | 1.05 | 1.01 | 1.02 |
| 2005 | 0.87 | 0.86 | 0.80 | 0.87 | 0.92 | 0.90 | 1.03 | 1.10 | 1.15 | 1.20 | 1.18 | 1.13 |
| 2006 | 1.06 | 1.01 | 0.94 | 0.96 | 0.97 | 1.00 | 1.09 | 1.12 | 1.07 | 0.93 | 0.92 | 0.93 |
| 2007 | 0.94 | 0.90 | 0.95 | 0.97 | 0.99 | 1.01 | 1.11 | 1.12 | 1.09 | 1.02 | 0.95 | 0.94 |
| 2008 | 0.78 | 0.78 | 0.81 | 0.92 | 1.03 | 1.24 | 1.36 | 1.25 | 1.22 | 0.96 | 0.86 | 0.83 |
| Average | 0.94 | 0.95 | 0.94 | 0.98 | 0.93 | 0.99 | 1.08 | 1.12 | 1.10 | 0.98 | 1.01 | 0.99 |

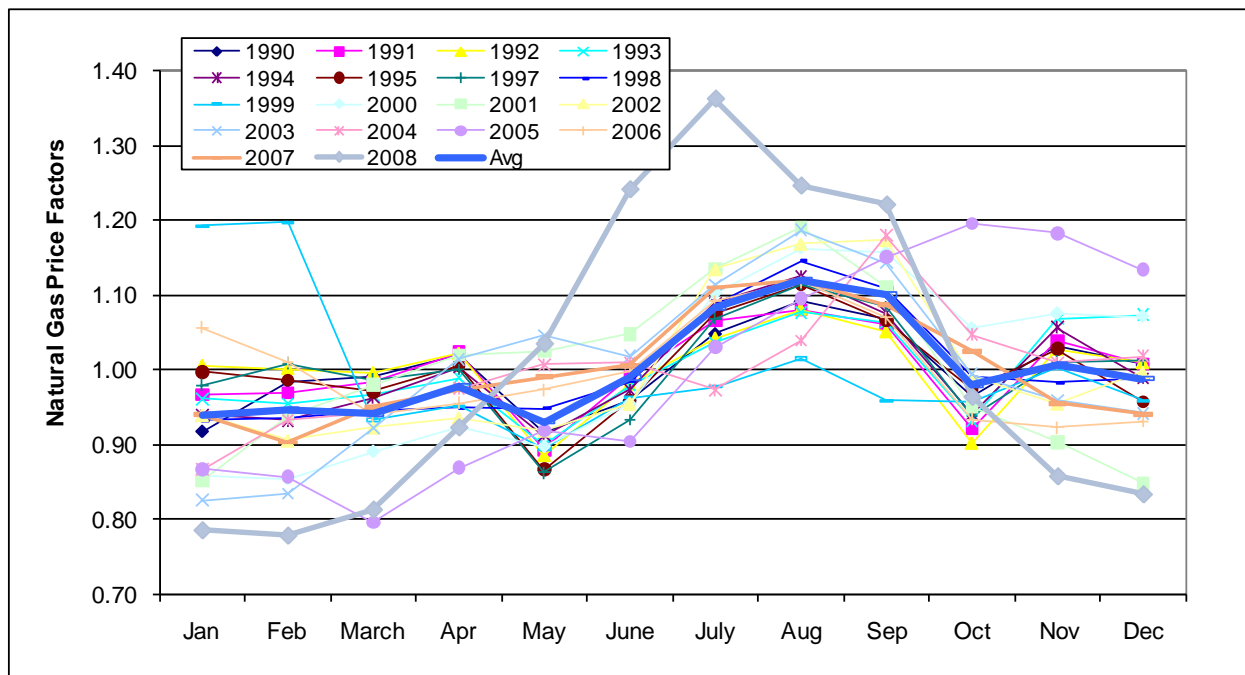


Figure 8-E.2.2 Monthly Natural Gas Price Factors for 1990–2008 for Census Division 1

DOE then averaged the monthly energy price factors for 1990 to 2008 to develop an average energy price factor for each month. DOE performed the same calculations for each geographic region to develop the average monthly energy price factors shown in Table 8-E.2.3.

Table 8-E.2.3 Monthly Natural Gas Monthly Energy Price Factors

| CD | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 1 | 0.94 | 0.95 | 0.94 | 0.98 | 0.93 | 0.99 | 1.08 | 1.12 | 1.10 | 0.98 | 1.01 | 0.99 |
| 2 | 0.85 | 0.86 | 0.87 | 0.90 | 0.99 | 1.11 | 1.20 | 1.21 | 1.17 | 1.02 | 0.92 | 0.90 |
| 3 | 0.85 | 0.85 | 0.86 | 0.91 | 1.01 | 1.14 | 1.22 | 1.24 | 1.16 | 0.97 | 0.90 | 0.88 |
| 4 | 0.82 | 0.81 | 0.82 | 0.86 | 0.98 | 1.15 | 1.24 | 1.29 | 1.23 | 1.05 | 0.90 | 0.86 |
| 5 | 0.81 | 0.81 | 0.82 | 0.88 | 1.02 | 1.16 | 1.24 | 1.25 | 1.21 | 1.05 | 0.88 | 0.85 |
| 6 | 0.82 | 0.82 | 0.84 | 0.90 | 1.01 | 1.13 | 1.18 | 1.21 | 1.17 | 1.09 | 0.94 | 0.88 |
| 7 | 0.79 | 0.79 | 0.80 | 0.87 | 1.03 | 1.13 | 1.19 | 1.22 | 1.20 | 1.14 | 0.98 | 0.86 |
| 8 | 0.82 | 0.84 | 0.86 | 0.90 | 1.00 | 1.15 | 1.18 | 1.23 | 1.18 | 1.05 | 0.93 | 0.86 |
| 9 | 0.90 | 0.91 | 0.91 | 0.94 | 0.97 | 1.02 | 1.12 | 1.17 | 1.13 | 1.04 | 0.97 | 0.94 |
| 10 | 0.86 | 0.84 | 0.85 | 0.88 | 0.98 | 1.11 | 1.18 | 1.22 | 1.19 | 1.06 | 0.96 | 0.90 |
| 11 | 0.99 | 0.99 | 0.96 | 0.95 | 1.00 | 1.05 | 1.05 | 1.03 | 1.01 | 1.02 | 0.98 | 0.99 |
| 12 | 0.78 | 0.80 | 0.81 | 0.91 | 1.04 | 1.16 | 1.19 | 1.21 | 1.22 | 1.12 | 0.93 | 0.83 |
| 13 | 0.81 | 0.83 | 0.89 | 0.94 | 1.03 | 1.08 | 1.11 | 1.13 | 1.12 | 1.11 | 1.03 | 0.91 |
| U.S. | 0.86 | 0.86 | 0.87 | 0.91 | 1.00 | 1.11 | 1.18 | 1.19 | 1.15 | 1.03 | 0.93 | 0.89 |

DOE then applied the monthly energy price factors to the annual natural gas data presented in chapter 8 to develop monthly energy prices for 2009 (Table 8-E.2.4).

Table 8-E.2.4 Monthly Natural Gas Prices for 2009 Using Average Price Factors (2009\$/MMBtu)

| CD | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|----|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1 | 16.85 | 16.96 | 16.88 | 17.53 | 16.68 | 17.73 | 19.43 | 20.07 | 19.72 | 17.55 | 18.04 | 17.71 |
| 2 | 14.25 | 14.35 | 14.51 | 15.07 | 16.48 | 18.48 | 19.96 | 20.15 | 19.48 | 16.97 | 15.41 | 14.99 |
| 3 | 12.37 | 12.41 | 12.48 | 13.21 | 14.65 | 16.58 | 17.71 | 17.98 | 16.84 | 14.07 | 13.12 | 12.79 |
| 4 | 11.97 | 11.81 | 11.88 | 12.51 | 14.22 | 16.70 | 18.09 | 18.85 | 17.99 | 15.25 | 13.19 | 12.48 |
| 5 | 15.85 | 15.97 | 16.17 | 17.21 | 20.08 | 22.87 | 24.46 | 24.59 | 23.84 | 20.63 | 17.34 | 16.77 |
| 6 | 14.45 | 14.53 | 14.74 | 15.90 | 17.85 | 19.97 | 20.75 | 21.25 | 20.68 | 19.20 | 16.57 | 15.58 |
| 7 | 12.88 | 12.81 | 12.99 | 14.10 | 16.76 | 18.33 | 19.33 | 19.88 | 19.47 | 18.49 | 15.86 | 13.93 |
| 8 | 10.85 | 11.03 | 11.34 | 11.92 | 13.15 | 15.19 | 15.54 | 16.27 | 15.57 | 13.79 | 12.31 | 11.34 |
| 9 | 12.16 | 12.32 | 12.42 | 12.72 | 13.16 | 13.80 | 15.24 | 15.85 | 15.32 | 14.08 | 13.13 | 12.80 |
| 10 | 15.67 | 15.45 | 15.54 | 16.12 | 17.88 | 20.23 | 21.56 | 22.33 | 21.76 | 19.33 | 17.50 | 16.56 |
| 11 | 12.97 | 12.85 | 12.51 | 12.35 | 12.99 | 13.69 | 13.67 | 13.36 | 13.15 | 13.29 | 12.76 | 12.84 |
| 12 | 12.57 | 12.79 | 13.00 | 14.66 | 16.70 | 18.56 | 18.99 | 19.36 | 19.46 | 17.88 | 14.89 | 13.36 |
| 13 | 17.67 | 18.09 | 19.41 | 20.50 | 22.44 | 23.55 | 24.17 | 24.73 | 24.47 | 24.25 | 22.46 | 19.86 |
| US | 13.37 | 13.40 | 13.48 | 14.11 | 15.56 | 17.34 | 18.29 | 18.53 | 17.91 | 16.03 | 14.48 | 13.88 |

8-E.3 MONTHLY RESIDENTIAL ELECTRICITY PRICE FACTOR CALCULATIONS

DOE collected historical electricity prices from 1990 to 2008 from EIA's Form 826.³ These data are published annually and include annual electricity sales, revenues from electricity sales, and average price for the residential, commercial, industrial, and transportation sectors by State. DOE aggregated the data by thirteen geographic regions: the nine U.S. Census Divisions and four large states: New England, Middle Atlantic, East North Central, West North Central, South Atlantic, East South Central, West South Central, Mountain, Pacific, New York, California, Texas, and Florida.

For each geographic region, DOE determined average electricity prices from 1990 to 2008 by weighting the average residential electricity prices for each State by the number of residential electricity consumers in each State.⁴ Table 8-E.3.1 shows the results for Census Division 1.

Table 8-E.3.1 Average Residential Electricity Prices for Census Division 1 (nominal cents / kWh)

| | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Average |
|-------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|---------|
| 1990 | 9.12 | 9.68 | 9.35 | 9.37 | 9.56 | 9.93 | 9.92 | 9.91 | 10.11 | 10.41 | 10.11 | 10.05 | 9.79 |
| 1991 | 10.15 | 10.20 | 9.93 | 10.00 | 10.32 | 10.46 | 10.56 | 10.68 | 10.62 | 10.78 | 10.58 | 10.96 | 10.44 |
| 1992 | 10.68 | 10.63 | 10.45 | 10.37 | 10.85 | 10.79 | 11.10 | 11.03 | 11.07 | 11.15 | 11.04 | 11.40 | 10.88 |
| 1993 | 10.98 | 10.93 | 10.74 | 11.00 | 11.32 | 11.61 | 11.31 | 11.41 | 11.44 | 11.33 | 11.20 | 11.84 | 11.26 |
| 1994 | 11.07 | 11.01 | 10.96 | 11.17 | 11.26 | 11.82 | 11.59 | 11.57 | 11.80 | 11.79 | 11.75 | 11.98 | 11.48 |
| 1995 | 11.32 | 11.55 | 11.33 | 11.50 | 11.98 | 11.77 | 12.18 | 11.80 | 11.97 | 12.02 | 11.51 | 12.28 | 11.77 |
| 1996 | 11.21 | 11.68 | 11.96 | 11.52 | 11.64 | 12.41 | 11.99 | 12.23 | 11.96 | 11.66 | 11.44 | 12.38 | 11.84 |
| 1997 | 11.82 | 11.74 | 12.11 | 11.54 | 12.03 | 12.68 | 12.12 | 12.27 | 12.06 | 12.35 | 12.02 | 12.31 | 12.09 |
| 1998 | 11.65 | 11.70 | 11.66 | 11.59 | 11.69 | 11.73 | 11.58 | 11.71 | 11.30 | 11.47 | 11.42 | 11.55 | 11.59 |
| 1999 | 10.97 | 11.39 | 11.24 | 11.46 | 11.42 | 11.73 | 11.26 | 11.27 | 11.15 | 11.37 | 11.25 | 10.34 | 11.24 |
| 2000 | 11.29 | 10.96 | 10.91 | 11.37 | 11.27 | 11.53 | 11.43 | 11.17 | 11.35 | 11.35 | 11.30 | 11.35 | 11.27 |
| 2001 | 11.91 | 11.81 | 11.90 | 12.25 | 12.28 | 12.27 | 12.59 | 12.20 | 12.47 | 12.53 | 12.14 | 11.77 | 12.18 |
| 2002 | 11.28 | 11.05 | 11.63 | 11.56 | 11.25 | 11.38 | 11.27 | 11.07 | 11.25 | 11.52 | 11.30 | 11.06 | 11.30 |
| 2003 | 10.81 | 11.12 | 11.20 | 11.19 | 11.95 | 12.23 | 11.94 | 12.13 | 12.40 | 12.13 | 12.01 | 11.82 | 11.74 |
| 2004 | 11.47 | 11.92 | 11.85 | 11.89 | 12.03 | 12.07 | 12.25 | 12.25 | 11.98 | 11.98 | 11.88 | 11.76 | 11.94 |
| 2005 | 12.74 | 13.20 | 12.99 | 13.24 | 13.36 | 13.42 | 13.30 | 13.45 | 14.09 | 13.52 | 14.11 | 13.93 | 13.45 |
| 2006 | 15.53 | 16.17 | 15.94 | 16.10 | 16.03 | 15.81 | 15.50 | 16.06 | 16.31 | 15.91 | 15.48 | 16.12 | 15.91 |
| 2007 | 17.00 | 16.61 | 16.89 | 16.99 | 16.49 | 17.02 | 16.26 | 16.31 | 16.62 | 16.56 | 16.28 | 15.99 | 16.58 |
| 2008 | 16.47 | 16.44 | 16.80 | 16.77 | 17.90 | 17.30 | 17.59 | 18.14 | 17.98 | 18.73 | 17.89 | 17.91 | 17.49 |

DOE then calculated monthly energy prices factors by dividing the monthly prices by the annual average for each year. Table 8-E.3.2 and Figure 8-E.3.2 show the calculated results for Census Division 1.

Table 8-E.3.2 Monthly Electricity Price Factors for 1990-2008 for Census Division 1

| | Jan | Feb | March | April | May | June | July | Aug | Sep | Oct | Nov | Dec |
|----------------|------|------|-------|-------|------|------|------|------|------|------|------|------|
| 1990 | 0.93 | 0.99 | 0.95 | 0.96 | 0.98 | 1.01 | 1.01 | 1.01 | 1.03 | 1.06 | 1.03 | 1.03 |
| 1991 | 0.97 | 0.98 | 0.95 | 0.96 | 0.99 | 1.00 | 1.01 | 1.02 | 1.02 | 1.03 | 1.01 | 1.05 |
| 1992 | 0.98 | 0.98 | 0.96 | 0.95 | 1.00 | 0.99 | 1.02 | 1.01 | 1.02 | 1.03 | 1.01 | 1.05 |
| 1993 | 0.97 | 0.97 | 0.95 | 0.98 | 1.00 | 1.03 | 1.00 | 1.01 | 1.02 | 1.01 | 0.99 | 1.05 |
| 1994 | 0.96 | 0.96 | 0.96 | 0.97 | 0.98 | 1.03 | 1.01 | 1.01 | 1.03 | 1.03 | 1.02 | 1.04 |
| 1995 | 0.96 | 0.98 | 0.96 | 0.98 | 1.02 | 1.00 | 1.03 | 1.00 | 1.02 | 1.02 | 0.98 | 1.04 |
| 1996 | 0.95 | 0.99 | 1.01 | 0.97 | 0.98 | 1.05 | 1.01 | 1.03 | 1.01 | 0.98 | 0.97 | 1.05 |
| 1997 | 0.98 | 0.97 | 1.00 | 0.95 | 1.00 | 1.05 | 1.00 | 1.02 | 1.00 | 1.02 | 0.99 | 1.02 |
| 1998 | 1.01 | 1.01 | 1.01 | 1.00 | 1.01 | 1.01 | 1.00 | 1.01 | 0.98 | 0.99 | 0.99 | 1.00 |
| 1999 | 0.98 | 1.01 | 1.00 | 1.02 | 1.02 | 1.04 | 1.00 | 1.00 | 0.99 | 1.01 | 1.00 | 0.92 |
| 2000 | 1.00 | 0.97 | 0.97 | 1.01 | 1.00 | 1.02 | 1.01 | 0.99 | 1.01 | 1.01 | 1.00 | 1.01 |
| 2001 | 0.98 | 0.97 | 0.98 | 1.01 | 1.01 | 1.01 | 1.03 | 1.00 | 1.02 | 1.03 | 1.00 | 0.97 |
| 2002 | 1.00 | 0.98 | 1.03 | 1.02 | 1.00 | 1.01 | 1.00 | 0.98 | 1.00 | 1.02 | 1.00 | 0.98 |
| 2003 | 0.92 | 0.95 | 0.95 | 0.95 | 1.02 | 1.04 | 1.02 | 1.03 | 1.06 | 1.03 | 1.02 | 1.01 |
| 2004 | 0.96 | 1.00 | 0.99 | 1.00 | 1.01 | 1.01 | 1.03 | 1.03 | 1.00 | 1.00 | 0.99 | 0.98 |
| 2005 | 0.95 | 0.98 | 0.97 | 0.98 | 0.99 | 1.00 | 0.99 | 1.00 | 1.05 | 1.01 | 1.05 | 1.04 |
| 2006 | 0.98 | 1.02 | 1.00 | 1.01 | 1.01 | 0.99 | 0.97 | 1.01 | 1.02 | 1.00 | 0.97 | 1.01 |
| 2007 | 1.02 | 1.00 | 1.02 | 1.02 | 0.99 | 1.03 | 0.98 | 0.98 | 1.00 | 1.00 | 0.98 | 0.96 |
| 2008 | 0.94 | 0.94 | 0.96 | 0.96 | 1.02 | 0.99 | 1.01 | 1.04 | 1.03 | 1.07 | 1.02 | 1.02 |
| Average | 0.97 | 0.98 | 0.98 | 0.98 | 1.00 | 1.02 | 1.01 | 1.01 | 1.02 | 1.02 | 1.00 | 1.01 |

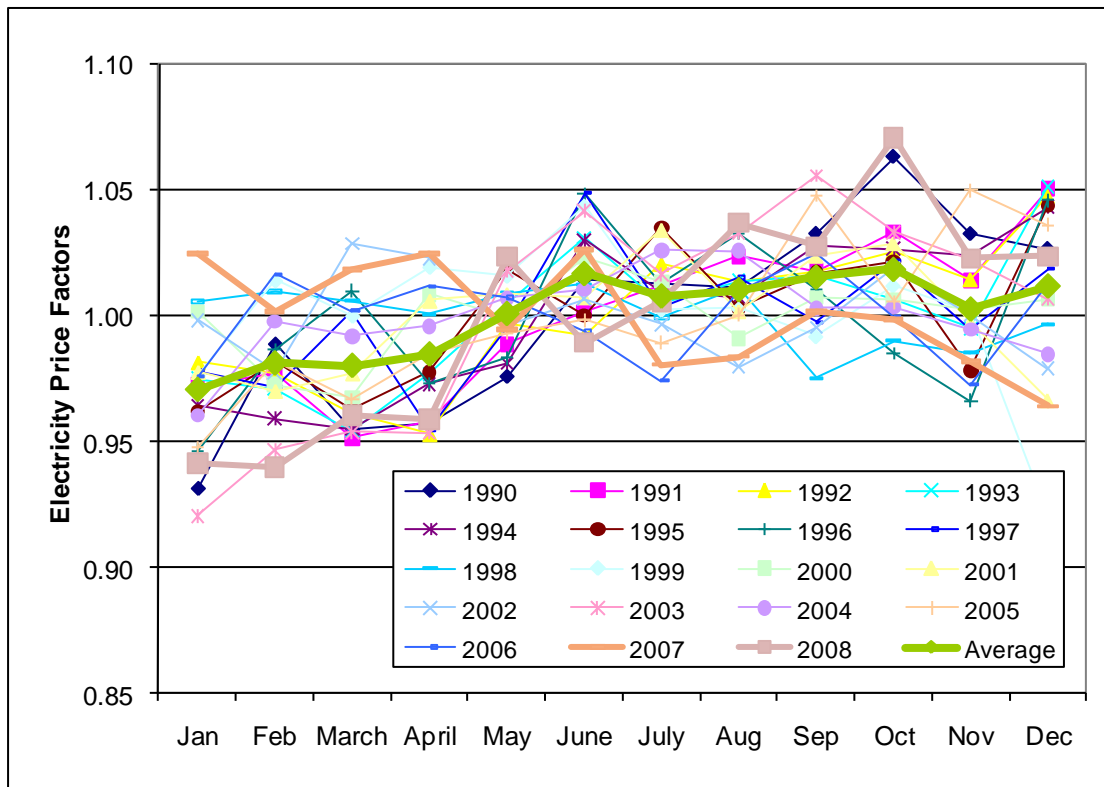


Figure 8-E.3.2 Monthly Electricity Price Factors for 1990-2008 for Census Division 1

DOE then averaged the monthly energy prices factors for 1990 to 2008 to develop an average energy price factor for each month. DOE performed the same calculations for each geographic region to develop the average monthly energy price factors shown in Table 8-E.3.3.

Table 8-E.3.3 Monthly Electricity Price Factors

| CD | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 1 | 0.97 | 0.98 | 0.98 | 0.98 | 1.00 | 1.02 | 1.01 | 1.01 | 1.02 | 1.02 | 1.00 | 1.01 |
| 2 | 0.93 | 0.93 | 0.95 | 0.97 | 1.00 | 1.07 | 1.08 | 1.08 | 1.06 | 1.00 | 0.98 | 0.96 |
| 3 | 0.91 | 0.94 | 0.96 | 1.00 | 1.03 | 1.06 | 1.05 | 1.05 | 1.05 | 1.04 | 0.98 | 0.94 |
| 4 | 0.89 | 0.91 | 0.93 | 0.97 | 1.04 | 1.11 | 1.11 | 1.10 | 1.06 | 1.00 | 0.96 | 0.92 |
| 5 | 0.92 | 0.93 | 0.95 | 0.98 | 1.02 | 1.06 | 1.07 | 1.07 | 1.05 | 1.02 | 0.98 | 0.94 |
| 6 | 0.93 | 0.95 | 0.97 | 1.01 | 1.03 | 1.03 | 1.01 | 1.02 | 1.01 | 1.03 | 1.02 | 0.98 |
| 7 | 0.90 | 0.93 | 0.96 | 0.99 | 1.02 | 1.06 | 1.05 | 1.06 | 1.06 | 1.04 | 0.99 | 0.94 |
| 8 | 0.94 | 0.95 | 0.97 | 0.99 | 1.03 | 1.04 | 1.03 | 1.03 | 1.03 | 1.04 | 0.99 | 0.97 |
| 9 | 0.98 | 0.99 | 0.99 | 0.98 | 0.99 | 0.99 | 1.00 | 1.01 | 1.01 | 1.02 | 1.03 | 1.02 |
| 10 | 0.95 | 0.95 | 0.96 | 0.97 | 1.00 | 1.04 | 1.05 | 1.05 | 1.04 | 1.01 | 1.00 | 0.98 |
| 11 | 0.99 | 0.98 | 0.97 | 0.97 | 1.00 | 1.02 | 1.05 | 1.04 | 1.00 | 0.96 | 1.00 | 1.01 |
| 12 | 0.90 | 0.92 | 0.95 | 0.98 | 1.02 | 1.06 | 1.06 | 1.06 | 1.06 | 1.05 | 0.98 | 0.95 |
| 13 | 0.99 | 0.99 | 1.00 | 1.01 | 1.00 | 0.99 | 0.99 | 1.00 | 1.00 | 1.01 | 1.02 | 1.00 |
| U.S. | 0.94 | 0.95 | 0.96 | 0.98 | 1.02 | 1.04 | 1.05 | 1.05 | 1.03 | 1.02 | 0.99 | 0.97 |

DOE then applied the monthly energy price factors to the annual electricity data presented in chapter 8 to develop monthly energy prices for 2008 (Table 8-E.3.4).

Table 8-E.3.4 Monthly Electricity Prices for 2008 Using Monthly Price Factors (2009\$/kWh)

| CD | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|----|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1 | 0.170 | 0.172 | 0.172 | 0.173 | 0.175 | 0.178 | 0.177 | 0.177 | 0.178 | 0.178 | 0.176 | 0.177 |
| 2 | 0.121 | 0.121 | 0.123 | 0.126 | 0.131 | 0.139 | 0.141 | 0.140 | 0.138 | 0.130 | 0.127 | 0.125 |
| 3 | 0.096 | 0.098 | 0.100 | 0.104 | 0.108 | 0.110 | 0.110 | 0.109 | 0.110 | 0.108 | 0.103 | 0.099 |
| 4 | 0.078 | 0.080 | 0.082 | 0.085 | 0.091 | 0.097 | 0.097 | 0.096 | 0.092 | 0.087 | 0.084 | 0.080 |
| 5 | 0.094 | 0.095 | 0.097 | 0.100 | 0.104 | 0.108 | 0.109 | 0.110 | 0.107 | 0.105 | 0.100 | 0.096 |
| 6 | 0.087 | 0.088 | 0.090 | 0.094 | 0.095 | 0.095 | 0.094 | 0.094 | 0.094 | 0.096 | 0.094 | 0.091 |
| 7 | 0.086 | 0.089 | 0.092 | 0.095 | 0.098 | 0.101 | 0.101 | 0.101 | 0.102 | 0.099 | 0.094 | 0.090 |
| 8 | 0.092 | 0.094 | 0.095 | 0.097 | 0.101 | 0.102 | 0.101 | 0.101 | 0.101 | 0.102 | 0.097 | 0.096 |
| 9 | 0.101 | 0.102 | 0.102 | 0.101 | 0.102 | 0.102 | 0.104 | 0.104 | 0.104 | 0.105 | 0.106 | 0.105 |
| 10 | 0.173 | 0.174 | 0.175 | 0.178 | 0.182 | 0.189 | 0.191 | 0.192 | 0.190 | 0.185 | 0.182 | 0.178 |
| 11 | 0.136 | 0.134 | 0.134 | 0.134 | 0.138 | 0.141 | 0.144 | 0.144 | 0.137 | 0.133 | 0.137 | 0.140 |
| 12 | 0.117 | 0.119 | 0.124 | 0.128 | 0.133 | 0.137 | 0.138 | 0.138 | 0.137 | 0.137 | 0.128 | 0.124 |
| 13 | 0.115 | 0.115 | 0.116 | 0.118 | 0.116 | 0.114 | 0.115 | 0.116 | 0.116 | 0.117 | 0.118 | 0.117 |
| US | 0.110 | 0.111 | 0.113 | 0.115 | 0.119 | 0.122 | 0.123 | 0.123 | 0.121 | 0.119 | 0.116 | 0.114 |

8-E.4 MONTHLY RESIDENTIAL LPG PRICE FACTOR CALCULATIONS

DOE collected historical LPG prices from 1995 to 2009 from EIA's Short-Term Energy Outlook.⁵ The Short-Term Energy Outlook includes monthly LPG prices by Census Region (Northeast, South, Midwest, and West). Table 8-E.4.1 shows the Northeast residential LPG prices from 1995 to 2009.

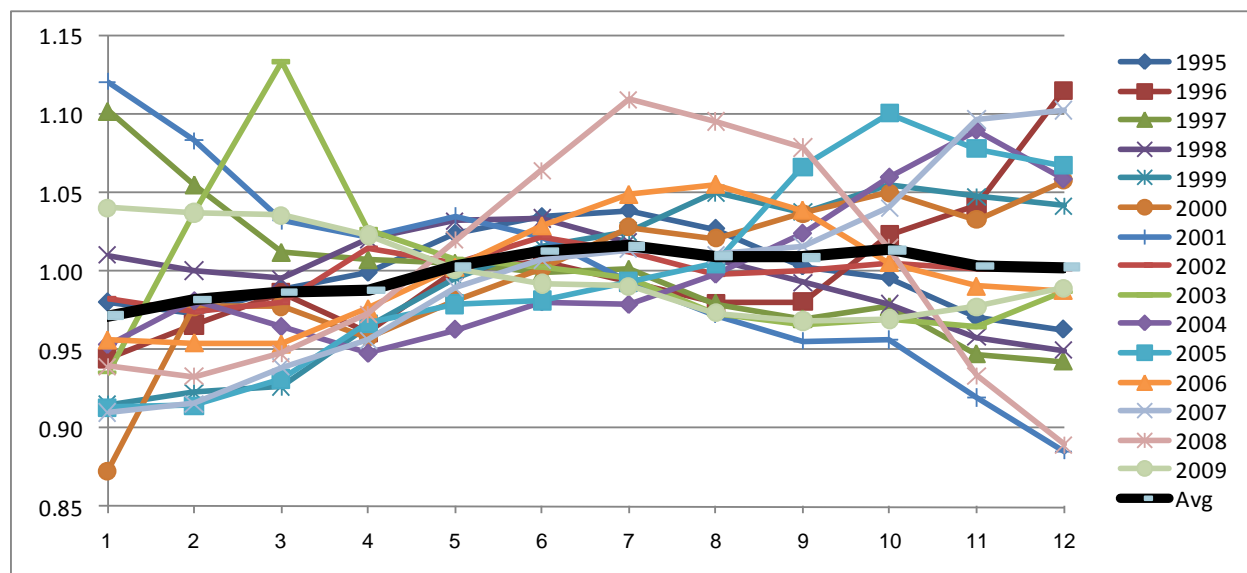
Table 8-E.4.1 Average LPG Prices for the Northeast (nominal cents / gallon)

| | Jan | Feb | March | Apr | May | June | July | Aug | Sep | Oct | Nov | Dec | Avg |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1995 | 119.1 | 118.3 | 120.1 | 121.4 | 124.4 | 125.7 | 126.2 | 124.8 | 121.9 | 121.0 | 117.9 | 117.0 | 121.5 |
| 1996 | 122.6 | 125.4 | 128.0 | 124.7 | 129.9 | 130.6 | 128.9 | 127.2 | 127.3 | 132.8 | 135.3 | 144.8 | 129.8 |
| 1997 | 142.9 | 136.8 | 131.2 | 130.6 | 130.3 | 129.5 | 129.8 | 127.0 | 125.7 | 126.7 | 122.8 | 122.2 | 129.6 |
| 1998 | 121.4 | 120.2 | 119.6 | 122.6 | 124.0 | 124.2 | 122.4 | 121.0 | 119.3 | 117.6 | 115.1 | 114.1 | 120.1 |
| 1999 | 112.1 | 113.0 | 113.5 | 118.1 | 122.0 | 124.4 | 125.6 | 128.6 | 127.1 | 129.3 | 128.3 | 127.6 | 122.5 |
| 2000 | 131.9 | 147.8 | 147.8 | 144.8 | 148.4 | 151.4 | 155.4 | 154.3 | 156.7 | 158.7 | 156.1 | 159.9 | 151.1 |
| 2001 | 175.7 | 169.8 | 161.8 | 160.2 | 162.3 | 160.1 | 155.7 | 152.4 | 149.8 | 149.9 | 144.1 | 138.8 | 156.7 |
| 2002 | 138.9 | 137.7 | 138.5 | 143.3 | 142.0 | 144.4 | 143.0 | 141.0 | 141.3 | 142.1 | 141.5 | 141.5 | 141.3 |
| 2003 | 149.8 | 166.0 | 181.6 | 164.4 | 161.3 | 160.5 | 159.4 | 155.8 | 154.6 | 155.2 | 154.5 | 158.0 | 160.1 |
| 2004 | 168.5 | 173.4 | 170.5 | 167.5 | 170.2 | 173.3 | 173.0 | 176.4 | 181.0 | 187.3 | 192.6 | 187.1 | 176.7 |
| 2005 | 185.9 | 186.1 | 189.6 | 196.8 | 199.3 | 199.8 | 202.2 | 204.6 | 217.1 | 224.1 | 219.5 | 217.3 | 203.5 |
| 2006 | 220.6 | 220.2 | 220.0 | 225.2 | 231.3 | 237.4 | 242.0 | 243.5 | 239.7 | 232.0 | 228.5 | 227.9 | 230.7 |
| 2007 | 227.2 | 228.6 | 234.5 | 238.7 | 247.1 | 251.5 | 253.2 | 252.4 | 253.7 | 259.8 | 273.9 | 275.4 | 249.7 |
| 2008 | 281.9 | 280.0 | 284.4 | 291.9 | 306.1 | 319.5 | 333.0 | 328.9 | 323.9 | 304.7 | 280.2 | 266.9 | 300.1 |
| 2009 | 267.9 | 267.1 | 266.7 | 263.4 | 257.8 | 255.4 | 255.0 | 250.6 | 249.3 | 249.6 | 251.7 | 254.7 | 257.4 |

DOE then calculated monthly energy price factors for each year by dividing the prices for each month by the average price for each year. Table 8-E.4.2 and Figure 8-E.4.2 show the calculated results for the Northeast.

Table 8-E.4.2 Monthly LPG Price Factors for 1995–2009 for the Northeast

| | Jan | Feb | March | Apr | May | June | July | Aug | Sep | Oct | Nov | Dec |
|----------------|------|------|-------|------|------|------|------|------|------|------|------|------|
| 1995 | 0.98 | 0.97 | 0.99 | 1.00 | 1.02 | 1.03 | 1.04 | 1.03 | 1.00 | 1.00 | 0.97 | 0.96 |
| 1996 | 0.94 | 0.97 | 0.99 | 0.96 | 1.00 | 1.01 | 0.99 | 0.98 | 0.98 | 1.02 | 1.04 | 1.12 |
| 1997 | 1.10 | 1.06 | 1.01 | 1.01 | 1.01 | 1.00 | 1.00 | 0.98 | 0.97 | 0.98 | 0.95 | 0.94 |
| 1998 | 1.01 | 1.00 | 1.00 | 1.02 | 1.03 | 1.03 | 1.02 | 1.01 | 0.99 | 0.98 | 0.96 | 0.95 |
| 1999 | 0.92 | 0.92 | 0.93 | 0.96 | 1.00 | 1.02 | 1.03 | 1.05 | 1.04 | 1.06 | 1.05 | 1.04 |
| 2000 | 0.87 | 0.98 | 0.98 | 0.96 | 0.98 | 1.00 | 1.03 | 1.02 | 1.04 | 1.05 | 1.03 | 1.06 |
| 2001 | 1.12 | 1.08 | 1.03 | 1.02 | 1.04 | 1.02 | 0.99 | 0.97 | 0.96 | 0.96 | 0.92 | 0.89 |
| 2002 | 0.98 | 0.97 | 0.98 | 1.01 | 1.01 | 1.02 | 1.01 | 1.00 | 1.00 | 1.01 | 1.00 | 1.00 |
| 2003 | 0.94 | 1.04 | 1.13 | 1.03 | 1.01 | 1.00 | 1.00 | 0.97 | 0.97 | 0.97 | 0.97 | 0.99 |
| 2004 | 0.95 | 0.98 | 0.96 | 0.95 | 0.96 | 0.98 | 0.98 | 1.00 | 1.02 | 1.06 | 1.09 | 1.06 |
| 2005 | 0.91 | 0.91 | 0.93 | 0.97 | 0.98 | 0.98 | 0.99 | 1.01 | 1.07 | 1.10 | 1.08 | 1.07 |
| 2006 | 0.96 | 0.95 | 0.95 | 0.98 | 1.00 | 1.03 | 1.05 | 1.06 | 1.04 | 1.01 | 0.99 | 0.99 |
| 2007 | 0.91 | 0.92 | 0.94 | 0.96 | 0.99 | 1.01 | 1.01 | 1.01 | 1.02 | 1.04 | 1.10 | 1.10 |
| 2008 | 0.94 | 0.93 | 0.95 | 0.97 | 1.02 | 1.06 | 1.11 | 1.10 | 1.08 | 1.02 | 0.93 | 0.89 |
| 2009 | 1.04 | 1.04 | 1.04 | 1.02 | 1.00 | 0.99 | 0.99 | 0.97 | 0.97 | 0.97 | 0.98 | 0.99 |
| Average | 0.97 | 0.98 | 0.99 | 0.99 | 1.00 | 1.01 | 1.02 | 1.01 | 1.01 | 1.01 | 1.00 | 1.00 |

**Figure 8-E.4.2 Monthly LPG Factors for 1995–2009 for the Northeast**

DOE then averaged the monthly energy price factors for 1995 to 2009 to develop an average energy price factor for each month. DOE performed the same calculations for each Census Region to develop the average monthly energy price factors shown in Table 8-E.4.3.

Table 8-E.4.3 Monthly LPG Energy Price Factors

| Regions | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|-----------|------|------|------|------|------|------|------|------|------|------|------|------|
| Northeast | 0.97 | 0.98 | 0.99 | 0.99 | 1.00 | 1.01 | 1.02 | 1.01 | 1.01 | 1.01 | 1.00 | 1.00 |
| South | 1.04 | 1.04 | 1.03 | 1.01 | 0.99 | 0.97 | 0.95 | 0.93 | 0.96 | 1.00 | 1.03 | 1.06 |
| Midwest | 1.04 | 1.04 | 1.03 | 1.01 | 1.00 | 0.97 | 0.94 | 0.93 | 0.96 | 0.98 | 1.03 | 1.07 |
| West | 1.05 | 1.05 | 1.03 | 1.01 | 0.99 | 0.96 | 0.92 | 0.91 | 0.95 | 1.01 | 1.04 | 1.08 |
| U.S. | 1.02 | 1.03 | 1.02 | 1.02 | 1.02 | 1.00 | 0.95 | 0.93 | 0.96 | 0.99 | 1.02 | 1.05 |

DOE then applied the regional monthly energy price factors to the annual natural gas data presented in chapter 8 to develop monthly energy prices for 2007 (Table 8-E.4.4). Each Census Division and Large State was matched with the appropriate Census Region.

Table 8-E.4.4 Monthly LPG Prices for 2007 Using Average Price Factors (2009\$/MMBtu)

| CD | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|----|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1 | 29.30 | 29.60 | 29.76 | 29.77 | 30.23 | 30.53 | 30.63 | 30.44 | 30.42 | 30.55 | 30.25 | 30.23 |
| 2 | 29.47 | 29.77 | 29.93 | 29.95 | 30.41 | 30.71 | 30.81 | 30.62 | 30.60 | 30.73 | 30.43 | 30.40 |
| 3 | 24.58 | 24.57 | 24.27 | 23.90 | 23.60 | 22.77 | 22.09 | 22.03 | 22.54 | 23.21 | 24.26 | 25.34 |
| 4 | 21.76 | 21.75 | 21.49 | 21.15 | 20.89 | 20.16 | 19.56 | 19.50 | 19.95 | 20.54 | 21.48 | 22.43 |
| 5 | 29.29 | 29.38 | 28.94 | 28.38 | 27.93 | 27.40 | 26.78 | 26.27 | 26.93 | 28.04 | 28.92 | 29.85 |
| 6 | 28.18 | 28.27 | 27.84 | 27.30 | 26.87 | 26.37 | 25.76 | 25.28 | 25.91 | 26.98 | 27.82 | 28.72 |
| 7 | 25.38 | 25.45 | 25.07 | 24.59 | 24.20 | 23.74 | 23.20 | 22.76 | 23.33 | 24.30 | 25.05 | 25.86 |
| 8 | 26.32 | 26.36 | 25.91 | 25.32 | 24.71 | 24.01 | 23.14 | 22.85 | 23.75 | 25.17 | 25.98 | 26.99 |
| 9 | 30.76 | 30.82 | 30.29 | 29.60 | 28.89 | 28.06 | 27.05 | 26.71 | 27.77 | 29.43 | 30.37 | 31.56 |
| 10 | 28.73 | 29.03 | 29.18 | 29.20 | 29.65 | 29.94 | 30.04 | 29.85 | 29.83 | 29.97 | 29.67 | 29.64 |
| 11 | 32.22 | 32.27 | 31.72 | 31.00 | 30.25 | 29.39 | 28.33 | 27.97 | 29.08 | 30.82 | 31.81 | 33.05 |
| 12 | 28.64 | 28.73 | 28.30 | 27.75 | 27.31 | 26.80 | 26.19 | 25.69 | 26.33 | 27.43 | 28.28 | 29.19 |
| 13 | 34.82 | 34.92 | 34.40 | 33.73 | 33.20 | 32.58 | 31.83 | 31.23 | 32.01 | 33.34 | 34.37 | 35.49 |
| US | 26.79 | 26.96 | 26.78 | 26.59 | 26.62 | 26.07 | 24.91 | 24.34 | 25.08 | 25.89 | 26.72 | 27.53 |

8-E.5 MONTHLY RESIDENTIAL OIL PRICE FACTOR CALCULATIONS

DOE collected historical oil prices from 1983 to 2007 from EIA's Short-Term Energy Outlook.⁵ The Short-Term Energy Outlook. The Short-Term Energy Outlook includes monthly oil prices by Census Region (Northeast, South, Midwest, and West). Table 8-E.5.1 shows the Northeast residential oil prices from 1995 to 2009.

Table 8-E.5.1 Average Residential Oil Prices for the Northeast (nominal cents / gallon)

| | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Avg. |
|------|-------|-------|-------|-------|-------|------|-------|-------|-------|-------|-------|-------|------|
| 1995 | 91.9 | 92.6 | 91.7 | 90.2 | 91.7 | 90.2 | 87.2 | 86 | 87.2 | 88.9 | 91.2 | 96.8 | 90.5 |
| 1996 | 101.1 | 102.6 | 106.1 | 108.3 | 103.8 | 96.6 | 92.5 | 92.4 | 99.4 | 109 | 111.6 | 114.1 | 103 |
| 1997 | 114.4 | 111.6 | 107.5 | 105.4 | 102.6 | 98.4 | 93.6 | 91.2 | 93.3 | 97.8 | 99.5 | 99.6 | 101 |
| 1998 | 98.3 | 97.6 | 95.3 | 93.2 | 90.7 | 86.5 | 82.3 | 79.6 | 81.1 | 83.2 | 84.6 | 83.6 | 88 |
| 1999 | 85.4 | 84.7 | 85.4 | 87.2 | 86.4 | 85.1 | 85 | 86 | 93.6 | 99.5 | 105 | 109.8 | 91.1 |
| 2000 | 135 | 154 | 130.5 | 123.7 | 124 | 124 | 122.2 | 125.6 | 139.3 | 144.2 | 147.8 | 149.3 | 135 |
| 2001 | 146 | 141.4 | 136.9 | 134.7 | 131.9 | 127 | 121 | 121.2 | 123.7 | 121.4 | 118.4 | 115.9 | 128 |
| 2002 | 117.7 | 116.2 | 118.2 | 119.9 | 118.4 | 116 | 112.5 | 111.9 | 117.1 | 121.2 | 124.8 | 130.9 | 119 |
| 2003 | 140.9 | 159.8 | 163.4 | 143.6 | 137.3 | 132 | 125.5 | 125.9 | 128.4 | 132 | 136.7 | 142.4 | 139 |
| 2004 | 150.8 | 153 | 150.1 | 149.2 | 151 | 151 | 152.1 | 159.1 | 168.7 | 189.6 | 192.3 | 189.5 | 163 |
| 2005 | 191 | 194.4 | 203.8 | 206.4 | 202 | 211 | 216.8 | 229.6 | 252.3 | 251.8 | 242.9 | 243.7 | 220 |
| 2006 | 246.2 | 243.5 | 247.3 | 255 | 259.7 | 260 | 259.2 | 262.7 | 252.2 | 244.6 | 247.4 | 251.3 | 252 |
| 2007 | 245 | 254.2 | 258.2 | 261 | 261.6 | 263 | 269.6 | 263.4 | 273.7 | 288 | 318 | 325.3 | 273 |
| 2008 | 330.2 | 333.7 | 363.6 | 378.9 | 409.7 | 442 | 454.5 | 407.7 | 384.9 | 334.2 | 296.3 | 262.6 | 367 |
| 2009 | 259.4 | 246.9 | 237 | 236.6 | 231.8 | 246 | 240.7 | 253 | 248 | 259.7 | 272.1 | 276.4 | 251 |

DOE then calculated monthly energy price factors by dividing the monthly prices by the average price for each year. Table 8-E.5.2 and Figure 8-E.5.2 show the calculated results for the Northeast.

Table 8-E.5.2 Monthly Oil Prices Factors for 1995 – 2009 for Census Division 1

| | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|------------|------|------|------|------|------|------|------|------|------|------|------|------|
| 1995 | 1.02 | 1.02 | 1.01 | 1.00 | 1.01 | 1.00 | 0.96 | 0.95 | 0.96 | 0.98 | 1.01 | 1.07 |
| 1996 | 0.98 | 0.99 | 1.03 | 1.05 | 1.01 | 0.94 | 0.90 | 0.90 | 0.96 | 1.06 | 1.08 | 1.11 |
| 1997 | 1.13 | 1.10 | 1.06 | 1.04 | 1.01 | 0.97 | 0.92 | 0.90 | 0.92 | 0.97 | 0.98 | 0.98 |
| 1998 | 1.12 | 1.11 | 1.08 | 1.06 | 1.03 | 0.98 | 0.94 | 0.90 | 0.92 | 0.95 | 0.96 | 0.95 |
| 1999 | 0.94 | 0.93 | 0.94 | 0.96 | 0.95 | 0.93 | 0.93 | 0.94 | 1.03 | 1.09 | 1.15 | 1.21 |
| 2000 | 1.00 | 1.14 | 0.97 | 0.92 | 0.92 | 0.92 | 0.91 | 0.93 | 1.03 | 1.07 | 1.10 | 1.11 |
| 2001 | 1.14 | 1.10 | 1.07 | 1.05 | 1.03 | 0.99 | 0.94 | 0.94 | 0.96 | 0.95 | 0.92 | 0.90 |
| 2002 | 0.99 | 0.98 | 1.00 | 1.01 | 1.00 | 0.98 | 0.95 | 0.94 | 0.99 | 1.02 | 1.05 | 1.10 |
| 2003 | 1.01 | 1.15 | 1.18 | 1.03 | 0.99 | 0.95 | 0.90 | 0.91 | 0.92 | 0.95 | 0.98 | 1.02 |
| 2004 | 0.93 | 0.94 | 0.92 | 0.92 | 0.93 | 0.92 | 0.93 | 0.98 | 1.04 | 1.16 | 1.18 | 1.16 |
| 2005 | 0.87 | 0.88 | 0.92 | 0.94 | 0.92 | 0.95 | 0.98 | 1.04 | 1.14 | 1.14 | 1.10 | 1.11 |
| 2006 | 0.98 | 0.96 | 0.98 | 1.01 | 1.03 | 1.03 | 1.03 | 1.04 | 1.00 | 0.97 | 0.98 | 1.00 |
| 2007 | 0.90 | 0.93 | 0.94 | 0.95 | 0.96 | 0.96 | 0.99 | 0.96 | 1.00 | 1.05 | 1.16 | 1.19 |
| 2008 | 0.90 | 0.91 | 0.99 | 1.03 | 1.12 | 1.21 | 1.24 | 1.11 | 1.05 | 0.91 | 0.81 | 0.72 |
| 2009 | 1.04 | 0.99 | 0.95 | 0.94 | 0.92 | 0.98 | 0.96 | 1.01 | 0.99 | 1.04 | 1.09 | 1.10 |
| Avg | 0.99 | 1.01 | 1.00 | 0.99 | 0.99 | 0.98 | 0.97 | 0.96 | 0.99 | 1.02 | 1.04 | 1.05 |

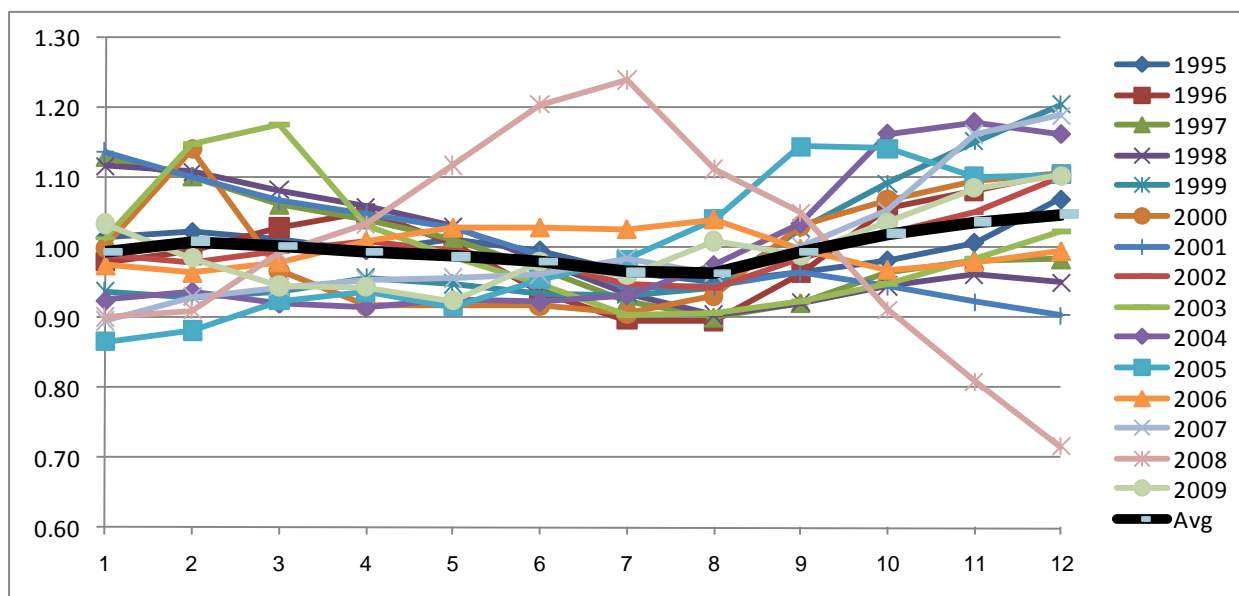


Figure 8-E.5.2 Monthly Oil Prices Factors for 1995–2009 for Census Division 1

DOE then averaged the monthly energy price factors for 1995 to 2009 to develop an average energy price factor for each month. DOE performed the same calculations for each Census Region to develop the average monthly energy price factors shown in Table 8-E.5.3.

Table 8-E.5.3 Monthly Oil Energy Price Factors

| CD | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Northeast | 0.99 | 1.01 | 1.00 | 0.99 | 0.99 | 0.98 | 0.97 | 0.96 | 0.99 | 1.02 | 1.04 | 1.05 |
| South | 1.00 | 1.02 | 1.01 | 1.00 | 0.97 | 0.95 | 0.96 | 0.96 | 1.00 | 1.03 | 1.05 | 1.06 |
| Midwest | 0.96 | 0.97 | 0.98 | 0.99 | 0.98 | 0.98 | 0.98 | 1.00 | 1.03 | 1.05 | 1.05 | 1.04 |
| West | 0.93 | 0.95 | 0.99 | 1.01 | 1.01 | 1.00 | 0.99 | 0.99 | 1.02 | 1.04 | 1.04 | 1.02 |
| US | 0.99 | 1.01 | 1.00 | 0.99 | 0.99 | 0.98 | 0.96 | 0.97 | 1.00 | 1.02 | 1.04 | 1.05 |

DOE then applied the regional monthly energy price factors to the annual natural gas data presented in chapter 8 to develop monthly energy prices for 2008 (Table 8-E.5.4). Each Census Division and Large State was matched with the appropriate Census Region.

Table 8-E.5.4 Monthly Oil Prices for 2008 Using Average Price Factors (2009\$/MMBtu)

| CD | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|-------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| 1 | 24.05 | 24.40 | 24.23 | 24.02 | 23.87 | 23.71 | 23.34 | 23.31 | 24.05 | 24.66 | 25.07 | 25.34 |
| 2 | 24.65 | 25.01 | 24.84 | 24.63 | 24.48 | 24.31 | 23.93 | 23.89 | 24.65 | 25.28 | 25.70 | 25.98 |
| 3 | 22.50 | 22.76 | 23.07 | 23.21 | 23.18 | 23.12 | 22.97 | 23.48 | 24.32 | 24.84 | 24.80 | 24.41 |
| 4 | 22.43 | 22.69 | 23.00 | 23.14 | 23.11 | 23.05 | 22.90 | 23.41 | 24.24 | 24.76 | 24.73 | 24.34 |
| 5 | 24.24 | 24.50 | 24.39 | 24.07 | 23.33 | 23.03 | 23.05 | 23.28 | 24.13 | 24.78 | 25.23 | 25.50 |
| 6 | 23.99 | 24.26 | 24.15 | 23.83 | 23.10 | 22.80 | 22.82 | 23.05 | 23.89 | 24.53 | 24.98 | 25.24 |
| 7 | 24.19 | 24.46 | 24.35 | 24.03 | 23.29 | 22.99 | 23.01 | 23.24 | 24.09 | 24.74 | 25.19 | 25.45 |
| 8 | 22.29 | 22.67 | 23.68 | 24.09 | 24.05 | 23.97 | 23.60 | 23.64 | 24.44 | 24.84 | 24.82 | 24.25 |
| 9 | 23.16 | 23.56 | 24.60 | 25.04 | 24.99 | 24.90 | 24.52 | 24.56 | 25.40 | 25.81 | 25.79 | 25.20 |
| 10 | 24.48 | 24.84 | 24.67 | 24.46 | 24.30 | 24.14 | 23.76 | 23.73 | 24.48 | 25.10 | 25.52 | 25.79 |
| 11 | 23.93 | 24.34 | 25.42 | 25.87 | 25.83 | 25.73 | 25.34 | 25.38 | 26.24 | 26.67 | 26.65 | 26.04 |
| 12 | 24.71 | 24.99 | 24.87 | 24.54 | 23.79 | 23.48 | 23.51 | 23.74 | 24.61 | 25.27 | 25.73 | 26.00 |
| 13 | 24.35 | 24.62 | 24.51 | 24.18 | 23.44 | 23.14 | 23.16 | 23.39 | 24.25 | 24.90 | 25.35 | 25.62 |
| U.S. | 24.08 | 24.42 | 24.32 | 24.15 | 23.95 | 23.74 | 23.41 | 23.45 | 24.24 | 24.85 | 25.23 | 25.43 |

REFERENCES

1. U.S. Department of Energy - Energy Information Administration, *Natural Gas Navigator*. 2009. http://tonto.eia.doe.gov/dnav/ng/ng_pri_sum_dcu_nus_m.htm
2. U.S. Department of Energy - Energy Information Administration, *Natural Gas Navigator*. 2007. http://tonto.eia.doe.gov/dnav/ng/ng_pri_sum_dcu_nus_m.htm
3. U.S. Department of Energy - Energy Information Administration, *Form EIA-826 Database Monthly Electric Utility Sales and Revenue Data*, 2009.
<<http://www.eia.doe.gov/cneaf/electricity/page/eia826.html>>
4. Energy Information Administration, Table 5. U.S. Average Monthly Bill by Sector, Census Division, and State 2007.
2009<<http://www.eia.doe.gov/cneaf/electricity/esr/table5.html>>
5. U.S. Department of Energy - Energy Information Administration, *Short-Term Energy Outlook*. 2009. <http://eia.doe.gov/steo>