

Summary of Changes Since the *State Energy Price and Expenditure Report 1999*

The following is a summary of revisions that were incorporated into the State Energy Data System (SEDS) and the State Energy Data 2000 tables since their previous release. Users of the SEDS data files, available on EIA's internet site (<http://www.eia.doe.gov/emeu/states/states.html>), may notice data changes that do not appear in the report due to the level of rounding in the published tables. All full-precision data changes are covered in this appendix.

Price revisions occur for several reasons: new price series are added; data sources for prices change; price estimation methodologies are revised or price assignment and estimation procedures are updated; data entries are corrected; or consumption estimates are revised. The first four kinds of changes affect State-level and U.S. prices directly. The fifth, a revised consumption value, affects only the State prices that are estimated as consumption-weighted averages of adjacent States' data and, similarly, affects all the consumption-weighted U.S. average prices.

Consumption estimates used to calculate expenditures in the price and expenditure tables are also taken from SEDS, and published in the **State Energy Data 2000** tables. Full documentation of the consumption estimation procedures can be found in the Consumption Technical Notes. Since energy expenditure estimates depend on both the price and consumption estimates (including the consumption adjustments for process fuel and intermediate products), revision of either or both may cause revisions to the expenditures series.

Coal

All Sectors, 1960 through 1999. Rounding differences resulting from changes to the methodology and data processing procedures for estimating consumption likely contributed to revisions in U.S. prices in the residential, commercial, industrial and transportation sectors. Consumption estimates and conversion factors were calculated for total coal instead of for anthracite and bituminous separately. Also, 1999 consumption estimates were affected by a change in the methodology for allocating missing State consumption data. More information on changes to industrial consumption is contained in the **State Energy Data 2000** Consumption Technical Notes (Appendix F) at http://www.eia.doe.gov/emeu/states/use_multistate.html#use_technotes

Residential Sector, 1970 through 1999. Changes in the methodology for estimating coal consumption described above, along with changes in the percentage of total residential and commercial consumption allocated to the residential sector each year, led to minor differences in U.S. prices, most likely due to rounding differences. U.S. prices are based on the summation of State expenditures divided by State Btu consumption: changes in the denominator (consumption) are also carried through into the numerator (expenditures) and, thus, cancel each other out. However, rounding could cause the two to become slightly off, thus resulting in a small revision.

The total impact ranged from a decrease of 0.04 cents per Mmbtu in 1996 to an increase of 0.03 cents per Mmbtu in 1991. Several years were impacted by less than one cent -- these revisions will not show up in the published tables. However, they will be apparent in the full-precision comma-separated files.

This did not affect State totals, which are based on prices published in EIA's *Cost and Quality of Fuels for Electric Utility Plants*, Table 3.

Commercial Sector, 1970 through 1999. The commercial sector was affected by the same factors impacting the residential sector (see discussion above). State totals were not impacted since they are based on prices published in EIA's *Coal Industry Annual*, Table 94. Revisions to U.S. totals ranged from a decrease of 0.02 cents to an increase of 0.01 cent. Almost half of these occurrences were less than one cent, and will not appear in the published tables, although they will appear in the full-precision comma-separated files.

Industrial Sector, 1989 through 1999. For the first time, prices and expenditures for coal consumed by "other power producers" was included in the **State Energy Data 2000** price and expenditure tables. This affected prices for the industrial sector (steam coal and total coal) by State and for the U.S. Most of the time, the effect on any given State's industrial coal price was a nickel or less. Major differences ranged from a decrease of 0.25 cents per million British thermal units (MMBtu) in New Jersey in 1995 to an increase of 0.28 cents per MMBtu in PA in 1998. For the U.S., the difference ranged from a decrease of 0.04 cents per MMBtu in 1996, to an increase of 0.06 cents per MMBtu in 1997.

Corrections made to the way in which total industrial prices for CT were calculated generated prices for 1995 through 1998 where previously the price was recorded as zero.

Industrial sector, 1978 through 1988. Minor differences (at the fifth decimal place) occurred in several States, but only affecting one to three States in any given year. Affected years were 1978 (ME), 1979 (NH), 1983 (VT), 1985 (CT, IL, RI) and 1988 (AL). These did not show up in the published tables. These differences can be attributed to changes in methodologies and data processing procedures for estimating industrial coal consumption described above.

Although prices are independent of consumption for the coal coke and "other" industrial sectors, the total industrial price for a State is derived from the sum of these expenditures divided by the sum of their Btu consumption for that State. Therefore, changes in coal coke or "other" industrial State consumption can lead to changes in overall industrial State prices.

Transportation Sector, 1970 through 1977. Revisions to coal consumption in the transportation sector reflect the differences that occurred from using a combined conversion factor for converting from physical units to Btus. In the past, the conversion factor for industrial bituminous consumption was used. Beginning this year, the conversion factor reflects the inclusion of anthracite.

Refinery Processing Fuel, 1970 through 1999. Revisions to estimated industrial coal consumption described above led to changes in the amount of volumes subtracted for energy consumed in the process of providing energy to the end-use consumer in many State and for the U.S. From 1970 through 1999. Since these fuels are not purchased by the end user, they do not have prices or expenditures. With the exception of 1999, these revisions were minor. These data are not published separately in the **State Energy Data 2000** tables, but are included in the price and expenditure comma-separated value file containing consumption adjustments.

Natural Gas

Residential, Commercial and Industrial Sectors, 1999. Revisions to natural gas prices published in the Energy Information Administration, *Historical Natural Gas Annual, 1930 Through 2000*, http://www.eia.doe.gov/oil_gas/natural_gas/data_publications/historical_natural_gas_annual/hnga_historical.html occur in the residential, commercial and industrial sectors. The following States were affected : Tennessee (Residential and Commercial), Colorado and Kansas (Commercial and Industrial), Louisiana (Commercial), Arizona, New Mexico and Oklahoma (Industrial).

In addition, three States (Kentucky, Mississippi and North Carolina) showed revisions resulting from changes in consumption that led to changes in the factor used to convert prices from dollars per Mcf to dollars per Btu (NGNUK). These revisions do not appear in published tables, except for Mississippi (Commercial and Industrial) where rounding caused a revision of one cent.

Transportation Sector, 1999. Changes in the factor used to convert prices from dollars per Mcf to dollars per Btu (NGNUK) led to minor revisions in Kentucky and Mississippi. These changes do not appear in the published tables.

Refinery Processing Fuel, 1998 and 1999. Adjustments to lease plant consumption (NGLEP) in Louisiana impacted the distribution of other States and led to minor revisions in total prices for Alabama, Arkansas, Louisiana, Mississippi, New Mexico, Texas. (Natural gas consumed as lease and plant fuel is subtracted from SEDS industrial sector natural gas totals by State and year.) Revisions were minor (less than one cents) and do not appear in published tables.

Revisions to lease plant consumption also led to adjustments in natural gas used by refineries as a processing fuel.

Nuclear Electricity

Nuclear Electricity, 1989 through 1994. Revisions to nuclear electricity use by nonutility power producers led to small increases in U.S. nuclear electricity prices. These revisions were small (to the fifth decimal place) and will not be seen in the published data. However, these changes will be evident in the full-precision comma-separated-value files.

In addition, the factor for converting electricity produced by nuclear power from physical units to Btus was revised for 1985 through 1999. This led to small revisions in two States (Colorado and Ohio) most likely due to rounding differences; State nuclear electricity prices are derived by dividing expenditures by Btu consumption for utility and nonutility power producers. Since a change in the conversion factor will impact both consumption and expenditures, this will not generally impact State or U.S. nuclear electricity prices. The revisions to prices in Colorado and Ohio occurred at the fifth decimal place, and will only be evident in the full-precision comma-separated-value files.

For most States, changes in the conversion factor led to changes in nuclear electricity expenditures by the same percentage. In 1999, the three States with nonutility power producers (Illinois, Massachusetts and Pennsylvania) revisions also reflect changes in nuclear electricity use by this sector.

Wood and Waste

Residential Sector, 1998 and 1999. There are no revisions to State residential wood price estimates in this edition of the tables. However, revisions to residential sector wood consumption estimates, as described in the State Energy Data 2000 Consumption Technical Notes, caused expenditures to increase by 2.7 percent in 1998 and 2.4 percent in 1999 for all States and the U.S. This did not affect State or U.S. prices, which are derived by dividing expenditures by Btu consumption, since both expenditures and consumption increased by the same amount.

Commercial Sector, 1989 and 1999. There are no revisions to State commercial wood price estimates in this edition of the tables. However, revisions to commercial sector wood consumption estimates, as described in the State Energy Data 2000 Consumption Technical Notes, led to revisions in expenditures in all States and for the U.S. From 1989 through 1999. This did not affect State or U.S. prices, which are derived by dividing expenditures by Btu consumption, since both expenditures and consumption increased by the same amount.

Industrial Sector, 1989 through 1999. Revisions in nonutility power producer use of wood and waste to generate electricity in the source publication, the EIA Annual Energy Review, led to revisions in industrial wood and waste prices and expenditures. Expenditure estimates are directly affected by changes in consumption. Since State prices are consumption-weighted average prices, they will also be affected by revisions in consumption, which leads to changes in the weights. At the U.S. level, most of the price revisions were less than one cent, and will not show up in the tables. In 1992 and 1993, U.S. industrial wood and waste prices decreased by one cent, and in 1998 increased by 4 cents. On a State level, most revisions were one cent or less. The largest decrease was \$2.33 in Hawaii in 1989. The largest increase was 91 cents in Iowa in 1994.

Industrial Sector, 1970 through 1988. Wood and waste industrial prices were added to the comma-separated-value files. These prices were already included in the pdf and html tables.

Electric Utilities, 1997 through 1999. There are no revisions to prices of wood and waste used to generate electricity. However, the factor used for converting kilowatt hours to British thermal units was revised in the source publication, the EIA Annual Energy Review 2001,

<http://www.eia.doe.gov/emeu/aer/pdf/pages/sec13.pdf>, based on heat rates reported on Form EIA-860, “Annual Electric Generator Report” and generation reported on EIA-Form 906, “Power Plant Report” (and predecessor forms). This factor (FFEOKUS) is the U.S. average heat content of fossil fuels consumed at steam-electric power plants and can be found in Appendix B. Expenditures for electricity generated from wood and waste in the States with that type of generation, and U.S. totals, decreased by 1.4 percent in 1997 and 1998, and by 1.2 percent in 1999.

Consumption Adjustments for Calculating Expenditures

Consumption data used in calculating expenditures are generally those published in the **State Energy Data 2000** consumption tables. However, some consumption estimates are adjusted to remove petroleum refineries’ process fuel, intermediate petroleum products, natural gas processing fuels, and other consumption that has no direct fuel costs, i.e., hydroelectric, geothermal, wind, solar and photovoltaic energy sources, and some wood and waste.

These adjusted consumption data are illustrated in Tables TN51 and TN52 of the **State Energy Data 2000** Price and Expenditure Technical Notes in “Section 7. Consumption Adjustments for Calculating

Expenditures.” All of the adjusted consumption values are included in the data files available from EIA’s internet site.

Refinery Use, 1981 through 1985, 1995, 1998 and 1999. Revisions to coal and natural gas consumed as a processing fuel described above led to revisions in total refinery use in some years. With the exception of 1998 and 1999, these revisions were minor. In 1998, the largest decrease was 197 billion British thermal units (Bbtu) in Louisiana, and the largest increase was 157 Bbtu in Texas. In 1999, the largest decrease was 195 Bbtu in Louisiana, while the largest increase of 206 Bbtu was in Tennessee. These revisions do not appear in the published tables, which are in trillion British thermal units, but will be apparent in the full precision comma-separated-value files.

Wood and Waste, Residential, Commercial, and Industrial Sectors, 1989 through 1999. Although the portion of wood and waste obtained at no cost did not change, revisions to wood and waste consumption described above and in the **State Energy Data 2000** Consumption Technical Notes led to changes in the volumes of wood and waste obtained at no cost. This, in turn, impacted wood and waste expenditures, as described above.

Geothermal, Wind, Solar and Hydroelectric Power, All Sectors, 1989 through 1999. Consumption revisions to these data sources are described in the State Energy Data 2000 Consumption Technical Notes and are reflected in the tables on EIA’s internet site. However, none of these consumption revision estimates affect expenditures because it is assumed that these energy sources are obtained at no cost, and they are not included in the expenditure calculations.