

State Energy Price and Expenditure Report 1999

The *State Energy Price and Expenditure Report 1999* presents energy price and expenditure estimates for the 50 States, the District of Columbia, and the United States for 1970, 1975, 1980, and 1985 through 1999. The estimates are presented by energy source (e.g., petroleum, natural gas, coal, and electricity) and by major consuming sector. This publication is an update of the *State Energy Price and Expenditure Report 1997* (published July 2000).

Publication of this report is in keeping with responsibilities given the Energy Information Administration (EIA) in Public Law 95-91 (Department of Energy Organization Act), which states, in part, in Section 205(a)(2), that:

The Administrator shall be responsible for carrying out a central, comprehensive, and unified energy data and information program which will collect, evaluate, assemble, analyze and disseminate data and information....

The *State Energy Price and Expenditure Report* is a part of EIA's historical integrated energy data program and is intended to provide historical energy information to Members of Congress, Federal and State agencies, and the general public.

Contacts

The *State Energy Price and Expenditure Report* is prepared by the Integrated Energy Statistics Division of the Office of Energy Markets and End Use, Energy Information Administration, under the direction of Katherine E. Seiferlein, 202-586-5695 (kitty.seiferlein@eia.doe.gov).

Questions concerning the contents of the *State Energy Price and Expenditure Report* may be referred to:

Julia F. Hutchins 202-586-5138 julia.hutchins@eia.doe.gov
Roy M. Stanley 202-586-5839 roy.stanley@eia.doe.gov
The Division fax number is 202-586-0018.

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National Energy Information Center, EI-30
Energy Information Administration
Forrestal Building, Room 1E-238
Washington, DC 20585

202-586-8800

Internet E-Mail: infoctr@eia.doe.gov

Fax: 202-586-0727

TTY: For people who are deaf or hard of hearing: 202-586-1181
9:00 a.m. to 5:00 p.m., Eastern time, M-F

Electronic Access

The *State Energy Price and Expenditure Report 1999* and data for all years 1970 through 1999 are available electronically via the **Internet** at:

<http://www.eia.doe.gov/emeu/seper/contents.html>

The report and data are also available on EIA's **CD-ROM**, the *Energy InfoDisc*, along with over 200 other EIA reports, databases, and models. For information, call NEIC or to order, call 1-800-STAT-USA.

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Introduction

The *State Energy Price and Expenditure Report (SEPER)* presents energy price and expenditure estimates individually for the 50 States and the District of Columbia and in aggregate for the United States. The estimates developed in the Combined State Energy Data System (CSEDS) are provided by energy source and economic sector and are published for the years 1970, 1975, 1980, and 1985 through 1999. Data for all years, 1970 through 1999, are available on a CD-ROM and via Internet. (See inside front cover.)

Consumption estimates used to calculate expenditures and the documentation for those estimates are taken from the *State Energy Data Report 1999, Consumption Estimates (SEDR)*, published in May 2001. Expenditures are calculated by multiplying the price estimates by the consumption estimates, which are adjusted to remove process fuel; intermediate petroleum products; other consumption that has no direct fuel costs, i.e., hydroelectric, geothermal, wind, solar, and photovoltaic energy sources; and wood and waste obtained at no cost. See Section 7, "Consumption Adjustments for Calculating Expenditures," on page 419.

All prices and expenditures are in nominal dollars that have not been adjusted to reflect changes in the purchasing power of the dollar. All expenditures are consumer expenditures; that is, they represent estimates of money spent directly by consumers to purchase energy, generally including taxes. (See box on page 2.)

The documentation in Appendix A describes how the price estimates are developed, including sources of data, methods of estimation, and conversion factors applied. Appendix B provides metric and other physical conversion factors for measures used in energy analyses.

Note: Throughout this report, the term "State" includes the District of Columbia.

This report is an update of the last edition, the *State Energy Price and Expenditure Report 1997*, published in July 2000. Two years of new data, 1998 and 1999, appear in this edition, along with revisions to previously published data. Most of the revisions to expenditures and average prices in this edition of *SEPER* are the result of revisions to energy consumption estimates that are described in detail in Appendix G of the *State Energy Data Report 1999, Consumption Estimates*. In general, motor gasoline prices and expenditures are affected by the use of a new factor for converting barrels to British thermal units from 1990 forward. The factor, which varies from year to year, takes into account changing additives to motor gasoline. Commercial sector wood expenditures and prices, previously unavailable for 1985 through 1992, are incorporated in this edition of *SEPER*. Wood and waste consumption, price, and therefore, expenditure estimates in the industrial sector were revised for 1980 forward by the incorporation of new data sources. Estimates of electricity imports from nonrenewable sources were revised from 1990 forward affecting the average prices and total expenditures for energy paid by electric utilities. These and other revisions since the last edition of this report are described in detail in Appendix C.

Reliable data for State-level prices rarely exist, especially as series that are consistent over a long period. Estimates and assumptions are applied to fill data gaps and to maintain consistent definitions in the data series over time. CSEDS incorporates the most consistent series and procedures possible. Users of this report (and the electronic data files) should recognize the limitations imposed on the system due to changing and inadequate data sources. Estimates often are based on a variety of surrogate measures that are selected on the basis of availability, applicability as indicators, continuity over time, and consistency among the various energy commodities. Original source documents for data used in CSEDS (cited in the *SEPER* documentation) include descriptions of collection methodologies, universes, imputation or adjustment

techniques (if any), and errors associated with the individual processes. Due to the numerous collection forms and procedures associated with these reports, it is not possible to develop a meaningful numerical estimate of the overall statistical errors of the material published in *SEPER*.

It is also important to note that, even within a State, a single average price may have limited meaning in that it represents a consumption-weighted average over a whole State. For example, urban and rural electricity prices can vary significantly from a State's weighted average, and

Taxes in *SEPER*

The objective in developing *SEPER* prices is to provide estimates that include all taxes, but data sources often do not treat taxes uniformly. Where taxes are included in the source data, they are included in *SEPER*. Where taxes are not included but can be separately estimated, they are added, with some exceptions listed below. In many cases, States and some localities provide tax exemptions for various kinds of activities or classes of end users. These complex exemptions are not incorporated into *SEPER* prices. The Energy Information Administration (EIA) is continuing to analyze these cases to see if a better representation can be made. A comprehensive and detailed study of taxes in EIA data is available in the report *End-Use Taxes: Current EIA Practices*, DOE/EIA-0583 (Washington, DC, August 1994). The report is available from EIA's Internet site at <http://tonto.eia.doe.gov/FTP/ROOT/financial/0583.pdf>.

The status of tax data in this edition of *SEPER* is summarized below and described more fully in the Appendix A documentation for each energy source and sector.

End-Use Sectors

Coal. All steam coal and coking coal prices include taxes in all years. Appropriately, coal imports and exports in the industrial sector do not include end-user taxes.

Natural Gas. Natural gas prices are intended to include all Federal, State, and local taxes, surcharges, and adjustments billed to consumers. However, sales and other taxes itemized directly on customers' bills are frequently not reported as revenues and, therefore, are not included in calculating the prices.

Petroleum. Motor gasoline and diesel fuel prices include excise and other per-gallon taxes but do not include general sales taxes due to wide variation at the local level. Liquefied petroleum gases, distillate fuel oil, kerosene, and residual fuel oil prices include sales taxes in all years. Jet fuel, aviation gasoline, asphalt and road oil, lubricants and other petroleum products do not include taxes. Other petroleum products are miscellaneous products, petrochemical feedstocks (naphtha, other oils, and still gas), industrial petroleum coke, special naphthas, and waxes.

Wood and Waste. Wood and waste prices for the residential, commercial, and industrial sectors include taxes.

Electricity. Taxes paid directly by electric utilities (rather than end users) are considered operating costs and are passed on to the end users as part of the price. Depending on jurisdiction, taxes collected from end users and turned over directly to a government authority are not generally included in the reported revenues and, therefore, are not included in the calculation of the prices.

Electric Utility Sector

Coal, natural gas, petroleum coke, nuclear, and wood and waste prices include all taxes, transportation, and handling costs. There are no direct fuel costs (or taxes) for hydroelectric, geothermal, centralized solar, or wind energy. Capital, operation, and maintenance costs and related taxes associated with these energy sources are included indirectly because electricity prices reflect their presence in the rate base.

prices in one region of a State may differ from those in another because of access to less expensive hydroelectricity. Differences within a State may also be greater than differences among adjacent States. Thus, the principal value of the estimates in this report lies in general comparisons among the States, interstate comparisons for a given year, and the analysis of trends over several years.

The five economic sectors used in *SEPER* correspond to those used in *SEDR* as follows:

- **Residential Sector:** An energy-consuming sector that consists of living quarters for private households. Common uses of energy associated with this sector include space heating, water heating, air conditioning, lighting, refrigeration, cooking, and running a variety of other appliances. The residential sector excludes institutional living quarters.
- **Commercial Sector:** An energy-consuming sector that consists of service-providing facilities and equipment of: businesses; Federal, State, and local governments; and other private and public organizations, such as religious, social, or fraternal groups. The commercial sector includes institutional living quarters. Common uses of energy associated with this sector include space heating, water heating, air conditioning, lighting, refrigeration, cooking, and running a wide variety of other equipment.
- **Industrial Sector:** An energy-consuming sector that consists of all facilities and equipment used for producing, processing, or assembling goods. The industrial sector encompasses the following types of activity: manufacturing; agriculture, forestry, and fisheries; mining; and construction. Overall energy use in this sector is largely for process heat and cooling and powering machinery, with lesser amounts used for facility heating, air conditioning, and lighting. Fossil fuels are also used as raw material inputs to manufactured products. In this report, nonutility power producers are included in the industrial sector.
- **Transportation Sector:** An energy-consuming sector that consists of all vehicles whose primary purpose is transporting people and/or goods from one physical location to another. Included are automobiles; trucks; buses; motorcycles; trains, subways, and other rail vehicles; aircraft; and ships, barges, and other

waterborne vehicles. Vehicles whose primary purpose is not transportation (e.g., construction cranes and bulldozers, farming vehicles, and warehouse tractors and forklifts) are classified in the sector of their primary use. In this report, natural gas used in the operation of natural gas pipelines is included in the transportation sector.

- **Electric Utility Sector:** The electric utility sector consists of privately and publicly owned establishments that generate, transmit, distribute, or sell electricity primarily for use by the public and that meet the definition of an electric utility. Nonutility power producers are not included in the electric utility sector.

Although end-use allocations of energy consumption and expenditures follow those guidelines as closely as possible, some data are collected by using different classifications. For example, electric utilities often classify commercial and industrial users by the quantity of electricity purchases rather than by the business activity of the purchaser. Agricultural use of natural gas is collected and reported in the commercial sector through 1995 and in the industrial sector for 1996 forward. Since agricultural use of natural gas cannot be identified separately, the discrepancy cannot be reconciled. Another example is master-metered condominiums, apartments, and buildings with a combination of residential and commercial units. In many cases, billing and metering practices cause residential energy usage of electricity, natural gas, or fuel oil to be included in the commercial sector. In those cases, there is no basis for separating residential from commercial use. Readers are advised to consult the *SEDR* documentation for specific assumptions regarding the consumption estimates.

Where prices for an energy source and sector are not available, comparable prices are substituted. For example, the transportation sector motor gasoline prices are applied to the commercial and industrial sectors. In some cases, the average of adjacent States' prices is assigned to a missing State price. The documentation elaborates on these price assumptions.

Except where specified, it is generally not possible to describe the prices in this report as entirely "wholesale" or "retail." The prices paid in each consuming sector are usually a combination of both sets of prices, depending on a number of closely interrelated factors. Almost all residential sector prices are close to retail prices, reflecting the relatively

small quantities of individual purchases and the increased costs of extensive, multilayered distribution systems. Similarly, in the transportation sector almost everyone pays the same retail-like price for motor gasoline, regardless of volume purchased or location of purchase. Conversely, residual fuel oil prices in the transportation sector are certainly more wholesale-like as a result of large deliveries to bulk facilities in major ports. In the same manner, most large industrial and many large commercial expenditures can be thought of as near wholesale,

frequently involving direct access to a producer or bulk distribution facility for very large quantities. Many smaller industrial and commercial facilities pay something much closer to retail prices as a result of the small quantities involved and their institutional distance from primary suppliers. Notable exceptions to these relationships include natural gas and electricity suppliers, which typically establish fixed rates for each of several classes of service, depending on representative quantities, service factors, and distribution expenses.