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Energy Prices and Discount Factors for Life-Cycle Cost Analysis 1990

Annual Supplement to
NBS Handbook 135 and
NBS Special Publication 709

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Department of Commerce
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NBS Special Publication 709

(Data for the Federal Methodology for Life-Cycle Cost Analysis, Title10, CFR, Part 436, Subpart A)

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U.S. DEPARTMENT OF COMMERCE, Robert A. Mosbacher, *Secretary*
NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY, John W. Lyons, *Director*

PREFACE

This is the 1990 edition of energy prices and discount factors for life-cycle cost analysis as established by the U.S. Department of Energy (DoE) in Subpart A of Part 436 of Title 10 of the Code of Federal Regulations (10 CFR Part 436, Subpart A), which is entitled "Federal Energy Management and Planning Program" (FEMP). The data are provided as an aid to implementing life-cycle cost evaluations of potential energy conservation and renewable energy investments in existing and new federally owned and leased buildings. Life-cycle cost evaluations of energy conservation and renewable energy investments in Federal buildings are required by Section 381(a)(2) of the Energy Policy and Conservation Act (EPCA), as amended, 42 U.S.C. 6361(a)(2); by Section 10 of Executive Order 11912, as amended by Executive Order 120003; and by Title V of the National Energy Conservation Policy Act (NECPA), 92 Stat. 3275, as amended by Section 405 of the Energy Security Act, 94 Stat. 611, and by the Federal Energy Management Improvement Act of 1988 (P.L. 100-615).

As called for by legislation, the National Institute of Standards and Technology (formerly National Bureau of Standards) has provided technical assistance to the U.S. Department of Energy in formulating the life-cycle costing methods and procedures for implementation. It has developed this report as the second of a three-volume set which together provide the methods, data, and computational tools for life-cycle cost analysis of Federal energy projects.

Included in the three-volume set for Federal life-cycle cost analysis are the following:

(1) Life-Cycle Costing Manual for the Federal Energy Management Program, National Bureau of Standards, Handbook 135 (revised 1987).

The manual is a guide to understanding life-cycle costing and related methods of economic analysis as they are applied to Federal decisions. It describes the required procedures and assumptions, defines and explains how to apply and interpret economic performance measures, gives examples of Federal decision problems and their solutions, and provides worksheets and other computational aids and instructions for calculating the required measures.

(2) Energy Prices and Discount Factors for Life-Cycle Cost Analysis, National Institute of Standards and Technology, NISTIR 85-3273 (updated annually).

This report, which is updated annually, gives the energy price and discount factor multipliers needed to estimate the present value of energy and other future costs. The data are based on energy price projections developed by the Energy Information Administration of the U.S. Department of Energy. Request the latest edition when ordering.

(3) A User's Guide to the Federal Building Life-Cycle Cost (FBLCC) Computer Program, National Bureau of Standards, NBS TN 1222 (Computer program revised periodically)..

This report is a user's guide to the computer program, "FBLCC." FBLCC, designed to run on an IBM PC/XT/AT, or compatible microcomputer, can be used to calculate the life-cycle costs, net savings, and savings-to-investment ratios of Federal energy projects, consistent with the procedures and assumptions described in Handbook 135 (see #1 above) and incorporating the energy price data of the most recent issue of NISTIR 85-3273 (see #2 above).* FBLCC generates reports which summarize the assumptions and results in tabular form. Information for ordering the FBLCC computer program disk is provided in the User's Guide.

To order any of these publications, contact:

Advanced Sciences, Inc.
2000 North 15th Street
Suite 407
Arlington, VA 22201

Telephone (703) 243-4900

Please request the publication by name and number.

The life-cycle costing methods and procedures set forth in 10 C.F.R., Part 436, Subpart A, are to be followed by all Federal agencies, unless specifically exempted, in evaluating the cost effectiveness of potential energy conservation and renewable energy investments in federally owned and leased buildings.

Though aimed specifically at supporting the economic evaluation of Federal building projects which are classified as energy conservation or renewable energy projects, the three-volume set can also be used to perform economic evaluations of Federal building projects which are not primarily for conserving energy or providing renewable energy but which have an energy cost component. Both applications are explained in Handbook 135.

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*FBLCC Version SE2.3 incorporates the 1990 energy price data contained in NISTIR 85-3273-4.

The U.S. Department of Energy was also directed by legislation and executive order to make available to the private sector the methods, procedures, and related aids developed for Federal use. In response to this directive, the National Institute of Standards and Technology, under sponsorship by the U.S. Department of Energy, has published an additional life-cycle costing book for use by the private sector entitled Comprehensive Guide for Least-Cost Energy Decisions, NBS SP 709 (January 1987). The private sector book is also supported by the data provided here, as well as by a special version of the computer program adapted to private sector analysis ("NBSLCC"). This report may be ordered from Advanced Sciences, Inc. at the above address. Information for ordering the NBSLCC computer disk is provided in NBS SP 709.

Workshops on the life-cycle costing method and energy analysis are conducted at locations around the country each year. Scheduled in 1990 are 3-day workshops at the following locations:

Tampa, FL	April 3-5, 1990
Houston, TX	May 15-17, 1990
Albuquerque, NM	June 12-14, 1990
Anchorage, AK	July 10-12, 1990
Portland, ME	August 14-16, 1990

The workshops include training and software for both the Federal and private sector life-cycle cost computer programs and for an energy analysis computer program, "A Simplified Energy Analysis Method (ASEAM)". To register, write the GSA Training Center at P.O. Box 15608, Arlington, VA 22215.

An introduction to the workshop is provided in a new video training film, "Least-Cost Energy Decisions: An Introduction to Life-Cycle Cost Analysis." The video film and companion workbook can be ordered from Video Transfer, Inc., 5709-B Arundel Avenue, Rockville, MD 20852, Tel (301) 881-0270.

Further information on the Federal Energy Management Program can be obtained from the Federal Energy Management Program Staff, Office of the Assistant Secretary for Conservation and Renewable Energy, U.S. Department of Energy. Please direct communication to: FEMP, CE 10.1, U.S. Department of Energy, 1000 Independence Avenue, SW, Washington, DC 20585.

NOTICE

Please note that amendments to the Federal Methodology for Life-Cycle Cost Analysis, Title 10, CFR, Part 436, Subpart A are pending. (See the Notice of Proposed Rulemaking, Federal Register, Part IV, January 25, 1990.) Principal regulatory changes are for DoE to establish annually a market-based discount rate in place of the 7% rate that has been in effect since passage of the 1980 Energy Security Act and to provide a more effective system for revising annually the energy cost escalation rates Federal agencies are required to use.

The proposed changes require that the discount rate set by DoE and the supporting tables of discount factors for use in life-cycle cost analysis be issued at the beginning of each fiscal year in this Annual Supplement (NISTIR 85-3273) to the Life Cycle Costing Manual for the Federal Energy Management Program (NBS Handbook 135). The regulatory changes are expected to become final near the beginning of Fiscal Year 1991, and this 1990 edition of the Annual Supplement is expected to be replaced at that time.

ABSTRACT

This is the 1990 annual edition of energy prices and discount factors for performing life-cycle cost analyses of energy conservation and renewable energy projects. It supports the Federal life-cycle costing methodology as described in NBS Handbook 135 (HB 135) and private sector life-cycle cost analysis as described in NBS Special Publication 709 (SP 709). Tables A, B, and C are revisions of appendices A, B, and C, respectively, of HB 135. Tables A (7%), Ba, and C apply to Federal energy conservation and renewable energy projects. Tables A (10%), Bb, and C apply to Federal projects that require energy price forecasts but are not primarily energy conserving. Tables S, in the last section of this report, are revisions to appendix B, Part I of SP 709 and are provided for the convenience of private sector analysts wishing to make use of Federal energy price forecasts.

ACKNOWLEDGMENTS

The authors wish to thank Mr. Richard W. Brancato, Director of the Federal Energy Management Program, and Mr. Dean DeVine, also of the Federal Programs Office, for their continued support and direction of this work. Appreciation is also extended to Dr. Richard D. Farmer, former Chief of the Supply Analysis and Integration Branch of the Energy Information Administration, and Mr. Michael D. Lehr, of the Supply Analysis and Integration Branch, for providing energy price projections and escalation rates.

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SINGLE PRESENT WORTH AND UNIFORM PRESENT WORTH DISCOUNT FACTORS

Table A-1 of this section presents the single present worth (SPW) factors for finding the present value of future nonfuel, nonannually recurring amounts, such as repair and replacement costs and salvage values. The formula for finding the present value (P) of a future amount (F) is the following:

$$P = F \times \frac{1}{(1+d)^N} = F \times SPW_N \text{ Factor},$$

where d = Discount rate; and
N = Number of discount or compound interest periods; in this case the number of years until F occurs.

Table A-2 presents uniform present worth (UPW) factors for finding the present value of future nonfuel amounts recurring annually, such as routine maintenance costs. The formula for finding the present value (P) of an annually recurring uniform amount (A) is the following:

$$P = A \times \frac{(1+d)^N - 1}{d(1+d)^N} = A \times UPW_N \text{ Factor},$$

where N = the number of discount or compound interest periods; in this case the number of years over which A recurs.

In each table the factors are given for both 7 percent and 10 percent discount rates. The factors based on 7 percent are for finding the present value of future amounts associated with Federal energy conservation and renewable energy projects. The factors based on 10 percent are for finding the present value of future amounts associated with most other Federal projects (except those specifically exempted from the 10 percent rate). Both the 7 and 10 percent rates are defined for Federal use to be "real" rates exclusive of general price inflation. The factors are applied as multipliers to future amounts which are stated in "constant" dollars, that is, exclusive of general price inflation.

Examples of How to Use the Factors:

SPW(7%): To compute the present value of a replacement cost in the 8th year for an energy efficient heating system, go to table A-1, find the 7 percent SPW factor for year 8 (0.58), and multiply by the replacement cost.

SPW(10%): To compute the present value of a repair cost in the 5th year for a floor covering (non-energy related), go to table A-1, find the 10 percent SPW factor for year 5 (0.62), and multiply by the repair cost.

UPW(7%): To compute the present value of an annually recurring maintenance cost for a renewable energy system over 20 years, go to table A-2, find the 7 percent UPW factor for 20 years (10.59), and multiply by the annual maintenance cost.

UPW(10%): The compute the present value of annually recurring costs of office cleaning over 30 years (for a project not primarily related to energy consumption), go to table A-2, find the 10 percent UPW factor for 30 years (9.43), and multiply by the annual cleaning cost.

For further explanation of the use of these factors, see NBS Handbook 135, section 2.5.

Table A–1. SPW factors for finding the present value of future nonfuel, nonannually recurring amounts

Number of Years Until Future Amount Occurs (N)	SPW Factor (d = 0.07)	SPW Factor (d = 0.10)
1	0.93	0.91
2	0.87	0.83
3	0.82	0.75
4	0.76	0.68
5	0.71	0.62
6	0.67	0.56
7	0.62	0.51
8	0.58	0.47
9	0.54	0.42
10	0.51	0.39
11	0.48	0.35
12	0.44	0.32
13	0.41	0.29
14	0.39	0.26
15	0.36	0.24
16	0.34	0.22
17	0.32	0.20
18	0.30	0.18
19	0.28	0.16
20	0.26	0.15
21	0.24	0.14
22	0.23	0.12
23	0.21	0.11
24	0.20	0.10
25	0.18	0.09
		*** Extended Series ***
26		0.08
27		0.08
28		0.07
29		0.06
30		0.06

Table A–2. UPW factors for finding the present value of future nonfuel, annually recurring amounts

Number of Years Over Which Amount Recurs (N)	UPW Factor (d = 0.07)	UPW Factor (d = 0.10)
1	0.93	0.91
2	1.81	1.74
3	2.62	2.49
4	3.39	3.17
5	4.10	3.79
6	4.77	4.36
7	5.39	4.87
8	5.97	5.33
9	6.52	5.76
10	7.02	6.14
11	7.50	6.50
12	7.94	6.81
13	8.36	7.10
14	8.75	7.37
15	9.11	7.61
16	9.45	7.82
17	9.76	8.02
18	10.06	8.20
19	10.34	8.36
20	10.59	8.51
21	10.84	8.65
22	11.06	8.77
23	11.27	8.88
24	11.47	8.98
25	11.65	9.08
		*** Extended Series ***
26		9.16
27		9.24
28		9.31
29		9.37
30		9.43

MODIFIED UNIFORM PRESENT WORTH DISCOUNT FACTORS FOR FEDERAL USE (BASED ON FEDERALLY REQUIRED DISCOUNT RATES OF SEVEN AND TEN PERCENT AND DOE-PROJECTED RATES OF CHANGE IN ENERGY PRICES, BOTH OF WHICH EXCLUDE GENERAL PRICE INFLATION)

This section presents "modified" uniform present worth (UPW*) discount factors for the 4 Census regions and for the United States. The factors are modified in the sense that they incorporate projected energy price changes. There are two sets of tables: the "a" tables present UPW* factors based on a seven percent "real" discount rate (i.e., a discount rate exclusive of the rate of general price inflation), and the "b" tables present UPW* factors based on a ten percent real discount rate. The factors presented in the "a" tables are for energy costs or savings accruing over 1 to 25 years and are to be used in life-cycle cost analyses of Federal energy conservation and renewable energy projects. The factors presented in the "b" tables are for energy costs or savings accruing over 1 to 30 years and are to be used for life-cycle cost analysis of the energy component of Federal projects that are not primarily for conserving energy or providing renewable energy. The energy price projections underlying the UPW* factors are stated as annual averages. Therefore, the factors are not tied to a particular calendar date in the year.

The UPW* factors incorporate rates of change in energy prices computed from indices projected by the Energy Information Administration (EIA) of the U.S. Department of Energy. Documentation on the PC-AEO model used by EIA to project energy prices is available in PC-AEO Forecasting Model for the Annual Energy Outlook 1990 (DOE/EIA-M036(90)), March 1990. Assumptions underlying the PC-AEO model are presented by EIA in Assumptions for the Annual Energy Outlook 1990 (DOE/EIA 0527(90)), February 1990. Projections at the national level are reported by EIA in the Annual Energy Outlook 1990 (DOE/EIA-0383(90)), January 1990.

The formula for finding the present value (P) of future energy costs or savings is the following:

$$P = A_o \times \sum_{n=1}^{N} \frac{I_{(1990+n)}}{(1+d)^n} = A_o \times UPW^*_N \text{ Factor},$$

where A_o = Base-year dollar cost of energy, i.e., the annual quantity of energy times its 1990 price;
n = Counter used to designate each year, with n=1 for the year 1991;
N = Number of discount or compound interest periods; in this case the number of years over which energy costs or savings accrue;
$I_{(1990+n)}$ = Projected average fuel price index given in tables Ca-1 through Ca-5 for the year 1990+n; and
d = Discount rate.

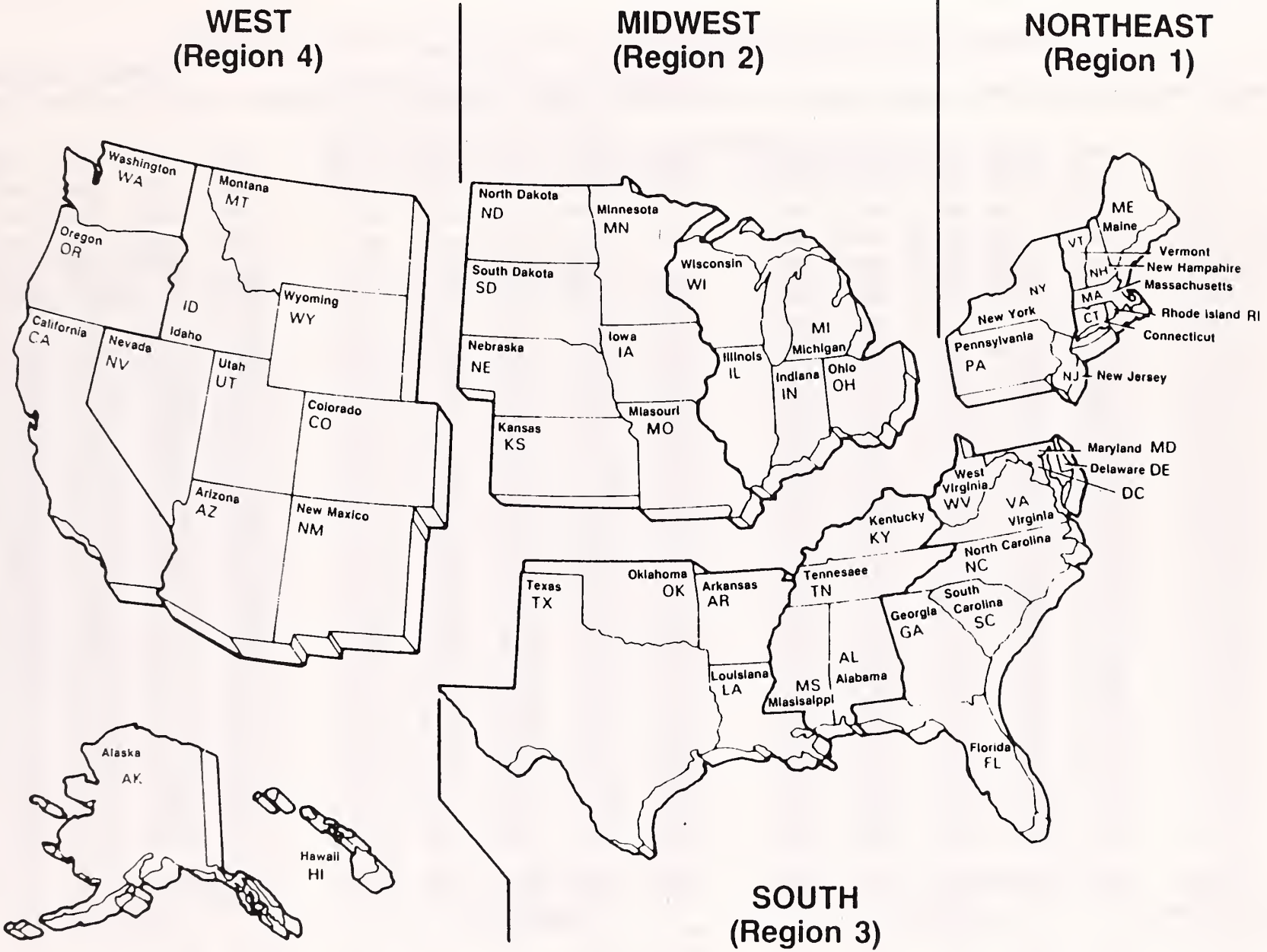
Examples of How to Use UPW* Factors:

UPW*(7%): To compute the present value of heating with distillate oil for an energy-conserving design of a Federal office building in New Mexico for 15 years, go to table B-4a, find the UPW* factor for commercial distillate for 15 years (11.80), and multiply by the annual heating cost in 1990 dollars.

UPW*(10%): To compute the present value of electricity costs over 30 years associated with rehabilitating a Federal office building in Ohio (where energy conservation is not a primary objective), go to table B-2b, find the UPW* factor for commercial electricity for 30 years (9.46), and multiply by the annual electricity cost in 1990 dollars.

For further explanation of the use of UPW* factors, see NBS Handbook 135, section 2.5.

Note: The data in the tables which follow are now reported by 4 Census regions. Prior to the 1988 edition, regional data were presented by 10 DoE regions. Figure B-1 presents a map showing the states corresponding to the 4 Census regions. The Census regions do not include American Samoa, Canal Zone, Guam, Puerto Rico, Trust Territory of the Pacific Islands, or the Virgin Islands. Analysts of Federal projects in these areas should use data which are "reasonable under the circumstances," and may refer to the U.S. average data for guidance.



Source: U.S. Bureau of the Census

Figure B-1. Map of the United States Showing Census Regions.

Table B–1a. UPW* discount factors adjusted for average fuel price escalation by end–use sector and major fuel.[a]
Discount rate = 7 percent
Census Region 1 (Maine, New Hampshire, Vermont, Massachusetts, Connecticut, Rhode Island, New York, New Jersey, Pennsylvania)

	RESIDENTIAL				COMMERCIAL					INDUSTRIAL					TRANSPORTATION	
N	ELEC	DIST	LPG	NTGAS	ELEC	DIST	RESID	NTGAS	COAL	ELEC	DIST	RESID	NTGAS	COAL	GASLN	N
1	0.96	0.95	0.93	1.14	0.96	0.95	0.92	1.12	0.93	0.96	0.95	0.92	1.23	0.95	0.90	1
2	1.84	1.84	1.81	2.21	1.84	1.84	1.81	2.18	1.80	1.83	1.85	1.81	2.39	1.83	1.76	2
3	2.67	2.71	2.62	3.22	2.67	2.73	2.71	3.17	2.61	2.65	2.74	2.71	3.49	2.67	2.59	3
4	3.45	3.55	3.39	4.17	3.45	3.59	3.62	4.11	3.37	3.42	3.61	3.62	4.55	3.45	3.39	4
5	4.17	4.36	4.10	5.08	4.17	4.42	4.51	5.01	4.09	4.13	4.46	4.50	5.56	4.18	4.15	5
6	4.85	5.15	4.77	5.95	4.84	5.23	5.40	5.87	4.76	4.80	5.29	5.39	6.55	4.87	4.88	6
7	5.49	5.91	5.40	6.77	5.48	6.02	6.29	6.70	5.39	5.44	6.11	6.28	7.50	5.52	5.59	7
8	6.09	6.65	6.00	7.56	6.08	6.79	7.18	7.49	5.98	6.04	6.90	7.17	8.43	6.14	6.28	8
9	6.65	7.36	6.56	8.33	6.64	7.54	8.07	8.26	6.54	6.60	7.67	8.05	9.35	6.72	6.94	9
10	7.18	8.04	7.10	9.06	7.17	8.25	8.93	9.00	7.07	7.14	8.41	8.91	10.24	7.26	7.57	10
11	7.68	8.69	7.60	9.77	7.67	8.94	9.77	9.71	7.57	7.65	9.13	9.75	11.10	7.78	8.18	11
12	8.14	9.31	8.09	10.44	8.14	9.60	10.59	10.40	8.03	8.13	9.82	10.56	11.93	8.27	8.75	12
13	8.59	9.90	8.55	11.09	8.58	10.23	11.37	11.06	8.47	8.58	10.48	11.34	12.75	8.73	9.30	13
14	9.00	10.47	8.98	11.71	8.99	10.83	12.13	11.70	8.89	9.01	11.11	12.09	13.54	9.17	9.81	14
15	9.39	11.01	9.40	12.31	9.39	11.41	12.85	12.31	9.28	9.42	11.71	12.81	14.30	9.59	10.31	15
16	9.75	11.52	9.80	12.88	9.75	11.96	13.55	12.90	9.65	9.79	12.29	13.50	15.03	9.98	10.77	16
17	10.09	12.01	10.18	13.42	10.09	12.49	14.21	13.46	10.00	10.15	12.85	14.16	15.74	10.35	11.21	17
18	10.41	12.47	10.54	13.95	10.41	12.99	14.85	14.01	10.33	10.48	13.37	14.79	16.43	10.70	11.63	18
19	10.71	12.92	10.88	14.45	10.71	13.47	15.45	14.53	10.64	10.80	13.88	15.40	17.10	11.03	12.02	19
20	10.99	13.33	11.21	14.94	10.99	13.92	16.03	15.04	10.93	11.09	14.36	15.97	17.74	11.35	12.39	20
21	11.25	13.73	11.51	15.39	11.26	14.35	16.58	15.52	11.21	11.36	14.81	16.51	18.35	11.65	12.74	21
22	11.50	14.10	11.80	15.83	11.50	14.75	17.10	15.97	11.47	11.62	15.24	17.03	18.93	11.93	13.07	22
23	11.73	14.45	12.08	16.23	11.73	15.13	17.59	16.39	11.72	11.86	15.64	17.52	19.47	12.19	13.38	23
24	11.94	14.79	12.34	16.62	11.95	15.49	18.06	16.80	11.96	12.09	16.02	17.99	19.99	12.45	13.67	24
25	12.14	15.10	12.58	16.98	12.15	15.83	18.51	17.18	12.18	12.30	16.38	18.43	20.48	12.69	13.95	25

[a] ELEC = Electricity; DIST = Distillate; LPG = Liquefied Petroleum Gas; NTGAS = Natural Gas; RESID = Residual; COAL = Steam Coal; and GASLNE = Gasoline.

Table B-2a. UPW* discount factors adjusted for average fuel price escalation by end-use sector and major fuel.[a]

Discount rate = 7 percent

Census Region 2 (Ohio, Indiana, Illinois, Michigan, Wisconsin, Minnesota, Iowa, Missouri, North Dakota, South Dakota, Nebraska, Kansas)

	RESIDENTIAL				COMMERCIAL					INDUSTRIAL					TRANSPORTATION	
N	ELEC	DIST	LPG	NTGAS	ELEC	DIST	RESID	NTGAS	COAL	ELEC	DIST	RESID	NTGAS	COAL	GASLN	N
1	0.93	0.95	0.93	0.91	0.92	0.95	0.92	0.92	0.93	0.90	0.95	0.92	1.18	0.96	0.90	1
2	1.80	1.84	1.81	1.76	1.80	1.85	1.81	1.79	1.80	1.76	1.85	1.81	2.30	1.86	1.76	2
3	2.61	2.72	2.62	2.56	2.60	2.74	2.73	2.61	2.61	2.54	2.74	2.74	3.36	2.71	2.59	3
4	3.36	3.57	3.38	3.32	3.35	3.61	3.68	3.38	3.37	3.27	3.62	3.68	4.37	3.50	3.39	4
5	4.07	4.40	4.10	4.04	4.05	4.46	4.61	4.12	4.09	3.96	4.47	4.62	5.35	4.25	4.15	5
6	4.73	5.20	4.77	4.74	4.71	5.29	5.55	4.84	4.76	4.60	5.30	5.56	6.30	4.95	4.88	6
7	5.34	5.98	5.40	5.41	5.31	6.10	6.51	5.53	5.39	5.18	6.12	6.53	7.22	5.62	5.59	7
8	5.91	6.74	6.01	6.06	5.88	6.89	7.48	6.20	5.99	5.73	6.91	7.50	8.11	6.24	6.28	8
9	6.45	7.47	6.58	6.68	6.42	7.67	8.45	6.85	6.55	6.26	7.69	8.48	8.99	6.83	6.94	9
10	6.95	8.17	7.12	7.29	6.92	8.40	9.40	7.48	7.07	6.75	8.43	9.43	9.85	7.39	7.57	10
11	7.43	8.84	7.64	7.87	7.40	9.12	10.33	8.09	7.57	7.22	9.15	10.37	10.69	7.92	8.17	11
12	7.88	9.49	8.14	8.43	7.85	9.80	11.23	8.68	8.03	7.67	9.84	11.28	11.50	8.41	8.75	12
13	8.31	10.11	8.61	8.98	8.27	10.46	12.11	9.25	8.47	8.09	10.51	12.16	12.29	8.88	9.29	13
14	8.71	10.70	9.07	9.50	8.67	11.09	12.96	9.81	8.89	8.48	11.14	13.01	13.06	9.33	9.81	14
15	9.08	11.26	9.51	10.01	9.05	11.70	13.77	10.34	9.28	8.86	11.75	13.83	13.81	9.75	10.30	15
16	9.43	11.80	9.92	10.49	9.40	12.27	14.55	10.85	9.65	9.21	12.33	14.62	14.52	10.15	10.77	16
17	9.76	12.31	10.32	10.96	9.73	12.82	15.30	11.35	9.99	9.54	12.89	15.38	15.21	10.52	11.21	17
18	10.07	12.79	10.70	11.41	10.04	13.35	16.02	11.83	10.32	9.85	13.42	16.10	15.89	10.88	11.63	18
19	10.36	13.26	11.07	11.85	10.33	13.85	16.71	12.30	10.62	10.14	13.93	16.79	16.55	11.21	12.02	19
20	10.63	13.70	11.42	12.26	10.60	14.33	17.36	12.75	10.91	10.41	14.41	17.45	17.18	11.53	12.39	20
21	10.88	14.11	11.75	12.66	10.85	14.78	17.98	13.17	11.18	10.67	14.86	18.08	17.78	11.83	12.74	21
22	11.12	14.51	12.06	13.03	11.09	15.21	18.58	13.57	11.44	10.91	15.29	18.68	18.35	12.11	13.07	22
23	11.34	14.88	12.36	13.39	11.31	15.61	19.14	13.95	11.69	11.13	15.70	19.25	18.89	12.38	13.38	23
24	11.55	15.23	12.64	13.72	11.52	15.99	19.68	14.31	11.92	11.34	16.09	19.79	19.40	12.63	13.67	24
25	11.74	15.56	12.90	14.04	11.71	16.35	20.18	14.65	12.14	11.54	16.45	20.30	19.88	12.88	13.94	25

[a]ELEC = Electricity; DIST = Distillate; LPG = Liquefied Petroleum Gas; NTGAS = Natural Gas; RESID = Residual; COAL = Steam Coal; and GASLNE = Gasoline.

Table B–3a. UPW* discount factors adjusted for average fuel price escalation by end–use sector and major fuel. [a]

Discount rate = 7 percent

Census Region 3 (Delaware, Maryland, District of Columbia, Virginia, West Virginia, North Carolina, South Carolina, Georgia, Florida, Kentucky, Tennessee, Alabama, Mississippi, Arkansas, Louisiana, Oklahoma, Texas)

	RESIDENTIAL				COMMERCIAL					INDUSTRIAL					TRANSPORTATION	
N	ELEC	DIST	LPG	NTGAS	ELEC	DIST	RESID	NTGAS	COAL	ELEC	DIST	RESID	NTGAS	COAL	GASLN	N
1	0.93	0.95	0.93	1.01	0.93	0.95	0.92	0.97	0.93	0.91	0.95	0.92	0.80	0.96	0.90	1
2	1.81	1.84	1.81	1.96	1.80	1.85	1.81	1.89	1.80	1.77	1.85	1.81	1.56	1.85	1.76	2
3	2.63	2.71	2.62	2.85	2.62	2.74	2.73	2.75	2.62	2.57	2.75	2.72	2.29	2.69	2.59	3
4	3.39	3.56	3.39	3.69	3.38	3.62	3.67	3.57	3.39	3.33	3.63	3.64	2.98	3.48	3.39	4
5	4.11	4.37	4.10	4.50	4.10	4.46	4.59	4.35	4.11	4.03	4.48	4.55	3.66	4.23	4.15	5
6	4.79	5.15	4.77	5.27	4.77	5.29	5.53	5.11	4.78	4.69	5.32	5.47	4.34	4.93	4.88	6
7	5.42	5.92	5.40	6.01	5.40	6.11	6.47	5.83	5.42	5.31	6.14	6.39	4.99	5.59	5.59	7
8	6.01	6.66	6.00	6.72	5.99	6.91	7.43	6.53	6.02	5.90	6.95	7.31	5.64	6.21	6.28	8
9	6.56	7.38	6.57	7.41	6.54	7.68	8.39	7.22	6.59	6.45	7.73	8.23	6.30	6.81	6.95	9
10	7.09	8.06	7.10	8.07	7.07	8.43	9.32	7.88	7.12	6.97	8.49	9.14	6.94	7.36	7.58	10
11	7.59	8.71	7.61	8.71	7.57	9.15	10.24	8.51	7.63	7.47	9.22	10.01	7.58	7.89	8.19	11
12	8.05	9.34	8.09	9.32	8.03	9.84	11.13	9.13	8.10	7.94	9.92	10.87	8.20	8.39	8.77	12
13	8.49	9.93	8.56	9.91	8.47	10.50	11.99	9.72	8.55	8.38	10.59	11.69	8.81	8.86	9.31	13
14	8.90	10.50	9.00	10.48	8.89	11.13	12.82	10.30	8.98	8.80	11.23	12.49	9.42	9.31	9.84	14
15	9.29	11.05	9.42	11.02	9.28	11.74	13.62	10.86	9.38	9.19	11.85	13.25	10.01	9.73	10.33	15
16	9.66	11.56	9.82	11.54	9.64	12.32	14.38	11.38	9.75	9.56	12.44	13.98	10.58	10.13	10.80	16
17	10.00	12.06	10.20	12.04	9.99	12.88	15.12	11.90	10.11	9.91	13.01	14.68	11.14	10.51	11.24	17
18	10.32	12.52	10.56	12.53	10.31	13.41	15.83	12.40	10.45	10.24	13.55	15.36	11.70	10.86	11.66	18
19	10.62	12.97	10.90	12.99	10.61	13.91	16.50	12.88	10.77	10.55	14.06	16.00	12.24	11.20	12.05	19
20	10.91	13.39	11.23	13.44	10.90	14.39	17.14	13.34	11.07	10.83	14.55	16.61	12.76	11.52	12.43	20
21	11.17	13.79	11.55	13.87	11.16	14.85	17.75	13.78	11.35	11.10	15.02	17.19	13.27	11.82	12.78	21
22	11.41	14.17	11.84	14.27	11.41	15.28	18.33	14.20	11.62	11.35	15.46	17.74	13.74	12.11	13.11	22
23	11.64	14.52	12.11	14.64	11.64	15.68	18.89	14.59	11.88	11.59	15.87	18.26	14.19	12.38	13.42	23
24	11.86	14.86	12.37	15.00	11.85	16.07	19.41	14.96	12.12	11.81	16.26	18.76	14.62	12.64	13.71	24
25	12.06	15.17	12.62	15.34	12.06	16.43	19.91	15.31	12.35	12.01	16.63	19.23	15.02	12.89	13.99	25

[a]ELEC = Electricity; DIST = Distillate; LPG = Liquefied Petroleum Gas; NTGAS = Natural Gas; RESID = Residual; COAL = Steam Coal; and GASLNE = Gasoline.

Table B–4a. UPW* discount factors adjusted for average fuel price escalation by end–use sector and major fuel. [a]

Discount rate = 7 percent

Census Region 4 (Montana, Idaho, Wyoming, Colorado, New Mexico, Arizona, Utah, Nevada, Washington, Oregon, California, Alaska, Hawaii)

	RESIDENTIAL				COMMERCIAL					INDUSTRIAL					TRANSPORTATION	
N	ELEC	DIST	LPG	NTGAS	ELEC	DIST	RESID	NTGAS	COAL	ELEC	DIST	RESID	NTGAS	COAL	GASLN	N
1	0.94	0.95	0.93	0.99	0.94	0.95	0.92	0.95	0.92	0.92	0.95	0.91	1.16	0.95	0.90	1
2	1.81	1.84	1.81	1.93	1.81	1.85	1.81	1.84	1.78	1.77	1.85	1.81	2.25	1.83	1.76	2
3	2.63	2.72	2.62	2.81	2.62	2.74	2.74	2.68	2.58	2.56	2.75	2.75	3.30	2.67	2.59	3
4	3.40	3.57	3.39	3.64	3.39	3.62	3.70	3.48	3.34	3.31	3.63	3.73	4.29	3.45	3.39	4
5	4.13	4.39	4.10	4.43	4.11	4.47	4.64	4.24	4.05	4.03	4.48	4.70	5.25	4.19	4.15	5
6	4.81	5.19	4.77	5.19	4.79	5.31	5.61	4.98	4.72	4.71	5.32	5.70	6.19	4.88	4.88	6
7	5.45	5.97	5.40	5.92	5.43	6.13	6.59	5.68	5.35	5.34	6.14	6.71	7.09	5.53	5.59	7
8	6.06	6.72	6.00	6.62	6.03	6.93	7.59	6.36	5.94	5.94	6.95	7.75	7.97	6.15	6.28	8
9	6.63	7.45	6.57	7.30	6.61	7.71	8.59	7.03	6.50	6.52	7.73	8.80	8.84	6.74	6.94	9
10	7.18	8.15	7.10	7.96	7.15	8.46	9.57	7.68	7.03	7.07	8.49	9.83	9.69	7.29	7.57	10
11	7.69	8.82	7.61	8.58	7.66	9.18	10.53	8.30	7.53	7.59	9.22	10.84	10.51	7.82	8.18	11
12	8.17	9.46	8.10	9.19	8.14	9.88	11.47	8.90	7.99	8.08	9.92	11.83	11.31	8.31	8.75	12
13	8.63	10.07	8.56	9.77	8.59	10.55	12.38	9.49	8.44	8.55	10.59	12.79	12.09	8.78	9.30	13
14	9.06	10.66	9.00	10.33	9.02	11.19	13.26	10.06	8.85	8.99	11.23	13.72	12.85	9.22	9.82	14
15	9.47	11.22	9.42	10.87	9.43	11.80	14.10	10.60	9.24	9.41	11.85	14.61	13.59	9.63	10.31	15
16	9.85	11.75	9.82	11.39	9.81	12.39	14.91	11.12	9.61	9.80	12.44	15.47	14.29	10.03	10.77	16
17	10.21	12.26	10.20	11.88	10.16	12.95	15.70	11.63	9.96	10.18	13.01	16.30	14.97	10.40	11.22	17
18	10.55	12.74	10.56	12.36	10.50	13.48	16.45	12.12	10.28	10.53	13.55	17.10	15.64	10.74	11.63	18
19	10.87	13.20	10.91	12.83	10.82	13.99	17.16	12.59	10.59	10.86	14.06	17.86	16.29	11.07	12.02	19
20	11.17	13.64	11.24	13.27	11.12	14.48	17.84	13.05	10.88	11.18	14.55	18.58	16.91	11.38	12.40	20
21	11.45	14.05	11.55	13.69	11.39	14.94	18.50	13.48	11.15	11.47	15.02	19.28	17.50	11.68	12.75	21
22	11.71	14.44	11.85	14.08	11.65	15.37	19.11	13.89	11.41	11.74	15.46	19.93	18.06	11.96	13.07	22
23	11.95	14.80	12.13	14.46	11.90	15.78	19.70	14.28	11.65	12.00	15.87	20.56	18.59	12.22	13.39	23
24	12.18	15.15	12.39	14.81	12.12	16.17	20.26	14.64	11.89	12.23	16.26	21.16	19.10	12.47	13.68	24
25	12.39	15.48	12.63	15.14	12.34	16.54	20.79	14.99	12.11	12.46	16.63	21.72	19.57	12.71	13.95	25

[a] ELEC = Electricity; DIST = Distillate; LPG = Liquefied Petroleum Gas; NTGAS = Natural Gas; RESID = Residual; COAL = Steam Coal; and GASLNE = Gasoline.

Table B-5a. UPW* discount factors adjusted for average fuel price escalation by end-use sector and major fuel.[a]
Discount rate = 7 percent
United States Average

	RESIDENTIAL				COMMERCIAL					INDUSTRIAL					TRANSPORTATION	
N	ELEC	DIST	LPG	NTGAS	ELEC	DIST	RESID	NTGAS	COAL	ELEC	DIST	RESID	NTGAS	COAL	GASLN	N
1	0.94	0.95	0.93	0.99	0.93	0.95	0.92	0.98	0.93	0.91	0.95	0.92	0.96	0.96	0.90	1
2	1.81	1.84	1.80	1.93	1.81	1.85	1.81	1.90	1.80	1.77	1.85	1.81	1.87	1.85	1.76	2
3	2.63	2.71	2.62	2.81	2.62	2.73	2.72	2.76	2.61	2.57	2.74	2.72	2.73	2.69	2.59	3
4	3.40	3.56	3.37	3.64	3.39	3.60	3.64	3.58	3.37	3.32	3.62	3.65	3.56	3.48	3.39	4
5	4.12	4.38	4.08	4.43	4.11	4.44	4.55	4.37	4.09	4.02	4.47	4.56	4.36	4.23	4.15	5
6	4.79	5.16	4.75	5.19	4.77	5.26	5.47	5.13	4.76	4.68	5.31	5.48	5.15	4.93	4.88	6
7	5.41	5.93	5.38	5.92	5.40	6.07	6.39	5.85	5.40	5.29	6.13	6.41	5.91	5.59	5.59	7
8	6.00	6.68	5.97	6.62	5.99	6.85	7.31	6.56	5.99	5.87	6.93	7.35	6.67	6.22	6.28	8
9	6.56	7.39	6.54	7.30	6.54	7.61	8.23	7.24	6.55	6.42	7.71	8.28	7.42	6.81	6.94	9
10	7.08	8.08	7.07	7.95	7.07	8.34	9.14	7.91	7.08	6.94	8.46	9.19	8.15	7.36	7.58	10
11	7.58	8.73	7.58	8.58	7.56	9.04	10.01	8.54	7.58	7.43	9.19	10.08	8.87	7.89	8.18	11
12	8.04	9.36	8.07	9.18	8.03	9.71	10.86	9.16	8.05	7.90	9.88	10.94	9.57	8.39	8.75	12
13	8.48	9.96	8.53	9.77	8.47	10.36	11.69	9.76	8.49	8.34	10.55	11.78	10.26	8.86	9.30	13
14	8.89	10.53	8.97	10.33	8.88	10.98	12.48	10.34	8.91	8.76	11.19	12.59	10.94	9.31	9.82	14
15	9.28	11.08	9.40	10.87	9.27	11.57	13.25	10.90	9.30	9.15	11.81	13.36	11.59	9.73	10.31	15
16	9.65	11.60	9.80	11.38	9.64	12.13	13.98	11.43	9.67	9.52	12.39	14.10	12.22	10.13	10.78	16
17	9.99	12.09	10.19	11.88	9.98	12.67	14.68	11.94	10.02	9.87	12.95	14.82	12.84	10.50	11.22	17
18	10.31	12.56	10.55	12.36	10.30	13.19	15.35	12.44	10.35	10.19	13.49	15.50	13.45	10.86	11.64	18
19	10.61	13.01	10.91	12.82	10.60	13.68	15.99	12.92	10.66	10.50	14.00	16.15	14.04	11.19	12.03	19
20	10.89	13.43	11.24	13.26	10.89	14.14	16.60	13.39	10.95	10.79	14.49	16.77	14.61	11.51	12.40	20
21	11.15	13.83	11.56	13.68	11.15	14.58	17.19	13.83	11.23	11.06	14.95	17.36	15.15	11.81	12.75	21
22	11.40	14.21	11.86	14.08	11.40	15.00	17.74	14.24	11.49	11.31	15.38	17.92	15.66	12.10	13.08	22
23	11.63	14.57	12.14	14.45	11.63	15.39	18.26	14.64	11.74	11.55	15.79	18.45	16.15	12.37	13.39	23
24	11.84	14.91	12.41	14.80	11.84	15.76	18.76	15.01	11.97	11.77	16.18	18.96	16.61	12.62	13.69	24
25	12.04	15.22	12.66	15.13	12.04	16.12	19.23	15.36	12.20	11.97	16.55	19.44	17.05	12.87	13.96	25

[a]ELEC = Electricity; DIST = Distillate; LPG = Liquefied Petroleum Gas; NTGAS = Natural Gas; RESID = Residual; COAL = Steam Coal; and GASLNE = Gasoline.

Table B–1b. UPW* discount factors adjusted for average fuel price escalation by end–use sector and major fuel.

Discount rate = 10 percent

Census Region 1 (Maine, New Hampshire, Vermont, Massachusetts, Connecticut, Rhode Island, New York, New Jersey, Pennsylvania)

	RESIDENTIAL				COMMERCIAL					INDUSTRIAL					TRANSPORTATION	
N	ELEC	DIST	LPG	NTGAS	ELEC	DIST	RESID	NTGAS	COAL	ELEC	DIST	RESID	NTGAS	COAL	GASLN	N
1	0.93	0.92	0.91	1.11	0.93	0.92	0.90	1.09	0.90	0.93	0.92	0.90	1.20	0.92	0.88	1
2	1.77	1.76	1.74	2.12	1.77	1.77	1.74	2.09	1.72	1.76	1.77	1.74	2.29	1.76	1.69	2
3	2.53	2.57	2.49	3.05	2.53	2.58	2.57	3.01	2.47	2.51	2.60	2.57	3.31	2.53	2.45	3
4	3.23	3.32	3.17	3.90	3.22	3.35	3.38	3.85	3.16	3.20	3.38	3.38	4.25	3.23	3.17	4
5	3.86	4.03	3.79	4.69	3.85	4.08	4.15	4.63	3.78	3.82	4.11	4.15	5.14	3.87	3.83	5
6	4.43	4.69	4.36	5.43	4.42	4.76	4.91	5.36	4.35	4.39	4.82	4.90	5.98	4.45	4.45	6
7	4.96	5.32	4.88	6.11	4.95	5.42	5.64	6.04	4.87	4.91	5.49	5.63	6.76	4.99	5.03	7
8	5.44	5.91	5.36	6.74	5.43	6.03	6.36	6.67	5.34	5.39	6.13	6.35	7.51	5.48	5.59	8
9	5.88	6.47	5.80	7.34	5.87	6.62	7.05	7.27	5.78	5.84	6.73	7.04	8.22	5.93	6.10	9
10	6.28	6.98	6.20	7.90	6.27	7.16	7.70	7.84	6.18	6.24	7.29	7.69	8.89	6.34	6.58	10
11	6.64	7.46	6.58	8.41	6.64	7.66	8.32	8.36	6.54	6.62	7.82	8.30	9.53	6.73	7.03	11
12	6.98	7.91	6.92	8.90	6.97	8.14	8.91	8.85	6.88	6.96	8.31	8.88	10.13	7.08	7.44	12
13	7.29	8.32	7.24	9.35	7.28	8.58	9.46	9.32	7.19	7.28	8.77	9.43	10.70	7.40	7.82	13
14	7.57	8.70	7.54	9.77	7.56	8.99	9.97	9.75	7.47	7.57	9.20	9.94	11.23	7.70	8.17	14
15	7.83	9.06	7.82	10.17	7.82	9.37	10.45	10.16	7.73	7.84	9.60	10.42	11.74	7.97	8.50	15
16	8.06	9.39	8.07	10.53	8.06	9.72	10.89	10.53	7.97	8.08	9.97	10.86	12.21	8.23	8.80	16
17	8.27	9.70	8.31	10.87	8.27	10.05	11.31	10.88	8.19	8.30	10.32	11.27	12.65	8.46	9.07	17
18	8.47	9.98	8.53	11.19	8.47	10.36	11.70	11.22	8.39	8.50	10.64	11.66	13.07	8.67	9.32	18
19	8.64	10.24	8.73	11.49	8.64	10.64	12.05	11.53	8.57	8.69	10.94	12.01	13.46	8.87	9.56	19
20	8.81	10.48	8.92	11.77	8.80	10.90	12.39	11.82	8.74	8.86	11.21	12.34	13.83	9.05	9.77	20
21	8.95	10.70	9.09	12.03	8.95	11.14	12.69	12.09	8.89	9.01	11.47	12.65	14.17	9.21	9.96	21
22	9.09	10.90	9.25	12.26	9.09	11.36	12.98	12.33	9.03	9.15	11.70	12.93	14.49	9.37	10.14	22
23	9.21	11.09	9.39	12.48	9.21	11.56	13.24	12.56	9.17	9.28	11.91	13.19	14.78	9.51	10.31	23
24	9.32	11.26	9.52	12.68	9.32	11.75	13.48	12.76	9.29	9.40	12.11	13.43	15.04	9.64	10.46	24
25	9.42	11.42	9.65	12.86	9.42	11.92	13.70	12.95	9.40	9.50	12.29	13.65	15.29	9.76	10.60	25
*** Extended Series ***																
26	9.51	11.56	9.76	13.02	9.51	12.07	13.91	13.13	9.50	9.60	12.46	13.85	15.51	9.87	10.72	26
27	9.59	11.69	9.86	13.18	9.59	12.22	14.09	13.29	9.60	9.68	12.61	14.04	15.72	9.97	10.84	27
28	9.67	11.81	9.95	13.31	9.67	12.35	14.27	13.43	9.69	9.76	12.75	14.21	15.91	10.07	10.94	28
29	9.74	11.92	10.04	13.44	9.74	12.47	14.43	13.57	9.77	9.84	12.88	14.37	16.08	10.16	11.04	29
30	9.80	12.03	10.11	13.56	9.80	12.58	14.57	13.69	9.84	9.90	12.99	14.51	16.24	10.24	11.13	30

Table B–2b. UPW* discount factors adjusted for average fuel price escalation by end–use sector and major fuel.
Discount rate = 10 percent

Census Region 2 (Ohio, Indiana, Illinois, Michigan, Wisconsin, Minnesota, Iowa, Missouri, North Dakota, South Dakota, Nebraska, Kansas)

	RESIDENTIAL				COMMERCIAL					INDUSTRIAL					TRANSPORTATION	
N	ELEC	DIST	LPG	NTGAS	ELEC	DIST	RESID	NTGAS	COAL	ELEC	DIST	RESID	NTGAS	COAL	GASLN	N
1	0.90	0.92	0.91	0.88	0.90	0.92	0.89	0.90	0.90	0.88	0.92	0.89	1.15	0.93	0.88	1
2	1.73	1.77	1.74	1.69	1.72	1.77	1.74	1.72	1.72	1.69	1.78	1.74	2.20	1.79	1.69	2
3	2.47	2.58	2.49	2.42	2.46	2.59	2.59	2.47	2.47	2.41	2.60	2.59	3.18	2.57	2.45	3
4	3.15	3.34	3.17	3.10	3.13	3.38	3.43	3.16	3.16	3.06	3.38	3.43	4.09	3.28	3.17	4
5	3.76	4.06	3.79	3.74	3.75	4.11	4.24	3.81	3.78	3.66	4.12	4.25	4.94	3.93	3.83	5
6	4.32	4.74	4.36	4.33	4.30	4.81	5.04	4.42	4.35	4.20	4.82	5.05	5.75	4.52	4.45	6
7	4.82	5.38	4.88	4.88	4.80	5.48	5.83	4.99	4.87	4.68	5.50	5.85	6.50	5.07	5.03	7
8	5.28	5.99	5.36	5.40	5.26	6.12	6.61	5.52	5.35	5.12	6.14	6.63	7.22	5.57	5.58	8
9	5.70	6.56	5.81	5.89	5.67	6.72	7.37	6.03	5.78	5.53	6.74	7.39	7.91	6.03	6.10	9
10	6.09	7.09	6.22	6.34	6.06	7.28	8.09	6.51	6.18	5.91	7.31	8.11	8.56	6.45	6.58	10
11	6.44	7.59	6.60	6.78	6.41	7.81	8.77	6.96	6.55	6.26	7.84	8.80	9.17	6.84	7.03	11
12	6.76	8.05	6.96	7.18	6.73	8.30	9.42	7.38	6.88	6.57	8.33	9.46	9.75	7.20	7.44	12
13	7.06	8.48	7.29	7.56	7.03	8.76	10.03	7.78	7.19	6.87	8.80	10.07	10.31	7.53	7.82	13
14	7.33	8.88	7.60	7.92	7.30	9.19	10.61	8.16	7.47	7.14	9.23	10.65	10.83	7.83	8.17	14
15	7.58	9.25	7.89	8.25	7.55	9.59	11.14	8.51	7.73	7.38	9.63	11.19	11.32	8.11	8.50	15
16	7.80	9.60	8.16	8.56	7.77	9.96	11.64	8.84	7.96	7.61	10.00	11.70	11.78	8.36	8.79	16
17	8.01	9.92	8.41	8.85	7.98	10.30	12.11	9.15	8.18	7.82	10.35	12.17	12.21	8.60	9.07	17
18	8.20	10.21	8.64	9.12	8.17	10.62	12.55	9.44	8.38	8.01	10.67	12.61	12.63	8.81	9.32	18
19	8.37	10.49	8.86	9.38	8.34	10.92	12.96	9.72	8.56	8.18	10.97	13.02	13.02	9.01	9.55	19
20	8.52	10.74	9.06	9.62	8.49	11.19	13.33	9.98	8.72	8.33	11.25	13.40	13.38	9.19	9.77	20
21	8.66	10.97	9.24	9.84	8.64	11.45	13.68	10.21	8.88	8.48	11.51	13.75	13.72	9.36	9.96	21
22	8.79	11.19	9.41	10.05	8.77	11.68	14.01	10.43	9.02	8.61	11.74	14.08	14.02	9.51	10.14	22
23	8.91	11.38	9.57	10.24	8.88	11.89	14.30	10.63	9.15	8.73	11.96	14.38	14.31	9.66	10.31	23
24	9.02	11.56	9.71	10.41	8.99	12.09	14.58	10.82	9.27	8.83	12.15	14.66	14.57	9.79	10.46	24
25	9.11	11.73	9.84	10.57	9.09	12.27	14.83	10.99	9.38	8.93	12.34	14.91	14.81	9.91	10.59	25
*** Extended Series ***																
26	9.20	11.88	9.96	10.71	9.18	12.43	15.07	11.14	9.48	9.02	12.50	15.15	15.04	10.02	10.72	26
27	9.28	12.02	10.07	10.84	9.26	12.58	15.28	11.29	9.57	9.10	12.66	15.37	15.24	10.13	10.83	27
28	9.36	12.15	10.18	10.97	9.33	12.72	15.48	11.42	9.66	9.18	12.80	15.57	15.43	10.22	10.94	28
29	9.42	12.26	10.27	11.08	9.40	12.85	15.66	11.54	9.74	9.24	12.93	15.75	15.60	10.31	11.04	29
30	9.48	12.37	10.35	11.18	9.46	12.97	15.83	11.65	9.81	9.30	13.04	15.92	15.75	10.39	11.12	30

Table B–3b. UPW* discount factors adjusted for average fuel price escalation by end–use sector and major fuel.
Discount rate = 10 percent

Census Region 3 (Delaware, Maryland, District of Columbia, Virginia, West Virginia, North Carolina, South Carolina, Georgia, Florida, Kentucky, Tennessee, Alabama, Mississippi, Arkansas, Louisiana, Oklahoma, Texas)

	RESIDENTIAL				COMMERCIAL					INDUSTRIAL					TRANSPORTATION	
N	ELEC	DIST	LPG	NTGAS	ELEC	DIST	RESID	NTGAS	COAL	ELEC	DIST	RESID	NTGAS	COAL	GASLN	N
1	0.91	0.92	0.91	0.98	0.90	0.92	0.89	0.95	0.91	0.88	0.93	0.89	0.78	0.93	0.88	1
2	1.74	1.76	1.74	1.88	1.73	1.78	1.74	1.81	1.73	1.70	1.78	1.74	1.50	1.78	1.69	2
3	2.49	2.57	2.49	2.70	2.48	2.60	2.58	2.61	2.48	2.44	2.60	2.58	2.17	2,55	2.45	3
4	3.18	3.32	3.17	3.46	3.17	3.38	3.42	3.34	3.17	3.11	3.39	3.40	2.79	3.26	3.17	4
5	3.80	4.03	3.79	4.16	3.79	4.12	4.23	4.02	3.79	3.73	4.13	4.19	3.38	3.91	3.83	5
6	4.37	4.70	4.36	4.81	4.36	4.82	5.02	4.66	4.37	4.29	4.84	4.97	3.95	4.50	4.45	6
7	4.89	5.33	4.88	5.42	4.88	5.49	5.80	5.26	4.89	4.80	5.52	5.73	4.49	5.05	5.04	7
8	5.36	5.92	5.36	5.99	5.35	6.13	6.57	5.82	5.38	5.26	6.17	6.47	5.01	5.55	5.59	8
9	5.80	6.48	5.80	6.52	5.78	6.74	7.31	6.35	5.82	5.69	6.78	7.19	5.52	6.01	6.11	9
10	6.20	7.00	6.20	7.03	6.18	7.30	8.02	6.85	6.22	6.09	7.35	7.87	6.01	6.43	6.59	10
11	6.56	7.48	6.58	7.50	6.55	7.83	8.70	7.32	6.59	6.46	7.89	8.52	6.48	6.82	7.04	11
12	6.90	7.93	6.93	7.93	6.88	8.33	9.34	7.76	6.94	6.80	8.39	9.13	6.93	7.18	7.45	12
13	7.20	8.35	7.25	8.35	7.19	8.79	9.94	8.18	7.25	7.10	8.86	9.71	7.36	7.51	7.83	13
14	7.49	8.73	7.55	8.73	7.47	9.22	10.50	8.57	7.54	7.39	9.30	10.25	7.77	7.81	8.19	14
15	7.74	9.09	7.83	9.09	7.73	9.62	11.03	8.94	7.80	7.65	9.71	10.75	8.16	8.09	8.51	15
16	7.98	9.42	8.08	9.43	7.96	9.99	11.52	9.28	8.05	7.88	10.09	11.22	8.53	8.34	8.81	16
17	8.19	9.73	8.32	9.74	8.18	10.34	11.98	9.60	8.27	8.10	10.44	11.66	8.88	8.58	9.09	17
18	8.39	10.01	8.54	10.04	8.37	10.66	12.41	9.90	8.47	8.30	10.77	12.07	9.21	8.80	9.35	18
19	8.56	10.28	8.75	10.31	8.55	10.96	12.81	10.19	8.66	8.48	11.07	12.45	9.53	9.00	9.58	19
20	8.73	10.52	8.94	10.57	8.72	11.24	13.18	10.45	8.84	8.65	11.35	12.80	9.84	9.18	9.79	20
21	8.87	10.74	9.11	10.81	8.86	11.49	13.52	10.70	8.99	8.80	11.61	13.12	10.12	9.35	9.99	21
22	9.01	10.95	9.27	11.02	9.00	11.73	13.84	10.93	9.14	8.94	11.85	13.42	10.38	9.51	10.17	22
23	9.13	11.14	9.42	11.22	9.12	11.94	14.13	11.13	9.28	9.06	12.07	13.70	10.61	9.65	10.34	23
24	9.24	11.31	9.55	11.41	9.23	12.14	14.40	11.32	9.40	9.18	12.27	13.96	10.83	9.79	10.49	24
25	9.34	11.47	9.67	11.58	9.33	12.32	14.65	11.50	9.52	9.28	12.46	14.19	11.04	9.91	10.63	25
*** Extended Series ***																
26	9.43	11.61	9.78	11.73	9.43	12.49	14.88	11.66	9.62	9.37	12.63	14.41	11.22	10.02	10.75	26
27	9.52	11.74	9.89	11.87	9.51	12.64	15.09	11.81	9.72	9.46	12.79	14.61	11.40	10.13	10.87	27
28	9.59	11.87	9.98	12.00	9.58	12.78	15.28	11.94	9.81	9.53	12.93	14.79	11.55	10.22	10.98	28
29	9.66	11.98	10.07	12.12	9.65	12.91	15.46	12.07	9.90	9.61	13.06	14.96	11.70	10.31	11.07	29
30	9.72	12.08	10.14	12.23	9.72	13.03	15.62	12.18	9.97	9.67	13.18	15.12	11.83	10.39	11.16	30

Table B–4b. UPW* discount factors adjusted for average fuel price escalation by end–use sector and major fuel.
Discount rate = 10 percent

Census Region 4 (Montana, Idaho, Wyoming, Colorado, New Mexico, Arizona, Utah, Nevada, Washington, Oregon, California, Alaska, Hawaii)

	RESIDENTIAL				COMMERCIAL					INDUSTRIAL					TRANSPORTATION	
N	ELEC	DIST	LPG	NTGAS	ELEC	DIST	RESID	NTGAS	COAL	ELEC	DIST	RESID	NTGAS	COAL	GASLN	N
1	0.92	0.92	0.91	0.97	0.91	0.93	0.89	0.92	0.89	0.89	0.93	0.89	1.13	0.92	0.88	1
2	1.74	1.77	1.74	1.85	1.73	1.78	1.74	1.76	1.71	1.70	1.78	1.74	2.16	1.76	1.69	2
3	2.49	2.57	2.49	2.66	2.48	2.60	2.60	2.54	2.45	2.43	2.60	2.61	3.12	2.53	2.45	3
4	3.18	3.34	3.17	3.41	3.17	3.38	3.45	3.25	3.13	3.10	3.39	3.48	4.01	3.23	3.17	4
5	3.82	4.05	3.79	4.09	3.80	4.13	4.27	3.91	3.74	3.73	4.13	4.32	4.85	3.87	3.83	5
6	4.39	4.73	4.36	4.74	4.38	4.83	5.09	4.54	4.31	4.30	4.84	5.17	5.64	4.46	4.45	6
7	4.92	5.37	4.88	5.34	4.90	5.51	5.90	5.12	4.83	4.82	5.52	6.01	6.39	5.00	5.03	7
8	5.41	5.97	5.36	5.90	5.39	6.15	6.70	5.67	5.30	5.30	6.17	6.84	7.09	5.49	5.59	8
9	5.86	6.54	5.80	6.43	5.83	6.76	7.48	6.19	5.74	5.75	6.78	7.66	7.77	5.95	6.10	9
10	6.27	7.07	6.20	6.93	6.24	7.33	8.23	6.68	6.14	6.17	7.35	8.44	8.42	6.37	6.58	10
11	6.65	7.57	6.58	7.39	6.62	7.86	8.93	7.14	6.51	6.55	7.89	9.18	9.02	6.76	7.03	11
12	7.00	8.03	6.93	7.82	6.97	8.36	9.61	7.57	6.84	6.90	8.39	9.89	9.59	7.11	7.44	12
13	7.31	8.45	7.25	8.23	7.28	8.83	10.24	7.98	7.15	7.23	8.86	10.56	10.14	7.44	7.82	13
14	7.61	8.85	7.55	8.61	7.57	9.26	10.84	8.37	7.43	7.53	9.30	11.19	10.66	7.74	8.17	14
15	7.87	9.22	7.83	8.97	7.84	9.67	11.40	8.73	7.69	7.81	9.71	11.78	11.14	8.01	8.50	15
16	8.12	9.56	8.09	9.30	8.08	10.04	11.92	9.06	7.93	8.06	10.09	12.33	11.59	8.26	8.80	16
17	8.35	9.88	8.33	9.61	8.31	10.39	12.41	9.38	8.15	8.29	10.44	12.85	12.02	8.49	9.07	17
18	8.55	10.17	8.55	9.90	8.51	10.72	12.86	9.67	8.34	8.51	10.77	13.34	12.43	8.70	9.33	18
19	8.74	10.45	8.75	10.18	8.70	11.02	13.29	9.96	8.52	8.71	11.07	13.79	12.81	8.90	9.56	19
20	8.91	10.70	8.94	10.43	8.87	11.30	13.68	10.22	8.69	8.89	11.35	14.20	13.17	9.08	9.77	20
21	9.07	10.93	9.12	10.67	9.03	11.56	14.04	10.46	8.84	9.05	11.61	14.59	13.50	9.24	9.97	21
22	9.21	11.14	9.28	10.88	9.17	11.79	14.38	10.68	8.98	9.20	11.85	14.95	13.80	9.39	10.15	22
23	9.34	11.33	9.42	11.08	9.30	12.01	14.69	10.89	9.11	9.33	12.07	15.28	14.08	9.53	10.31	23
24	9.46	11.51	9.56	11.26	9.41	12.21	14.98	11.07	9.23	9.46	12.27	15.59	14.34	9.66	10.46	24
25	9.56	11.68	9.68	11.43	9.52	12.40	15.25	11.25	9.34	9.57	12.46	15.87	14.58	9.78	10.60	25
*** Extended Series ***																
26	9.66	11.83	9.79	11.58	9.62	12.56	15.49	11.41	9.45	9.67	12.63	16.13	14.80	9.89	10.73	26
27	9.75	11.96	9.89	11.72	9.71	12.72	15.72	11.55	9.54	9.76	12.79	16.38	15.00	9.99	10.84	27
28	9.83	12.09	9.99	11.85	9.79	12.86	15.92	11.69	9.63	9.85	12.93	16.60	15.18	10.09	10.95	28
29	9.90	12.20	10.07	11.97	9.86	12.99	16.11	11.81	9.71	9.92	13.06	16.80	15.35	10.17	11.04	29
30	9.97	12.31	10.15	12.07	9.92	13.11	16.29	11.92	9.78	9.99	13.18	16.99	15.51	10.25	11.13	30

Table B-5b. UPW* discount factors adjusted for average fuel price escalation by end-use sector and major fuel.
Discount rate = 10 percent
United States Average

	RESIDENTIAL				COMMERCIAL					INDUSTRIAL					TRANSPORTATION	
N	ELEC	DIST	LPG	NTGAS	ELEC	DIST	RESID	NTGAS	COAL	ELEC	DIST	RESID	NTGAS	COAL	GASLN	N
1	0.91	0.92	0.91	0.97	0.91	0.92	0.89	0.95	0.90	0.89	0.93	0.89	0.94	0.93	0.88	1
2	1.74	1.77	1.73	1.85	1.74	1.77	1.74	1.82	1.72	1.70	1.78	1.74	1.79	1.78	1.69	2
3	2.49	2.57	2.48	2.66	2.49	2.59	2.58	2.62	2.47	2.43	2.60	2.58	2.59	2.55	2.45	3
4	3.18	3.33	3.16	3.41	3.17	3.37	3.40	3.35	3.16	3.10	3.38	3.41	3.33	3.26	3.17	4
5	3.81	4.04	3.78	4.09	3.80	4.10	4.19	4.04	3.78	3.72	4.13	4.20	4.02	3.91	3.83	5
6	4.37	4.71	4.34	4.74	4.36	4.79	4.97	4.68	4.35	4.27	4.83	4.98	4.69	4.50	4.45	6
7	4.89	5.34	4.86	5.34	4.88	5.46	5.72	5.28	4.87	4.78	5.51	5.75	5.32	5.05	5.04	7
8	5.36	5.94	5.33	5.90	5.35	6.08	6.47	5.84	5.35	5.24	6.15	6.50	5.93	5.55	5.59	8
9	5.80	6.49	5.78	6.43	5.78	6.68	7.19	6.38	5.79	5.67	6.76	7.22	6.51	6.01	6.10	9
10	6.19	7.01	6.18	6.93	6.18	7.23	7.87	6.88	6.19	6.06	7.33	7.92	7.07	6.43	6.58	10
11	6.56	7.50	6.56	7.39	6.55	7.75	8.52	7.35	6.55	6.43	7.87	8.57	7.60	6.82	7.03	11
12	6.89	7.95	6.90	7.82	6.88	8.23	9.13	7.79	6.89	6.76	8.36	9.19	8.10	7.18	7.44	12
13	7.20	8.37	7.23	8.23	7.19	8.68	9.70	8.21	7.20	7.07	8.83	9.78	8.58	7.51	7.82	13
14	7.48	8.75	7.53	8.61	7.47	9.10	10.24	8.60	7.48	7.35	9.27	10.32	9.04	7.81	8.18	14
15	7.73	9.11	7.81	8.97	7.72	9.49	10.75	8.97	7.74	7.61	9.67	10.83	9.48	8.09	8.50	15
16	7.97	9.45	8.07	9.30	7.96	9.85	11.22	9.31	7.98	7.85	10.05	11.31	9.88	8.34	8.80	16
17	8.18	9.76	8.31	9.61	8.17	10.19	11.66	9.63	8.20	8.07	10.40	11.76	10.27	8.58	9.08	17
18	8.38	10.04	8.53	9.90	8.37	10.50	12.07	9.94	8.40	8.27	10.73	12.17	10.64	8.80	9.33	18
19	8.55	10.31	8.74	10.17	8.55	10.79	12.44	10.22	8.58	8.45	11.03	12.55	10.99	8.99	9.56	19
20	8.72	10.55	8.93	10.42	8.71	11.06	12.79	10.49	8.75	8.62	11.31	12.91	11.31	9.18	9.78	20
21	8.86	10.78	9.11	10.66	8.86	11.31	13.12	10.74	8.91	8.77	11.56	13.24	11.62	9.34	9.97	21
22	9.00	10.98	9.27	10.87	8.99	11.53	13.42	10.96	9.05	8.90	11.80	13.55	11.90	9.50	10.15	22
23	9.12	11.17	9.42	11.07	9.11	11.74	13.70	11.17	9.18	9.03	12.02	13.83	12.16	9.64	10.32	23
24	9.23	11.34	9.56	11.25	9.22	11.93	13.95	11.36	9.30	9.14	12.22	14.09	12.39	9.77	10.47	24
25	9.33	11.50	9.69	11.42	9.33	12.11	14.19	11.54	9.41	9.25	12.40	14.33	12.61	9.90	10.61	25
							*** Extended Series ***									
26	9.42	11.65	9.80	11.57	9.42	12.27	14.41	11.70	9.52	9.34	12.57	14.55	12.81	10.01	10.73	26
27	9.50	11.78	9.91	11.71	9.50	12.42	14.61	11.85	9.61	9.42	12.73	14.75	13.00	10.11	10.85	27
28	9.58	11.90	10.00	11.84	9.58	12.55	14.79	11.98	9.70	9.50	12.87	14.94	13.17	10.21	10.95	28
29	9.65	12.02	10.09	11.96	9.65	12.68	14.96	12.11	9.78	9.57	13.00	15.11	13.33	10.30	11.05	29
30	9.71	12.12	10.17	12.07	9.71	12.79	15.12	12.22	9.86	9.64	13.12	15.27	13.47	10.38	11.14	30

1990 AVERAGE FUEL PRICES, PROJECTED AVERAGE FUEL PRICE INDICES, AND PROJECTED AVERAGE FUEL PRICE ESCALATION RATES FOR FEDERAL USE (INDICES AND ESCALATION RATES EXCLUDE GENERAL PRICE INFLATION)

Table C presents average 1990 fuel prices for the 4 Census regions and for the United States. Use these prices as default values for 1990 fuel prices only if you do not know actual fuel prices.

Tables Ca-1 through Ca-5 of this section present projected average fuel price indices for the 4 Census regions and for the United States. These are multipliers which when applied to the 1990 prices provide estimates of the corresponding future-year prices in 1990 dollars. Note that the resulting price estimates are in constant dollars, exclusive of general price inflation. Constant dollar prices are needed when discounting is performed with discount rates which do not include general price inflation.

Example of How to Use the Indices:

To estimate the price of industrial steam coal in year 2005 in Connecticut, go to table Ca-1, find the year 2005 index for industrial steam coal (1.15), and multiply by the 1990 price for industrial steam coal in Connecticut. The result will be given in 1990 dollars.

Tables Cb-1 through Cb-5 present the projected average fuel price escalation rates (percentage change compounded annually) for five five-year periods from 1990 to 2015 for the 4 Census regions and for the United States. Note that these are "real" rates exclusive of general price inflation. Their use results in prices expressed in constant dollars.

The escalation rates consolidate the information provided by the indices in the Ca tables so that trends in projected price changes can be seen at a glance. They are provided primarily to accommodate those who use computer programs which require escalation rates as inputs.

Unless there is a compelling reason to use escalation rates, it is recommended that you use the indices in the Ca tables to estimate future-year energy prices, since the indices include year-to-year information rather than averages over a number of years, and are easier to use.

Example of How to Use the Escalation Rates:

To estimate the price of residential distillate in 1998 (p_{98}) in Wyoming using the escalation rates, go to table Cb-4 and find the 1990-1995 and 1995-2000 escalation rates for residential distillate (2.88% and 3.46% per year, respectively). Assuming the actual 1990 price of residential distillate is unknown, go to table C and find the default 1990 price (p_{90}) for Census region 4 ($5.88/million Btu). Enter these values into the following formula and solve for the 1998 energy price (stated in 1990 dollars):

$$p_{98} = p_{90} \times (1 + e_1)^{k_1} \times (1 + e_2)^{k_2},$$

$$= \$5.88 \times (1 + 0.0288)^5 \times (1 + 0.0346)^3 = \$7.50$$

where e_i = Annual compound escalation rate for period i from the Cb tables (in decimal form); and
k_i = Number of years over which escalation rate e_i occurs.

For further explanation of how to use these tables, see NBS Handbook 135, appendices C and G.

Note: The data in the tables which follow are now reported by 4 Census regions. Prior to the 1988 edition, regional data were presented by 10 DoE regions. Figure B-1 presents a map showing the states corresponding to the 4 Census regions. The Census regions do not include American Samoa, Canal Zone, Guam, Puerto Rico, Trust Territory of the Pacific Islands, or the Virgin Islands. Analysts of Federal projects in these areas should use data which are "reasonable under the circumstances," and may refer to the U.S. average data for guidance.

Table C. Regional and U.S. Average 1990 fuel prices by end-use sector and major fuel [a] (1990 $/million Btu)

Sector and Fuel	CENSUS REGION 1	2	3	4	U.S. Average
Residential					
Electricity	24.85	24.31	23.59	18.87	23.11
Distillate Fuel	6.52	5.76	6.39	5.88	6.36
Liquefied Petroleum Gas	10.72	7.95	10.26	10.12	9.28
Natural Gas	5.64	5.64	5.64	5.64	5.64
Commercial					
Electricity	22.81	22.00	21.72	19.23	21.45
Distillate Fuel	5.38	4.79	4.71	4.60	4.98
Residual Fuel	2.95	2.37	2.45	2.21	2.66
Natural Gas	4.89	4.89	4.89	4.89	4.89
Steam Coal	1.69	1.87	1.36	1.45	1.66
Industrial					
Electricity	12.78	14.91	15.79	12.50	14.50
Distillate Fuel	4.75	4.69	4.52	4.52	4.59
Residual Fuel	2.98	2.33	2.66	2.00	2.60
Natural Gas	3.13	3.13	3.13	3.13	3.13
Steam Coal	1.73	1.48	1.67	1.78	1.61
Transportation					
Motor Gasoline	8.80	8.81	8.62	8.77	8.73

[a] Regional fuel prices are based on an assumed 1990 world oil price of $17.49/barrel.

Table Ca-1. Projected average fuel price indices tied to the value of the dollar in 1990, by end-use sector and major fuel

Census Region 1 (Maine, New Hampshire, Vermont, Massachusetts, Connecticut, Rhode Island, New York, New Jersey, Pennsylvania)

	Projected Average Fuel Price Indices (1990 = 1.00)												
Sector and Fuel	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Residential													
Electricity	1.00	1.03	1.01	1.01	1.02	1.01	1.02	1.02	1.03	1.04	1.04	1.05	1.05
Distillate Fuel	1.00	1.01	1.02	1.07	1.11	1.14	1.18	1.23	1.27	1.31	1.33	1.37	1.40
Liquefied Petroleum Gas	1.00	1.00	1.00	1.00	1.00	1.00	1.01	1.01	1.03	1.04	1.05	1.07	1.09
Natural Gas	1.00	1.22	1.23	1.23	1.25	1.27	1.30	1.32	1.36	1.41	1.44	1.48	1.52
Commercial													
Electricity	1.00	1.03	1.01	1.01	1.02	1.01	1.01	1.02	1.03	1.04	1.04	1.05	1.06
Distillate Fuel	1.00	1.02	1.03	1.08	1.13	1.17	1.21	1.27	1.32	1.37	1.40	1.45	1.48
Residual Fuel	1.00	0.98	1.02	1.11	1.19	1.25	1.34	1.43	1.54	1.63	1.70	1.77	1.83
Natural Gas	1.00	1.20	1.21	1.22	1.23	1.26	1.30	1.32	1.36	1.42	1.46	1.50	1.54
Steam Coal	1.00	0.99	0.99	1.00	1.00	1.00	1.01	1.01	1.02	1.03	1.03	1.04	1.05
Industrial													
Electricity	1.00	1.03	1.00	1.00	1.01	1.00	1.00	1.02	1.03	1.04	1.05	1.07	1.08
Distillate Fuel	1.00	1.02	1.03	1.09	1.14	1.19	1.24	1.31	1.37	1.42	1.45	1.51	1.55
Residual Fuel	1.00	0.99	1.02	1.10	1.18	1.25	1.33	1.43	1.53	1.62	1.69	1.76	1.82
Natural Gas	1.00	1.32	1.33	1.35	1.38	1.42	1.49	1.53	1.60	1.68	1.75	1.81	1.88
Steam Coal	1.00	1.01	1.02	1.02	1.02	1.03	1.04	1.04	1.05	1.07	1.07	1.09	1.10
Transportation													
Motor Gasoline	1.00	0.97	0.98	1.01	1.05	1.07	1.10	1.14	1.18	1.22	1.25	1.27	1.29
	Projected world oil price indices (1990 = 1.00)												
Oil Price Assumption	1.00	0.96	0.98	1.07	1.15	1.21	1.30	1.40	1.50	1.59	1.65	1.73	1.79

Table Ca–1, continued. Projected average fuel price indices tied to the value of the dollar in 1990, by end–use sector and major fuel

Census Region 1 (Maine, New Hampshire, Vermont, Massachusetts, Connecticut, Rhode Island, New York, New Jersey, Pennsylvania)

	Projected Average Fuel Price Indices (1990 = 1.00)												
Sector and Fuel	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Residential													
Electricity	1.06	1.07	1.07	1.07	1.07	1.08	1.08	1.08	1.08	1.09	1.09	1.09	1.09
Distillate Fuel	1.43	1.46	1.49	1.52	1.54	1.57	1.60	1.62	1.64	1.65	1.67	1.68	1.70
Liquefied Petroleum Gas	1.11	1.13	1.15	1.17	1.19	1.21	1.24	1.26	1.28	1.28	1.29	1.30	1.31
Natural Gas	1.56	1.61	1.65	1.67	1.72	1.78	1.83	1.87	1.89	1.91	1.93	1.95	1.97
Commercial													
Electricity	1.07	1.07	1.08	1.08	1.08	1.08	1.08	1.09	1.09	1.09	1.09	1.09	1.09
Distillate Fuel	1.52	1.55	1.59	1.63	1.66	1.69	1.73	1.75	1.77	1.79	1.81	1.83	1.85
Residual Fuel	1.89	1.95	2.00	2.05	2.10	2.15	2.19	2.23	2.27	2.30	2.34	2.38	2.41
Natural Gas	1.60	1.65	1.69	1.72	1.78	1.85	1.90	1.95	1.98	2.00	2.02	2.04	2.06
Steam Coal	1.07	1.08	1.08	1.09	1.10	1.11	1.12	1.13	1.14	1.16	1.18	1.20	1.21
Industrial													
Electricity	1.10	1.11	1.12	1.11	1.12	1.13	1.13	1.14	1.14	1.14	1.14	1.14	1.14
Distillate Fuel	1.59	1.62	1.67	1.71	1.75	1.78	1.82	1.85	1.88	1.89	1.92	1.94	1.96
Residual Fuel	1.88	1.94	1.98	2.04	2.09	2.14	2.18	2.22	2.26	2.29	2.33	2.36	2.40
Natural Gas	1.96	2.04	2.11	2.15	2.24	2.34	2.41	2.48	2.52	2.55	2.58	2.62	2.65
Steam Coal	1.12	1.13	1.15	1.16	1.17	1.19	1.20	1.21	1.23	1.25	1.27	1.29	1.31
Transportation													
Motor Gasoline	1.32	1.34	1.35	1.37	1.39	1.41	1.42	1.43	1.45	1.46	1.47	1.48	1.49
	Projected world oil price indices (1990 = 1.00)												
Oil Price Assumption	1.85	1.90	1.96	2.01	2.07	2.11	2.15	2.20	2.24	2.27	2.30	2.34	2.38

Table Ca-2. Projected average fuel price indices tied to the value of the dollar in 1990, by end-use sector and major fuel

Census Region 2 (Ohio, Indiana, Illinois, Michigan, Wisconsin, Minnesota, Iowa, Missouri, North Dakota, South Dakota, Nebraska, Kansas)

	Projected Average Fuel Price Indices (1990 = 1.00)												
Sector and Fuel	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Residential													
Electricity	1.00	0.99	1.00	0.99	0.99	0.99	0.99	0.98	0.98	0.99	1.00	1.01	1.01
Distillate Fuel	1.00	1.01	1.02	1.08	1.12	1.16	1.20	1.26	1.30	1.35	1.37	1.42	1.45
Liquefied Petroleum Gas	1.00	1.00	1.00	1.00	1.00	1.00	1.01	1.02	1.03	1.05	1.07	1.09	1.12
Natural Gas	1.00	0.97	0.97	0.98	1.00	1.02	1.05	1.07	1.11	1.15	1.19	1.23	1.26
Commercial													
Electricity	1.00	0.99	1.00	0.98	0.98	0.99	0.98	0.97	0.98	0.99	0.99	1.00	1.01
Distillate Fuel	1.00	1.02	1.03	1.09	1.14	1.19	1.24	1.31	1.36	1.42	1.45	1.51	1.54
Residual Fuel	1.00	0.98	1.02	1.13	1.23	1.31	1.42	1.54	1.67	1.78	1.87	1.95	2.04
Natural Gas	1.00	0.99	0.99	1.00	1.02	1.04	1.08	1.10	1.15	1.20	1.24	1.28	1.33
Steam Coal	1.00	0.99	0.99	1.00	1.00	1.00	1.01	1.01	1.02	1.03	1.03	1.04	1.05
Industrial													
Electricity	1.00	0.96	0.98	0.96	0.96	0.97	0.96	0.94	0.95	0.96	0.97	0.99	1.00
Distillate Fuel	1.00	1.02	1.03	1.09	1.15	1.19	1.25	1.32	1.37	1.43	1.46	1.52	1.56
Residual Fuel	1.00	0.98	1.02	1.13	1.24	1.31	1.43	1.54	1.68	1.79	1.88	1.97	2.05
Natural Gas	1.00	1.26	1.28	1.30	1.33	1.37	1.43	1.47	1.54	1.62	1.69	1.76	1.82
Steam Coal	1.00	1.03	1.03	1.04	1.04	1.05	1.06	1.06	1.07	1.09	1.10	1.11	1.12
Transportation													
Motor Gasoline	1.00	0.97	0.98	1.01	1.05	1.07	1.10	1.14	1.18	1.22	1.25	1.27	1.29
	Projected world oil price indices (1990 = 1.00)												
Oil Price Assumption	1.00	0.96	0.98	1.07	1.15	1.21	1.30	1.40	1.50	1.59	1.65	1.73	1.79

Table Ca–2, continued. Projected average fuel price indices tied to the value of the dollar in 1990, by end–use sector and major fuel

Census Region 2 (Ohio, Indiana, Illinois, Michigan, Wisconsin, Minnesota, Iowa, Missouri, North Dakota, South Dakota, Nebraska, Kansas)

Sector and Fuel	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
	Projected Average Fuel Price Indices (1990 = 1.00)												
Residential													
Electricity	1.02	1.03	1.03	1.04	1.04	1.04	1.04	1.05	1.05	1.05	1.05	1.05	1.05
Distillate Fuel	1.49	1.52	1.55	1.59	1.62	1.64	1.68	1.70	1.72	1.74	1.76	1.78	1.79
Liquefied Petroleum Gas	1.15	1.17	1.21	1.23	1.26	1.29	1.33	1.36	1.37	1.38	1.40	1.41	1.42
Natural Gas	1.31	1.36	1.39	1.42	1.47	1.53	1.58	1.62	1.64	1.66	1.68	1.70	1.72
Commercial													
Electricity	1.02	1.03	1.03	1.04	1.04	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05
Distillate Fuel	1.59	1.62	1.67	1.70	1.74	1.78	1.82	1.84	1.87	1.89	1.91	1.93	1.96
Residual Fuel	2.11	2.18	2.24	2.31	2.37	2.43	2.48	2.53	2.59	2.62	2.67	2.72	2.76
Natural Gas	1.38	1.43	1.48	1.50	1.56	1.63	1.69	1.74	1.76	1.78	1.80	1.82	1.85
Steam Coal	1.06	1.07	1.08	1.08	1.09	1.10	1.11	1.11	1.13	1.15	1.16	1.18	1.20
Industrial													
Electricity	1.01	1.03	1.03	1.04	1.04	1.05	1.05	1.06	1.06	1.06	1.06	1.06	1.06
Distillate Fuel	1.60	1.63	1.68	1.72	1.76	1.79	1.83	1.86	1.89	1.91	1.93	1.95	1.98
Residual Fuel	2.13	2.20	2.26	2.33	2.39	2.45	2.50	2.55	2.61	2.65	2.69	2.74	2.79
Natural Gas	1.91	1.99	2.06	2.10	2.19	2.30	2.38	2.45	2.49	2.52	2.55	2.59	2.62
Steam Coal	1.13	1.15	1.16	1.17	1.18	1.20	1.21	1.22	1.24	1.26	1.28	1.30	1.31
Transportation													
Motor Gasoline	1.32	1.34	1.35	1.37	1.39	1.41	1.42	1.43	1.45	1.46	1.47	1.48	1.49
	Projected world oil price indices (1990 = 1.00)												
Oil Price Assumption	1.85	1.90	1.96	2.01	2.07	2.11	2.15	2.20	2.24	2.27	2.30	2.34	2.38

Table Ca-3. Projected average fuel price indices tied to the value of the dollar in 1990, by end-use sector and major fuel

Census Region 3 (Delaware, Maryland, District of Columbia, Virginia, West Virginia, North Carolina, South Carolina, Georgia, Florida, Kentucky, Tennessee, Alabama, Mississippi, Arkansas, Louisiana, Oklahoma, Texas)

	Projected Average Fuel Price Indices (1990 = 1.00)												
Sector and Fuel	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Residential													
Electricity	1.00	1.00	1.01	1.00	1.01	1.01	1.01	1.01	1.01	1.02	1.04	1.04	1.05
Distillate Fuel	1.00	1.01	1.02	1.07	1.11	1.14	1.18	1.23	1.27	1.31	1.34	1.38	1.41
Liquefied Petroleum Gas	1.00	1.00	1.00	1.00	1.00	1.00	1.01	1.01	1.03	1.04	1.05	1.07	1.09
Natural Gas	1.00	1.08	1.09	1.09	1.11	1.13	1.16	1.18	1.22	1.27	1.30	1.34	1.38
Commercial													
Electricity	1.00	0.99	1.00	1.00	1.00	1.01	1.01	1.01	1.01	1.02	1.04	1.04	1.05
Distillate Fuel	1.00	1.02	1.03	1.09	1.15	1.19	1.24	1.31	1.37	1.43	1.46	1.52	1.55
Residual Fuel	1.00	0.98	1.02	1.13	1.22	1.30	1.41	1.52	1.65	1.76	1.84	1.92	2.00
Natural Gas	1.00	1.04	1.05	1.06	1.07	1.10	1.14	1.16	1.20	1.26	1.30	1.34	1.38
Steam Coal	1.00	1.00	1.00	1.00	1.00	1.01	1.02	1.02	1.03	1.04	1.05	1.06	1.07
Industrial													
Electricity	1.00	0.97	0.99	0.98	0.99	0.99	0.99	0.99	1.00	1.01	1.04	1.04	1.05
Distillate Fuel	1.00	1.02	1.03	1.10	1.15	1.20	1.26	1.33	1.38	1.44	1.48	1.54	1.58
Residual Fuel	1.00	0.98	1.02	1.12	1.21	1.27	1.37	1.48	1.59	1.69	1.77	1.85	1.92
Natural Gas	1.00	0.86	0.87	0.89	0.91	0.95	1.01	1.05	1.12	1.20	1.27	1.34	1.40
Steam Coal	1.00	1.02	1.03	1.03	1.04	1.04	1.05	1.06	1.07	1.09	1.10	1.11	1.12
Transportation													
Motor Gasoline	1.00	0.97	0.98	1.01	1.05	1.07	1.11	1.14	1.18	1.22	1.25	1.27	1.30
	Projected world oil price indices (1990 = 1.00)												
Oil Price Assumption	1.00	0.96	0.98	1.07	1.15	1.21	1.30	1.40	1.50	1.59	1.65	1.73	1.79

Table Ca–3, continued. Projected average fuel price indices tied to the value of the dollar in 1990, by end–use sector and major fuel

Census Region 3 (Delaware, Maryland, District of Columbia, Virginia, West Virginia, North Carolina, South Carolina, Georgia, Florida, Kentucky, Tennessee, Alabama, Mississippi, Arkansas, Louisiana, Oklahoma, Texas)

Projected Average Fuel Price Indices
(1990 = 1.00)

Sector and Fuel	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Residential													
Electricity	1.06	1.07	1.07	1.07	1.08	1.09	1.10	1.09	1.09	1.09	1.09	1.09	1.09
Distillate Fuel	1.44	1.46	1.50	1.53	1.56	1.58	1.61	1.63	1.65	1.66	1.68	1.70	1.72
Liquefied Petroleum Gas	1.12	1.13	1.16	1.18	1.20	1.22	1.25	1.28	1.29	1.30	1.31	1.32	1.33
Natural Gas	1.42	1.47	1.51	1.53	1.58	1.64	1.69	1.73	1.75	1.77	1.79	1.81	1.83
Commercial													
Electricity	1.06	1.07	1.07	1.08	1.08	1.09	1.10	1.09	1.09	1.10	1.10	1.10	1.10
Distillate Fuel	1.60	1.63	1.68	1.72	1.75	1.79	1.83	1.86	1.88	1.90	1.93	1.95	1.97
Residual Fuel	2.08	2.14	2.20	2.27	2.33	2.38	2.43	2.48	2.53	2.57	2.62	2.66	2.70
Natural Gas	1.44	1.49	1.53	1.56	1.62	1.69	1.74	1.79	1.82	1.84	1.86	1.88	1.90
Steam Coal	1.08	1.10	1.11	1.12	1.13	1.14	1.15	1.16	1.18	1.20	1.22	1.23	1.25
Industrial													
Electricity	1.06	1.08	1.09	1.09	1.10	1.11	1.12	1.11	1.11	1.11	1.11	1.12	1.12
Distillate Fuel	1.62	1.66	1.71	1.75	1.79	1.82	1.87	1.89	1.92	1.94	1.97	1.99	2.01
Residual Fuel	1.99	2.05	2.10	2.16	2.22	2.27	2.32	2.36	2.41	2.44	2.48	2.52	2.56
Natural Gas	1.48	1.57	1.63	1.68	1.77	1.88	1.96	2.03	2.07	2.10	2.14	2.17	2.20
Steam Coal	1.14	1.15	1.17	1.18	1.19	1.21	1.22	1.24	1.26	1.27	1.29	1.31	1.33
Transportation													
Motor Gasoline	1.32	1.35	1.36	1.38	1.40	1.42	1.43	1.44	1.46	1.47	1.48	1.49	1.50

Projected world oil price indices
(1990 = 1.00)

Oil Price Assumption	1.85	1.90	1.96	2.01	2.07	2.11	2.15	2.20	2.24	2.27	2.30	2.34	2.38

Table Ca–4. Projected average fuel price indices tied to the value of the dollar in 1990, by end–use sector and major fuel

Census Region 4 (Montana, Idaho, Wyoming, Colorado, New Mexico, Arizona, Utah, Nevada, Washington, Oregon, California, Alaska, Hawaii)

	Projected Average Fuel Price Indices (1990 = 1.00)												
Sector and Fuel	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Residential													
Electricity	1.00	1.01	1.00	1.00	1.01	1.02	1.03	1.03	1.04	1.06	1.07	1.08	1.09
Distillate Fuel	1.00	1.01	1.02	1.07	1.12	1.15	1.20	1.25	1.30	1.34	1.37	1.41	1.44
Liquefied Petroleum Gas	1.00	1.00	1.00	1.00	1.00	1.00	1.01	1.01	1.03	1.04	1.05	1.07	1.09
Natural Gas	1.00	1.06	1.07	1.08	1.09	1.11	1.15	1.17	1.20	1.25	1.29	1.32	1.36
Commercial													
Electricity	1.00	1.00	1.00	1.00	1.00	1.02	1.02	1.03	1.04	1.05	1.07	1.08	1.08
Distillate Fuel	1.00	1.02	1.03	1.10	1.15	1.19	1.25	1.32	1.38	1.44	1.47	1.53	1.57
Residual Fuel	1.00	0.98	1.03	1.14	1.25	1.33	1.45	1.58	1.72	1.84	1.93	2.02	2.11
Natural Gas	1.00	1.01	1.02	1.03	1.05	1.07	1.11	1.13	1.17	1.23	1.27	1.31	1.35
Steam Coal	1.00	0.98	0.98	0.99	0.99	1.00	1.00	1.01	1.02	1.03	1.04	1.05	1.06
Industrial													
Electricity	1.00	0.98	0.97	0.97	0.99	1.01	1.01	1.02	1.03	1.06	1.08	1.10	1.11
Distillate Fuel	1.00	1.02	1.03	1.10	1.15	1.20	1.26	1.33	1.38	1.44	1.48	1.54	1.58
Residual Fuel	1.00	0.98	1.03	1.15	1.27	1.36	1.50	1.63	1.79	1.92	2.03	2.12	2.22
Natural Gas	1.00	1.24	1.25	1.28	1.31	1.34	1.41	1.45	1.52	1.60	1.67	1.73	1.80
Steam Coal	1.00	1.01	1.02	1.02	1.03	1.03	1.04	1.05	1.06	1.08	1.09	1.10	1.11
Transportation													
Motor Gasoline	1.00	0.97	0.98	1.01	1.05	1.07	1.10	1.14	1.18	1.22	1.25	1.27	1.29
	Projected world oil price indices (1990 = 1.00)												
Oil Price Assumption	1.00	0.96	0.98	1.07	1.15	1.21	1.30	1.40	1.50	1.59	1.65	1.73	1.79

Table Ca–4, continued. Projected average fuel price indices tied to the value of the dollar in 1990, by end–use sector and major fuel

Census Region 4 (Montana, Idaho, Wyoming, Colorado, New Mexico, Arizona, Utah, Nevada, Washington, Oregon, California, Alaska, Hawaii)

Projected Average Fuel Price Indices
(1990 = 1.00)

Sector and Fuel	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Residential													
Electricity	1.10	1.11	1.12	1.13	1.14	1.15	1.15	1.16	1.16	1.16	1.16	1.16	1.16
Distillate Fuel	1.48	1.51	1.54	1.57	1.60	1.63	1.67	1.69	1.71	1.72	1.74	1.76	1.78
Liquefied Petroleum Gas	1.12	1.14	1.16	1.18	1.20	1.23	1.26	1.28	1.29	1.30	1.31	1.32	1.33
Natural Gas	1.41	1.45	1.49	1.51	1.57	1.63	1.67	1.71	1.74	1.75	1.77	1.79	1.81
Commercial													
Electricity	1.09	1.11	1.11	1.12	1.13	1.14	1.15	1.15	1.15	1.15	1.15	1.15	1.15
Distillate Fuel	1.61	1.65	1.69	1.73	1.77	1.81	1.85	1.88	1.90	1.92	1.95	1.97	1.99
Residual Fuel	2.19	2.26	2.33	2.40	2.47	2.53	2.59	2.64	2.70	2.74	2.79	2.84	2.89
Natural Gas	1.41	1.46	1.50	1.53	1.59	1.66	1.72	1.77	1.79	1.81	1.83	1.85	1.88
Steam Coal	1.06	1.07	1.08	1.08	1.09	1.10	1.11	1.11	1.13	1.15	1.16	1.18	1.20
Industrial													
Electricity	1.12	1.14	1.15	1.17	1.18	1.20	1.21	1.21	1.21	1.21	1.21	1.21	1.21
Distillate Fuel	1.62	1.66	1.71	1.75	1.79	1.82	1.87	1.89	1.92	1.94	1.97	1.99	2.01
Residual Fuel	2.31	2.39	2.46	2.54	2.62	2.69	2.75	2.81	2.87	2.92	2.97	3.02	3.08
Natural Gas	1.88	1.96	2.03	2.07	2.16	2.26	2.34	2.41	2.45	2.48	2.51	2.55	2.58
Steam Coal	1.13	1.14	1.15	1.16	1.17	1.18	1.19	1.20	1.22	1.23	1.25	1.27	1.29
Transportation													
Motor Gasoline	1.32	1.34	1.35	1.37	1.39	1.41	1.42	1.43	1.45	1.46	1.47	1.48	1.50
					Projected world oil price indices (1990 = 1.00)								
Oil Price Assumption	1.85	1.90	1.96	2.01	2.07	2.11	2.15	2.20	2.24	2.27	2.30	2.34	2.38

Table Ca–5. Projected average fuel price indices tied to the value of the dollar in 1990, by end–use sector and major fuel

United States Average

Sector and Fuel	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
	Projected Average Fuel Price Indices (1990 = 1.00)												
Residential													
Electricity	1.00	1.00	1.01	1.00	1.00	1.01	1.01	1.01	1.01	1.02	1.03	1.04	1.05
Distillate Fuel	1.00	1.01	1.02	1.07	1.11	1.14	1.18	1.23	1.28	1.32	1.34	1.39	1.41
Liquefied Petroleum Gas	1.00	1.00	1.00	1.00	0.99	1.00	1.00	1.01	1.02	1.04	1.05	1.07	1.09
Natural Gas	1.00	1.06	1.07	1.08	1.09	1.11	1.15	1.17	1.20	1.25	1.29	1.32	1.36
Commercial													
Electricity	1.00	1.00	1.00	1.00	1.00	1.01	1.00	1.00	1.01	1.02	1.03	1.04	1.05
Distillate Fuel	1.00	1.02	1.03	1.09	1.14	1.18	1.23	1.29	1.34	1.40	1.43	1.48	1.52
Residual Fuel	1.00	0.98	1.02	1.12	1.21	1.27	1.37	1.48	1.59	1.69	1.77	1.85	1.92
Natural Gas	1.00	1.05	1.05	1.06	1.08	1.10	1.14	1.17	1.21	1.26	1.30	1.35	1.39
Steam Coal	1.00	0.99	0.99	1.00	1.00	1.00	1.01	1.02	1.02	1.03	1.04	1.05	1.06
Industrial													
Electricity	1.00	0.98	0.98	0.97	0.98	0.99	0.98	0.98	0.99	1.01	1.03	1.04	1.05
Distillate Fuel	1.00	1.02	1.03	1.10	1.15	1.20	1.25	1.32	1.38	1.44	1.47	1.53	1.57
Residual Fuel	1.00	0.98	1.02	1.12	1.21	1.28	1.38	1.49	1.61	1.71	1.79	1.87	1.95
Natural Gas	1.00	1.03	1.04	1.06	1.08	1.12	1.19	1.23	1.29	1.38	1.45	1.51	1.58
Steam Coal	1.00	1.02	1.03	1.03	1.04	1.04	1.05	1.06	1.07	1.09	1.10	1.11	1.12
Transportation													
Motor Gasoline	1.00	0.97	0.98	1.01	1.05	1.07	1.10	1.14	1.18	1.22	1.25	1.27	1.29
	Projected world oil price indices (1990 = 1.00)												
Oil Price Assumption	1.00	0.96	0.98	1.07	1.15	1.21	1.30	1.40	1.50	1.59	1.65	1.73	1.79

Table Ca–5, continued. Projected average fuel price indices tied to the value of the dollar in 1990, by end–use sector and major fuel

United States Average

Sector and Fuel	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
	Projected Average Fuel Price Indices (1990 = 1.00)												
Residential													
Electricity	1.06	1.06	1.07	1.07	1.08	1.08	1.09	1.09	1.09	1.09	1.09	1.09	1.09
Distillate Fuel	1.45	1.47	1.51	1.53	1.56	1.59	1.62	1.64	1.66	1.67	1.69	1.71	1.72
Liquefied Petroleum Gas	1.12	1.14	1.17	1.19	1.22	1.24	1.27	1.30	1.31	1.32	1.34	1.35	1.36
Natural Gas	1.40	1.45	1.49	1.51	1.56	1.62	1.67	1.71	1.73	1.75	1.77	1.79	1.81
Commercial													
Electricity	1.06	1.07	1.07	1.08	1.08	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.10
Distillate Fuel	1.56	1.59	1.63	1.67	1.70	1.74	1.78	1.80	1.83	1.84	1.86	1.88	1.91
Residual Fuel	1.99	2.05	2.10	2.16	2.22	2.27	2.31	2.36	2.41	2.44	2.48	2.52	2.56
Natural Gas	1.44	1.49	1.54	1.57	1.63	1.69	1.75	1.80	1.82	1.84	1.86	1.88	1.91
Steam Coal	1.07	1.08	1.09	1.09	1.10	1.11	1.12	1.13	1.15	1.16	1.18	1.20	1.21
Industrial													
Electricity	1.06	1.08	1.09	1.09	1.10	1.11	1.12	1.12	1.12	1.12	1.12	1.12	1.12
Distillate Fuel	1.61	1.65	1.70	1.73	1.77	1.81	1.85	1.88	1.91	1.93	1.95	1.97	2.00
Residual Fuel	2.02	2.08	2.13	2.19	2.25	2.31	2.35	2.40	2.45	2.48	2.52	2.56	2.61
Natural Gas	1.66	1.75	1.81	1.86	1.95	2.05	2.13	2.21	2.25	2.28	2.31	2.34	2.38
Steam Coal	1.14	1.15	1.16	1.17	1.19	1.20	1.21	1.23	1.24	1.26	1.28	1.30	1.32
Transportation													
Motor Gasoline	1.32	1.34	1.36	1.38	1.39	1.41	1.42	1.44	1.45	1.46	1.47	1.49	1.50
	Projected world oil price indices (1990 = 1.00)												
Oil Price Assumption	1.85	1.90	1.96	2.01	2.07	2.11	2.15	2.20	2.24	2.27	2.30	2.34	2.38

Table Cb–1. Projected average fuel price escalation rates exclusive of general price inflation by end–use sector and major fuel (percentage change compounded annually)

Census Region 1 (Maine, New Hampshire, Vermont, Massachusetts, Connecticut, Rhode Island, New York, New Jersey, Pennsylvania)

Sector and Fuel	1990 to 1995	1995 to 2000	2000 to 2005	2005 to 2010	2010 to 2015
Residential					
Electricity	0.27	0.52	0.66	0.18	0.04
Distillate Fuel	2.61	3.18	2.30	1.67	1.00
Liquefied Petroleum Gas	0.03	0.92	1.93	1.86	0.78
Natural Gas	4.86	2.64	2.65	2.61	1.00
Commercial					
Electricity	0.23	0.57	0.72	0.19	0.05
Distillate Fuel	3.13	3.72	2.63	1.88	1.12
Residual Fuel	4.53	6.36	3.28	2.26	1.59
Natural Gas	4.66	3.05	3.00	2.90	1.10
Steam Coal	0.04	0.63	0.94	0.81	1.47
Industrial					
Electricity	0.00	1.01	1.26	0.33	0.08
Distillate Fuel	3.52	4.10	2.85	2.03	1.20
Residual Fuel	4.48	6.31	3.26	2.24	1.58
Natural Gas	7.28	4.24	3.79	3.32	1.35
Steam Coal	0.56	0.88	1.31	1.14	1.47
Transportation					
Motor Gasoline	1.30	3.17	1.65	1.16	0.84
Oil Price Assumption	3.96	6.39	3.43	2.32	1.58

Table Cb–2. Projected average fuel price escalation rates exclusive of general price inflation by end–use sector and major fuel (percentage change compounded annually)

Census Region 2 (Ohio, Indiana, Illinois, Michigan, Wisconsin, Minnesota, Iowa, Missouri, North Dakota, South Dakota, Nebraska, Kansas)

Sector and Fuel	1990 to 1995	1995 to 2000	2000 to 2005	2005 to 2010	2010 to 2015
Residential					
Electricity	–0.12	0.08	0.71	0.28	0.05
Distillate Fuel	2.94	3.52	2.51	1.81	1.08
Liquefied Petroleum Gas	0.04	1.23	2.53	2.37	0.98
Natural Gas	0.31	3.25	3.19	3.05	1.15
Commercial					
Electricity	–0.20	0.09	0.79	0.31	0.05
Distillate Fuel	3.49	4.07	2.84	2.02	1.19
Residual Fuel	5.52	7.40	3.68	2.49	1.74
Natural Gas	0.78	3.63	3.50	3.30	1.24
Steam Coal	0.07	0.61	0.78	0.70	1.47
Industrial					
Electricity	–0.65	0.13	1.18	0.46	0.08
Distillate Fuel	3.56	4.14	2.88	2.04	1.21
Residual Fuel	5.59	7.47	3.70	2.51	1.74
Natural Gas	6.43	4.38	3.97	3.55	1.37
Steam Coal	0.92	0.91	1.15	1.04	1.47
Transportation					
Motor Gasoline	1.30	3.16	1.65	1.16	0.84
Oil Price Assumption	3.96	6.39	3.43	2.32	1.58

Table Cb–3. Projected average fuel price escalation rates exclusive of general price inflation by end–use sector and major fuel (percentage change compounded annually)

Census Region 3 (Delaware, Maryland, District of Columbia, Virginia, West Virginia, North Carolina, South Carolina, Georgia, Florida, Kentucky, Tennessee, Alabama, Mississippi, Arkansas, Louisiana, Oklahoma, Texas)

Sector and Fuel	1990 to 1995	1995 to 2000	2000 to 2005	2005 to 2010	2010 to 2015
Residential					
Electricity	0.21	0.57	0.62	0.33	0.05
Distillate Fuel	2.66	3.23	2.33	1.69	1.01
Liquefied Petroleum Gas	0.03	0.96	2.01	1.93	0.81
Natural Gas	2.41	2.95	2.93	2.84	1.08
Commercial					
Electricity	0.16	0.62	0.67	0.36	0.05
Distillate Fuel	3.55	4.13	2.87	2.04	1.20
Residual Fuel	5.36	7.24	3.62	2.46	1.71
Natural Gas	1.84	3.46	3.36	3.19	1.20
Steam Coal	0.17	0.80	1.06	1.00	1.47
Industrial					
Electricity	–0.11	0.86	0.92	0.48	0.07
Distillate Fuel	3.69	4.26	2.95	2.09	1.23
Residual Fuel	4.96	6.83	3.46	2.37	1.66
Natural Gas	–1.04	6.00	5.16	4.47	1.64
Steam Coal	0.84	1.00	1.24	1.20	1.47
Transportation					
Motor Gasoline	1.33	3.22	1.68	1.17	0.85
Oil Price Assumption	3.96	6.39	3.43	2.32	1.58

Table Cb–4. Projected average fuel price escalation rates exclusive of general price inflation by end–use sector and major fuel (percentage change compounded annually)

Census Region 4 (Montana, Idaho, Wyoming, Colorado, New Mexico, Arizona, Utah, Nevada, Washington, Oregon, California, Alaska, Hawaii)

Sector and Fuel	1990 to 1995	1995 to 2000	2000 to 2005	2005 to 2010	2010 to 2015
Residential					
Electricity	0.43	0.94	0.89	0.64	0.05
Distillate Fuel	2.88	3.46	2.47	1.78	1.06
Liquefied Petroleum Gas	0.03	0.97	2.03	1.95	0.82
Natural Gas	2.11	2.99	2.96	2.87	1.09
Commercial					
Electricity	0.35	0.93	0.88	0.63	0.05
Distillate Fuel	3.63	4.20	2.91	2.06	1.22
Residual Fuel	5.88	7.75	3.80	2.56	1.78
Natural Gas	1.32	3.56	3.43	3.25	1.22
Steam Coal	–0.08	0.84	0.77	0.65	1.47
Industrial					
Electricity	0.12	1.43	1.32	0.93	0.08
Distillate Fuel	3.69	4.26	2.95	2.09	1.23
Residual Fuel	6.41	8.24	3.98	2.67	1.84
Natural Gas	6.06	4.44	3.98	3.51	1.39
Steam Coal	0.65	1.07	1.03	0.89	1.47
Transportation					
Motor Gasoline	1.30	3.18	1.66	1.16	0.84
Oil Price Assumption	3.96	6.39	3.43	2.32	1.58

Table Cb–5. Projected average fuel price escalation rates exclusive of general price inflation by end–use sector and major fuel (percentage change compounded annually)

United States Average

Sector and Fuel	1990 to 1995	1995 to 2000	2000 to 2005	2005 to 2010	2010 to 2015
Residential					
Electricity	0.17	0.50	0.69	0.33	0.04
Distillate Fuel	2.71	3.26	2.34	1.70	1.02
Liquefied Petroleum Gas	–0.09	1.03	2.23	2.14	0.86
Natural Gas	2.11	2.99	2.96	2.86	1.08
Commercial					
Electricity	0.12	0.54	0.75	0.37	0.05
Distillate Fuel	3.34	3.91	2.74	1.96	1.15
Residual Fuel	4.96	6.83	3.46	2.37	1.66
Natural Gas	1.92	3.46	3.35	3.18	1.19
Steam Coal	0.08	0.67	0.89	0.80	1.47
Industrial					
Electricity	–0.24	0.78	1.11	0.54	0.07
Distillate Fuel	3.63	4.21	2.92	2.07	1.22
Residual Fuel	5.08	6.96	3.51	2.39	1.67
Natural Gas	2.30	5.26	4.59	4.03	1.52
Steam Coal	0.84	0.99	1.22	1.05	1.48
Transportation					
Motor Gasoline	1.31	3.19	1.66	1.16	0.84
Oil Price Assumption	3.96	6.39	3.43	2.32	1.58

PROJECTED AVERAGE FUEL PRICE INDICES FOR PRIVATE SECTOR USE (INDICES ARE GIVEN INCLUSIVE OF FOUR ALTERNATIVE RATES OF GENERAL PRICE INFLATION)

This section presents in tables S-1 through S-5 projected average fuel price indices for 4 fuels in the residential sector and 5 fuels in the commercial sector for each of the years from 1990 through 2015. They update tables originally published in the report, Comprehensive Guide for Least-Cost Energy Decisions (NBS SP 709).

As a convenience for the user, the indices include the effect of 4 alternative, hypothetical rates of general price inflation: 0, 2.5, 5, and 7.5 percent. Selection of these rates is intended in no way to suggest what actual rates might be. Use of the indices produce price estimates which are in current dollars, inclusive of general price inflation. Current dollar prices are needed when discounting is performed with discount rates which include general price inflation. For the case of 0 percent inflation, the price indices in the S series of tables are identical to those in the counterpart Ca table series. When there is no inflation, there is no difference between constant and current dollars.

The indices based on inflation rates of 2.5, 5, and 7.5 percent allow the analyst to perform evaluations based on the assumption of a positive rate of general price inflation that changes the purchasing power of the dollar. Performing evaluations in current dollars is sometimes preferred for private investment decisions for three reasons: (1) it facilitates the treatment of taxes, (2) it allows the use of a market rate of interest for the discount rate which tends to be more readily understood by others, and (3) it explicitly treats inflation which also tends to be more readily understood by a lay audience than the constant dollar approach. But it should be noted that the current and constant dollar approaches give the same results if performed correctly. Analysis of private sector investments may be performed in either constant or current dollars. (Life-cycle cost analysis of Federal energy conservation investments should be conducted in constant dollars, using a real discount rate, as provided in tables Ca-1 through Ca-5.)

The indices in tables S-1 through S-5 are derived from the indices reported in tables Ca-1 through Ca-5 by means of the following equation:

$$I_S = I_C \times (1 + g)^N,$$

where I_S = Index found in tables S-1 through S-5;
I_C = Index found in tables Ca-1 through Ca-5;
g = Annual rate of general price inflation in decimal form; and
N = Number of discount or compound interest periods, in this case the year of the index minus 1990.

Example of How to Use the Indices:

Suppose you wish to estimate the present value of energy savings in year 2000, and you expect an annual inflation rate of 5 percent per year. Taking natural

gas for residential use in Maryland, estimate present value savings as follows: (1) multiply the 1990 price for residential natural gas in Maryland by the projected quantity of energy savings in the year 2000, to estimate savings in the year 2000 in 1990 prices, (2) go to table S-3, find the year 2000 index for residential natural gas at a 5 percent inflation rate (2.12), and multiply by the result from (1) to determine savings in the year 2000 in 2000 prices, and (3) discount the savings back to the present, using an SPW factor based on a discount rate that reflects a 5 percent inflation rate.

For further explanation of the use of these indices, see NBS Special Publication 709, appendix B, Part I.

Note: **The data in the tables which follow are now reported by 4 Census regions. Prior to the 1988 edition, regional data were presented by 10 DoE regions. Figure B-1 presents a map showing the states corresponding to the 4 Census regions.** The Census regions do not include American Samoa, Canal Zone, Guam, Puerto Rico, Trust Territory of the Pacific Islands, or the Virgin Islands. Analysts of Federal projects in these areas should use data which are "reasonable under the circumstances," and may refer to the U.S. average data for guidance.

Table S–1. Projected average fuel price indices with assumed general price inflation rates of 0, 2.5, 5, and 7.5 percent by end–use sector and major fuel.

Census Region 1 (Maine, New Hampshire, Vermont, Massachusetts, Connecticut, Rhode Island, New York, New Jersey, Pennsylvania)

RESIDENTIAL

	ELECTRICITY				DISTILLATE FUEL				LIQUEFIED PETROLEUM GAS				NATURAL GAS			
YEAR	0%	2.5%	5%	7.5%	0%	2.5%	5%	7.5%	0%	2.5%	5%	7.5%	0%	2.5%	5%	7.5%
1990	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1991	1.03	1.05	1.08	1.10	1.01	1.04	1.06	1.09	1.00	1.02	1.05	1.07	1.22	1.25	1.28	1.31
1992	1.01	1.06	1.12	1.17	1.02	1.07	1.13	1.18	1.00	1.05	1.10	1.16	1.23	1.29	1.35	1.42
1993	1.01	1.09	1.17	1.26	1.07	1.15	1.24	1.33	1.00	1.08	1.16	1.24	1.23	1.33	1.43	1.53
1994	1.02	1.13	1.24	1.36	1.11	1.22	1.34	1.48	1.00	1.10	1.21	1.33	1.25	1.38	1.52	1.67
1995	1.01	1.15	1.29	1.46	1.14	1.29	1.45	1.63	1.00	1.13	1.28	1.44	1.27	1.43	1.62	1.82
1996	1.02	1.18	1.36	1.57	1.18	1.36	1.58	1.82	1.01	1.17	1.35	1.55	1.30	1.51	1.75	2.01
1997	1.02	1.21	1.44	1.69	1.23	1.46	1.73	2.03	1.01	1.20	1.43	1.68	1.32	1.57	1.86	2.20
1998	1.03	1.26	1.52	1.84	1.27	1.54	1.87	2.26	1.03	1.25	1.52	1.83	1.36	1.66	2.01	2.43
1999	1.04	1.29	1.61	1.99	1.31	1.63	2.03	2.51	1.04	1.30	1.61	1.99	1.41	1.76	2.18	2.70
2000	1.04	1.33	1.69	2.14	1.33	1.70	2.17	2.74	1.05	1.34	1.71	2.16	1.44	1.85	2.35	2.98
2001	1.05	1.38	1.79	2.32	1.37	1.80	2.35	3.04	1.07	1.40	1.83	2.37	1.48	1.94	2.53	3.28
2002	1.05	1.42	1.89	2.51	1.40	1.88	2.51	3.33	1.09	1.46	1.95	2.59	1.52	2.04	2.72	3.61
2003	1.06	1.47	2.00	2.72	1.43	1.97	2.70	3.67	1.11	1.53	2.09	2.84	1.56	2.16	2.95	4.00
2004	1.07	1.51	2.12	2.94	1.46	2.06	2.88	4.01	1.13	1.59	2.23	3.10	1.61	2.27	3.19	4.43
2005	1.07	1.56	2.23	3.18	1.49	2.16	3.10	4.41	1.15	1.67	2.40	3.41	1.65	2.38	3.42	4.87
2006	1.07	1.59	2.34	3.41	1.52	2.25	3.31	4.82	1.17	1.74	2.56	3.73	1.67	2.48	3.65	5.32
2007	1.07	1.63	2.46	3.67	1.54	2.35	3.54	5.28	1.19	1.82	2.73	4.08	1.72	2.62	3.95	5.89
2008	1.08	1.69	2.60	3.97	1.57	2.45	3.78	5.77	1.21	1.89	2.92	4.46	1.78	2.78	4.29	6.55
2009	1.08	1.73	2.73	4.27	1.60	2.56	4.04	6.32	1.24	1.98	3.14	4.90	1.83	2.92	4.62	7.23
2010	1.08	1.78	2.88	4.61	1.62	2.65	4.29	6.88	1.26	2.07	3.36	5.37	1.87	3.07	4.97	7.95
2011	1.08	1.82	3.02	4.95	1.64	2.75	4.56	7.48	1.28	2.14	3.56	5.83	1.89	3.18	5.28	8.65
2012	1.09	1.87	3.18	5.33	1.65	2.84	4.83	8.11	1.28	2.21	3.76	6.31	1.91	3.29	5.59	9.38
2013	1.09	1.92	3.34	5.73	1.67	2.94	5.12	8.80	1.29	2.28	3.98	6.83	1.93	3.40	5.93	10.18
2014	1.09	1.96	3.50	6.16	1.68	3.05	5.43	9.56	1.30	2.36	4.21	7.40	1.95	3.52	6.28	11.05
2015	1.09	2.01	3.68	6.63	1.70	3.15	5.76	10.37	1.31	2.44	4.45	8.02	1.97	3.65	6.66	12.00

Table S–1, continued. Projected average fuel price indices with assumed general price inflation rates of 0, 2.5, 5, and 7.5 percent by end-use sector and major fuel.

Census Region 1 (Maine, New Hampshire, Vermont, Massachusetts, Connecticut, Rhode Island, New York, New Jersey, Pennsylvania)

COMMERCIAL

	ELECTRICITY				DISTILLATE FUEL				RESIDUAL FUEL				NATURAL GAS				STEAM COAL			
YEAR	0%	2.5%	5%	7.5%	0%	2.5%	5%	7.5%	0%	2.5%	5%	7.5%	0%	2.5%	5%	7.5%	0%	2.5%	5%	7.5%
1990	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1991	1.03	1.05	1.08	1.10	1.02	1.04	1.07	1.09	0.98	1.01	1.03	1.06	1.20	1.23	1.26	1.29	0.99	1.02	1.04	1.07
1992	1.01	1.06	1.11	1.17	1.03	1.08	1.13	1.18	1.02	1.07	1.12	1.18	1.21	1.27	1.33	1.40	0.99	1.04	1.10	1.15
1993	1.01	1.09	1.17	1.26	1.08	1.16	1.25	1.34	1.11	1.19	1.28	1.37	1.22	1.31	1.41	1.51	1.00	1.07	1.15	1.24
1994	1.02	1.13	1.24	1.36	1.13	1.24	1.37	1.51	1.19	1.31	1.44	1.58	1.23	1.36	1.50	1.65	1.00	1.10	1.21	1.33
1995	1.01	1.14	1.29	1.45	1.17	1.32	1.49	1.68	1.25	1.41	1.59	1.79	1.26	1.42	1.60	1.80	1.00	1.13	1.28	1.44
1996	1.01	1.18	1.36	1.56	1.21	1.41	1.63	1.87	1.34	1.55	1.79	2.06	1.30	1.50	1.74	2.00	1.01	1.17	1.35	1.56
1997	1.02	1.21	1.44	1.69	1.27	1.51	1.79	2.11	1.43	1.70	2.01	2.38	1.32	1.57	1.86	2.19	1.01	1.20	1.42	1.68
1998	1.03	1.26	1.52	1.84	1.32	1.61	1.95	2.36	1.54	1.87	2.27	2.74	1.36	1.66	2.01	2.43	1.02	1.24	1.51	1.82
1999	1.04	1.29	1.61	1.99	1.37	1.72	2.13	2.63	1.63	2.03	2.52	3.12	1.42	1.77	2.20	2.71	1.03	1.29	1.60	1.97
2000	1.04	1.33	1.69	2.14	1.40	1.79	2.28	2.89	1.70	2.17	2.77	3.50	1.46	1.87	2.38	3.01	1.03	1.32	1.68	2.13
2001	1.05	1.38	1.80	2.33	1.45	1.90	2.48	3.22	1.77	2.32	3.02	3.91	1.50	1.97	2.57	3.33	1.04	1.37	1.79	2.32
2002	1.06	1.42	1.90	2.52	1.48	2.00	2.67	3.54	1.83	2.46	3.29	4.36	1.54	2.07	2.77	3.67	1.05	1.42	1.89	2.51
2003	1.07	1.47	2.01	2.73	1.52	2.10	2.87	3.90	1.89	2.61	3.57	4.85	1.60	2.20	3.01	4.09	1.07	1.47	2.01	2.73
2004	1.07	1.52	2.12	2.95	1.55	2.19	3.07	4.27	1.95	2.75	3.86	5.36	1.65	2.33	3.27	4.54	1.08	1.52	2.13	2.96
2005	1.08	1.56	2.24	3.19	1.59	2.31	3.31	4.72	2.00	2.89	4.15	5.91	1.69	2.45	3.52	5.01	1.08	1.57	2.25	3.21
2006	1.08	1.60	2.35	3.42	1.63	2.41	3.55	5.17	2.05	3.04	4.48	6.52	1.72	2.56	3.76	5.48	1.09	1.62	2.38	3.47
2007	1.08	1.64	2.47	3.68	1.66	2.53	3.81	5.68	2.10	3.20	4.82	7.19	1.78	2.71	4.08	6.09	1.10	1.67	2.52	3.76
2008	1.08	1.69	2.61	3.99	1.69	2.64	4.07	6.21	2.15	3.35	5.17	7.90	1.85	2.88	4.45	6.80	1.11	1.73	2.67	4.08
2009	1.08	1.73	2.74	4.29	1.73	2.76	4.36	6.82	2.19	3.50	5.53	8.65	1.90	3.04	4.81	7.52	1.12	1.79	2.83	4.43
2010	1.09	1.78	2.89	4.62	1.75	2.87	4.64	7.43	2.23	3.66	5.92	9.48	1.95	3.20	5.18	8.29	1.13	1.85	2.99	4.79
2011	1.09	1.83	3.03	4.97	1.77	2.98	4.94	8.10	2.27	3.82	6.34	10.38	1.98	3.32	5.51	9.03	1.14	1.92	3.19	5.23
2012	1.09	1.88	3.19	5.35	1.79	3.08	5.24	8.79	2.30	3.97	6.74	11.31	2.00	3.44	5.84	9.80	1.16	2.00	3.40	5.70
2013	1.09	1.92	3.35	5.75	1.81	3.19	5.56	9.55	2.34	4.13	7.19	12.35	2.02	3.56	6.20	10.65	1.18	2.08	3.62	6.22
2014	1.09	1.97	3.52	6.19	1.83	3.31	5.90	10.38	2.38	4.30	7.67	13.49	2.04	3.69	6.58	11.57	1.20	2.16	3.86	6.79
2015	1.09	2.02	3.70	6.66	1.85	3.43	6.27	11.28	2.41	4.48	8.18	14.72	2.06	3.82	6.98	12.58	1.21	2.25	4.11	7.40

Table S–2. Projected average fuel price indices with assumed general price inflation rates of 0, 2.5, 5, and 7.5 percent by end–use sector and major fuel.

Census Region 2 (Ohio, Indiana, Illinois, Michigan, Wisconsin, Minnesota, Iowa, Missouri, North Dakota, South Dakota, Nebraska, Kansas)

RESIDENTIAL

	ELECTRICITY				DISTILLATE FUEL				LIQUEFIED PETROLEUM GAS				NATURAL GAS			
YEAR	0%	2.5%	5%	7.5%	0%	2.5%	5%	7.5%	0%	2.5%	5%	7.5%	0%	2.5%	5%	7.5%
1990	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1991	0.99	1.02	1.04	1.07	1.01	1.04	1.06	1.09	1.00	1.02	1.05	1.07	0.97	0.99	1.02	1.04
1992	1.00	1.05	1.11	1.16	1.02	1.08	1.13	1.18	1.00	1.05	1.10	1.16	0.97	1.02	1.07	1.13
1993	0.99	1.06	1.14	1.23	1.08	1.16	1.25	1.34	1.00	1.08	1.16	1.24	0.98	1.06	1.14	1.22
1994	0.99	1.09	1.20	1.32	1.12	1.24	1.36	1.49	1.00	1.10	1.21	1.33	1.00	1.10	1.21	1.33
1995	0.99	1.12	1.27	1.43	1.16	1.31	1.48	1.66	1.00	1.13	1.28	1.44	1.02	1.15	1.30	1.46
1996	0.99	1.14	1.32	1.52	1.20	1.39	1.61	1.85	1.01	1.17	1.35	1.56	1.05	1.22	1.41	1.62
1997	0.98	1.16	1.37	1.62	1.26	1.49	1.77	2.08	1.02	1.21	1.43	1.69	1.07	1.27	1.51	1.78
1998	0.98	1.20	1.45	1.75	1.30	1.59	1.92	2.32	1.03	1.26	1.53	1.84	1.11	1.35	1.64	1.98
1999	0.99	1.24	1.54	1.90	1.35	1.68	2.09	2.59	1.05	1.32	1.64	2.02	1.15	1.44	1.79	2.21
2000	1.00	1.28	1.63	2.06	1.37	1.76	2.24	2.83	1.07	1.36	1.73	2.20	1.19	1.53	1.94	2.46
2001	1.01	1.32	1.72	2.23	1.42	1.86	2.43	3.15	1.09	1.43	1.87	2.42	1.23	1.61	2.10	2.72
2002	1.01	1.36	1.82	2.41	1.45	1.95	2.61	3.46	1.12	1.50	2.01	2.66	1.26	1.70	2.27	3.01
2003	1.02	1.41	1.93	2.62	1.49	2.05	2.81	3.81	1.15	1.58	2.17	2.94	1.31	1.81	2.47	3.36
2004	1.03	1.46	2.04	2.84	1.52	2.14	3.00	4.17	1.17	1.66	2.32	3.23	1.36	1.92	2.69	3.74
2005	1.03	1.50	2.15	3.06	1.55	2.25	3.23	4.60	1.21	1.75	2.51	3.57	1.39	2.02	2.90	4.12
2006	1.04	1.54	2.26	3.30	1.59	2.35	3.46	5.04	1.23	1.83	2.69	3.92	1.42	2.11	3.10	4.52
2007	1.04	1.58	2.39	3.56	1.62	2.46	3.71	5.53	1.26	1.92	2.89	4.31	1.47	2.24	3.37	5.03
2008	1.04	1.63	2.51	3.84	1.64	2.56	3.96	6.04	1.29	2.01	3.10	4.74	1.53	2.39	3.68	5.63
2009	1.04	1.67	2.64	4.13	1.68	2.68	4.24	6.63	1.33	2.12	3.35	5.24	1.58	2.52	3.99	6.23
2010	1.05	1.72	2.78	4.45	1.70	2.79	4.51	7.22	1.36	2.22	3.60	5.76	1.62	2.65	4.30	6.88
2011	1.05	1.76	2.92	4.79	1.72	2.89	4.80	7.87	1.37	2.30	3.82	6.27	1.64	2.76	4.58	7.50
2012	1.05	1.81	3.07	5.15	1.74	2.99	5.08	8.53	1.38	2.38	4.05	6.79	1.66	2.85	4.85	8.14
2013	1.05	1.85	3.23	5.54	1.76	3.10	5.40	9.27	1.40	2.47	4.29	7.37	1.68	2.96	5.15	8.85
2014	1.05	1.90	3.39	5.96	1.78	3.21	5.73	10.07	1.41	2.55	4.55	8.00	1.70	3.07	5.47	9.62
2015	1.05	1.95	3.56	6.41	1.79	3.33	6.08	10.94	1.42	2.64	4.82	8.69	1.72	3.18	5.81	10.46

Table S-2, continued. Projected average fuel price indices with assumed general price inflation rates of 0, 2.5, 5, and 7.5 percent by end-use sector and major fuel.

Census Region 2 (Ohio, Indiana, Illinois, Michigan, Wisconsin, Minnesota, Iowa, Missouri, North Dakota, South Dakota, Nebraska, Kansas)

COMMERCIAL

	ELECTRICITY				DISTILLATE FUEL				RESIDUAL FUEL				NATURAL GAS				STEAM COAL			
YEAR	0%	2.5%	5%	7.5%	0%	2.5%	5%	7.5%	0%	2.5%	5%	7.5%	0%	2.5%	5%	7.5%	0%	2.5%	5%	7.5%
1990	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1991	0.99	1.01	1.04	1.06	1.02	1.04	1.07	1.09	0.98	1.01	1.03	1.05	0.99	1.01	1.04	1.06	0.99	1.02	1.04	1.07
1992	1.00	1.05	1.10	1.16	1.03	1.08	1.13	1.19	1.02	1.08	1.13	1.18	0.99	1.04	1.09	1.15	0.99	1.04	1.10	1.15
1993	0.98	1.06	1.14	1.22	1.09	1.18	1.26	1.36	1.13	1.22	1.31	1.40	1.00	1.08	1.16	1.24	1.00	1.07	1.15	1.24
1994	0.98	1.09	1.20	1.31	1.14	1.26	1.39	1.53	1.23	1.36	1.50	1.65	1.02	1.12	1.24	1.36	1.00	1.10	1.22	1.34
1995	0.99	1.12	1.26	1.42	1.19	1.34	1.52	1.70	1.31	1.48	1.67	1.88	1.04	1.18	1.33	1.49	1.00	1.14	1.28	1.44
1996	0.98	1.14	1.32	1.52	1.24	1.44	1.66	1.91	1.42	1.65	1.90	2.19	1.08	1.25	1.45	1.67	1.01	1.17	1.35	1.56
1997	0.97	1.15	1.36	1.61	1.31	1.56	1.84	2.17	1.54	1.83	2.16	2.55	1.10	1.31	1.55	1.83	1.01	1.21	1.43	1.68
1998	0.98	1.19	1.44	1.74	1.36	1.66	2.01	2.43	1.67	2.03	2.46	2.97	1.15	1.40	1.69	2.04	1.02	1.25	1.51	1.82
1999	0.99	1.23	1.53	1.89	1.42	1.77	2.20	2.72	1.78	2.22	2.76	3.41	1.20	1.50	1.86	2.30	1.03	1.29	1.60	1.97
2000	0.99	1.27	1.62	2.05	1.45	1.86	2.36	2.99	1.87	2.39	3.05	3.85	1.24	1.59	2.02	2.56	1.03	1.32	1.69	2.13
2001	1.00	1.32	1.72	2.22	1.51	1.98	2.58	3.34	1.95	2.56	3.34	4.33	1.28	1.69	2.20	2.85	1.04	1.37	1.78	2.31
2002	1.01	1.36	1.82	2.41	1.54	2.08	2.77	3.68	2.04	2.74	3.66	4.85	1.33	1.78	2.38	3.16	1.05	1.41	1.89	2.50
2003	1.02	1.41	1.93	2.61	1.59	2.19	2.99	4.07	2.11	2.91	3.99	5.41	1.38	1.90	2.60	3.53	1.06	1.46	2.00	2.71
2004	1.03	1.46	2.04	2.84	1.62	2.29	3.21	4.46	2.18	3.08	4.32	6.00	1.43	2.03	2.84	3.95	1.07	1.51	2.12	2.94
2005	1.03	1.50	2.15	3.06	1.67	2.42	3.47	4.93	2.24	3.24	4.66	6.63	1.48	2.14	3.07	4.36	1.08	1.56	2.24	3.18
2006	1.04	1.54	2.26	3.30	1.70	2.53	3.72	5.42	2.31	3.43	5.04	7.34	1.50	2.23	3.28	4.79	1.08	1.61	2.36	3.44
2007	1.04	1.59	2.39	3.56	1.74	2.65	3.99	5.96	2.37	3.61	5.44	8.11	1.56	2.38	3.58	5.35	1.09	1.66	2.50	3.73
2008	1.05	1.63	2.52	3.84	1.78	2.77	4.27	6.53	2.43	3.79	5.85	8.94	1.63	2.55	3.93	6.00	1.10	1.72	2.65	4.04
2009	1.05	1.67	2.64	4.13	1.82	2.90	4.59	7.18	2.48	3.96	6.27	9.80	1.69	2.70	4.26	6.67	1.11	1.77	2.80	4.37
2010	1.05	1.72	2.79	4.46	1.84	3.02	4.89	7.83	2.53	4.15	6.72	10.76	1.74	2.84	4.60	7.37	1.11	1.83	2.96	4.73
2011	1.05	1.77	2.93	4.80	1.87	3.14	5.21	8.54	2.59	4.34	7.20	11.81	1.76	2.96	4.91	8.04	1.13	1.90	3.15	5.16
2012	1.05	1.81	3.08	5.16	1.89	3.25	5.52	9.27	2.62	4.52	7.68	12.88	1.78	3.06	5.21	8.74	1.15	1.97	3.36	5.63
2013	1.05	1.86	3.23	5.55	1.91	3.37	5.87	10.08	2.67	4.71	8.20	14.09	1.80	3.18	5.53	9.51	1.16	2.05	3.57	6.14
2014	1.05	1.90	3.39	5.97	1.93	3.50	6.23	10.97	2.72	4.91	8.76	15.40	1.82	3.30	5.88	10.34	1.18	2.14	3.81	6.70
2015	1.05	1.95	3.57	6.42	1.96	3.63	6.62	11.93	2.76	5.12	9.35	16.84	1.85	3.42	6.25	11.25	1.20	2.22	4.06	7.31

Table S–3. Projected average fuel price indices with assumed general price inflation rates of 0, 2.5, 5, and 7.5 percent by end–use sector and major fuel.

Census Region 3 (Delaware, Maryland, District of Columbia, Virginia, West Virginia, North Carolina, South Carolina, Georgia, Florida, Kentucky, Tennessee, Alabama, Mississippi, Arkansas, Louisiana, Oklahoma, Texas)

RESIDENTIAL

	ELECTRICITY				DISTILLATE FUEL				LIQUEFIED PETROLEUM GAS				NATURAL GAS			
YEAR	0%	2.5%	5%	7.5%	0%	2.5%	5%	7.5%	0%	2.5%	5%	7.5%	0%	2.5%	5%	7.5%
1990	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1991	1.00	1.02	1.05	1.07	1.01	1.04	1.06	1.09	1.00	1.02	1.05	1.07	1.08	1.11	1.13	1.16
1992	1.01	1.06	1.11	1.16	1.02	1.07	1.13	1.18	1.00	1.05	1.10	1.16	1.09	1.14	1.20	1.25
1993	1.00	1.08	1.16	1.24	1.07	1.15	1.24	1.33	1.00	1.08	1.16	1.24	1.09	1.18	1.27	1.36
1994	1.01	1.11	1.22	1.34	1.11	1.22	1.35	1.48	1.00	1.10	1.21	1.33	1.11	1.22	1.35	1.48
1995	1.01	1.14	1.29	1.45	1.14	1.29	1.46	1.64	1.00	1.13	1.28	1.44	1.13	1.27	1.44	1.62
1996	1.01	1.17	1.35	1.56	1.18	1.37	1.58	1.82	1.01	1.17	1.35	1.55	1.16	1.35	1.56	1.79
1997	1.01	1.20	1.42	1.67	1.23	1.46	1.73	2.04	1.01	1.21	1.43	1.68	1.18	1.41	1.67	1.96
1998	1.01	1.24	1.50	1.81	1.27	1.55	1.88	2.27	1.03	1.25	1.52	1.83	1.22	1.49	1.80	2.17
1999	1.02	1.28	1.59	1.96	1.31	1.64	2.04	2.52	1.04	1.30	1.62	2.00	1.27	1.58	1.96	2.43
2000	1.04	1.33	1.69	2.14	1.34	1.71	2.18	2.76	1.05	1.34	1.71	2.17	1.30	1.67	2.12	2.69
2001	1.04	1.37	1.78	2.31	1.38	1.81	2.36	3.06	1.07	1.41	1.83	2.38	1.34	1.76	2.29	2.97
2002	1.05	1.41	1.89	2.50	1.41	1.89	2.53	3.35	1.09	1.47	1.96	2.60	1.38	1.85	2.47	3.28
2003	1.06	1.46	1.99	2.71	1.44	1.99	2.72	3.69	1.12	1.54	2.10	2.86	1.42	1.96	2.68	3.64
2004	1.07	1.51	2.11	2.93	1.46	2.07	2.90	4.03	1.13	1.60	2.24	3.12	1.47	2.08	2.91	4.04
2005	1.07	1.55	2.23	3.17	1.50	2.17	3.12	4.44	1.16	1.68	2.41	3.43	1.51	2.18	3.13	4.45
2006	1.07	1.60	2.35	3.42	1.53	2.27	3.33	4.86	1.18	1.75	2.57	3.75	1.53	2.27	3.34	4.87
2007	1.08	1.65	2.48	3.70	1.56	2.37	3.57	5.32	1.20	1.83	2.75	4.11	1.58	2.41	3.63	5.41
2008	1.09	1.70	2.62	4.00	1.58	2.47	3.80	5.81	1.22	1.91	2.94	4.50	1.64	2.56	3.95	6.04
2009	1.10	1.75	2.77	4.33	1.61	2.58	4.07	6.37	1.25	2.00	3.16	4.95	1.69	2.70	4.27	6.68
2010	1.09	1.79	2.89	4.63	1.63	2.67	4.33	6.93	1.28	2.09	3.39	5.42	1.73	2.84	4.59	7.36
2011	1.09	1.83	3.04	4.98	1.65	2.77	4.60	7.54	1.29	2.16	3.59	5.88	1.75	2.95	4.89	8.01
2012	1.09	1.88	3.19	5.35	1.66	2.87	4.87	8.17	1.30	2.23	3.80	6.37	1.77	3.05	5.18	8.69
2013	1.09	1.93	3.35	5.76	1.68	2.97	5.17	8.88	1.31	2.31	4.02	6.90	1.79	3.16	5.50	9.44
2014	1.09	1.97	3.52	6.19	1.70	3.07	5.48	9.64	1.32	2.38	4.25	7.48	1.81	3.27	5.83	10.26
2015	1.09	2.02	3.70	6.66	1.72	3.18	5.81	10.46	1.33	2.46	4.50	8.10	1.83	3.39	6.19	11.14

Table S-3, continued. Projected average fuel price indices with assumed general price inflation rates of 0, 2.5, 5, and 7.5 percent by end-use sector and major fuel.

Census Region 3 (Delaware, Maryland, District of Columbia, Virginia, West Virginia, North Carolina, South Carolina, Georgia, Florida, Kentucky, Tennessee, Alabama, Mississippi, Arkansas, Louisiana, Oklahoma, Texas)

COMMERCIAL

	ELECTRICITY				DISTILLATE FUEL				RESIDUAL FUEL				NATURAL GAS				STEAM COAL			
YEAR	0%	2.5%	5%	7.5%	0%	2.5%	5%	7.5%	0%	2.5%	5%	7.5%	0%	2.5%	5%	7.5%	0%	2.5%	5%	7.5%
1990	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1991	0.99	1.02	1.04	1.07	1.02	1.04	1.07	1.09	0.98	1.01	1.03	1.06	1.04	1.07	1.09	1.12	1.00	1.02	1.05	1.07
1992	1.00	1.05	1.11	1.16	1.03	1.08	1.13	1.19	1.02	1.08	1.13	1.18	1.05	1.10	1.16	1.21	1.00	1.05	1.10	1.15
1993	1.00	1.07	1.15	1.24	1.09	1.18	1.27	1.36	1.13	1.21	1.30	1.40	1.06	1.14	1.22	1.31	1.00	1.08	1.16	1.24
1994	1.00	1.11	1.22	1.34	1.15	1.26	1.39	1.53	1.22	1.35	1.49	1.64	1.07	1.18	1.30	1.43	1.00	1.11	1.22	1.34
1995	1.01	1.14	1.29	1.45	1.19	1.35	1.52	1.71	1.30	1.47	1.66	1.86	1.10	1.24	1.40	1.57	1.01	1.14	1.29	1.45
1996	1.01	1.17	1.35	1.55	1.24	1.44	1.67	1.92	1.41	1.63	1.88	2.17	1.14	1.32	1.52	1.75	1.02	1.18	1.36	1.57
1997	1.01	1.20	1.42	1.67	1.31	1.56	1.85	2.18	1.52	1.81	2.14	2.52	1.16	1.38	1.63	1.93	1.02	1.22	1.44	1.70
1998	1.01	1.23	1.50	1.81	1.37	1.67	2.02	2.44	1.65	2.01	2.43	2.94	1.20	1.46	1.78	2.14	1.03	1.26	1.52	1.84
1999	1.02	1.28	1.59	1.96	1.43	1.78	2.21	2.74	1.76	2.19	2.72	3.37	1.26	1.57	1.95	2.41	1.04	1.30	1.62	2.00
2000	1.04	1.33	1.69	2.14	1.46	1.87	2.37	3.00	1.84	2.36	3.00	3.80	1.30	1.66	2.12	2.68	1.05	1.34	1.71	2.16
2001	1.04	1.37	1.78	2.31	1.52	1.99	2.59	3.36	1.92	2.52	3.29	4.26	1.34	1.76	2.29	2.97	1.06	1.39	1.81	2.35
2002	1.05	1.41	1.89	2.50	1.55	2.09	2.79	3.70	2.00	2.69	3.60	4.77	1.38	1.86	2.48	3.29	1.07	1.44	1.92	2.55
2003	1.06	1.46	2.00	2.71	1.60	2.20	3.01	4.09	2.08	2.86	3.92	5.32	1.44	1.98	2.71	3.68	1.08	1.49	2.04	2.78
2004	1.07	1.51	2.12	2.94	1.63	2.30	3.23	4.49	2.14	3.03	4.24	5.90	1.49	2.11	2.95	4.10	1.10	1.55	2.17	3.02
2005	1.07	1.56	2.23	3.18	1.68	2.43	3.49	4.97	2.20	3.19	4.57	6.51	1.53	2.22	3.19	4.53	1.11	1.60	2.30	3.27
2006	1.08	1.60	2.35	3.43	1.72	2.55	3.75	5.46	2.27	3.36	4.95	7.21	1.56	2.32	3.41	4.97	1.12	1.66	2.43	3.55
2007	1.08	1.65	2.49	3.71	1.75	2.67	4.02	6.00	2.33	3.54	5.34	7.96	1.62	2.47	3.71	5.54	1.13	1.72	2.58	3.86
2008	1.09	1.70	2.63	4.01	1.79	2.79	4.30	6.57	2.38	3.72	5.74	8.77	1.69	2.64	4.07	6.21	1.14	1.78	2.75	4.20
2009	1.10	1.76	2.78	4.35	1.83	2.93	4.63	7.23	2.43	3.89	6.15	9.61	1.74	2.79	4.41	6.89	1.15	1.84	2.91	4.55
2010	1.09	1.79	2.90	4.65	1.86	3.04	4.93	7.89	2.48	4.07	6.59	10.55	1.79	2.94	4.76	7.61	1.16	1.91	3.09	4.94
2011	1.09	1.84	3.05	5.00	1.88	3.16	5.25	8.60	2.53	4.26	7.06	11.58	1.82	3.05	5.07	8.30	1.18	1.98	3.29	5.39
2012	1.10	1.89	3.20	5.38	1.90	3.28	5.57	9.34	2.57	4.43	7.52	12.62	1.84	3.16	5.37	9.02	1.20	2.06	3.50	5.88
2013	1.10	1.93	3.37	5.78	1.93	3.40	5.92	10.16	2.62	4.62	8.03	13.80	1.86	3.28	5.71	9.81	1.22	2.14	3.73	6.41
2014	1.10	1.98	3.54	6.22	1.95	3.52	6.28	11.05	2.66	4.81	8.58	15.09	1.88	3.40	6.06	10.67	1.23	2.23	3.98	6.99
2015	1.10	2.03	3.71	6.69	1.97	3.66	6.68	12.02	2.70	5.01	9.16	16.49	1.90	3.53	6.44	11.60	1.25	2.32	4.24	7.63

Table S–4. Projected average fuel price indices with assumed general price inflation rates of 0, 2.5, 5, and 7.5 percent by end–use sector and major fuel.

Census Region 4 (Montana, Idaho, Wyoming, Colorado, New Mexico, Arizona, Utah, Nevada, Washington, Oregon, California, Alaska, Hawaii)

RESIDENTIAL

	ELECTRICITY				DISTILLATE FUEL				LIQUEFIED PETROLEUM GAS				NATURAL GAS			
YEAR	0%	2.5%	5%	7.5%	0%	2.5%	5%	7.5%	0%	2.5%	5%	7.5%	0%	2.5%	5%	7.5%
1990	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1991	1.01	1.03	1.06	1.08	1.01	1.04	1.06	1.09	1.00	1.02	1.05	1.07	1.06	1.09	1.12	1.14
1992	1.00	1.05	1.10	1.15	1.02	1.08	1.13	1.18	1.00	1.05	1.10	1.16	1.07	1.12	1.18	1.24
1993	1.00	1.08	1.16	1.24	1.07	1.16	1.24	1.33	1.00	1.08	1.16	1.24	1.08	1.16	1.25	1.34
1994	1.01	1.11	1.23	1.35	1.12	1.23	1.36	1.49	1.00	1.10	1.21	1.33	1.09	1.20	1.33	1.46
1995	1.02	1.16	1.30	1.47	1.15	1.30	1.47	1.65	1.00	1.13	1.28	1.44	1.11	1.26	1.42	1.59
1996	1.03	1.19	1.38	1.58	1.20	1.39	1.60	1.85	1.01	1.17	1.35	1.55	1.15	1.33	1.54	1.77
1997	1.03	1.22	1.45	1.71	1.25	1.49	1.76	2.08	1.01	1.21	1.43	1.68	1.17	1.39	1.64	1.94
1998	1.04	1.27	1.54	1.85	1.30	1.58	1.91	2.31	1.03	1.25	1.52	1.83	1.20	1.47	1.78	2.15
1999	1.06	1.32	1.64	2.03	1.34	1.68	2.08	2.57	1.04	1.30	1.62	2.00	1.25	1.56	1.94	2.40
2000	1.07	1.37	1.74	2.21	1.37	1.75	2.23	2.82	1.05	1.35	1.71	2.17	1.29	1.65	2.10	2.65
2001	1.08	1.42	1.85	2.40	1.41	1.85	2.42	3.13	1.07	1.41	1.84	2.38	1.32	1.74	2.26	2.93
2002	1.09	1.46	1.96	2.59	1.44	1.94	2.59	3.44	1.09	1.47	1.96	2.60	1.36	1.83	2.44	3.24
2003	1.10	1.52	2.08	2.82	1.48	2.04	2.79	3.79	1.12	1.54	2.11	2.86	1.41	1.94	2.65	3.60
2004	1.11	1.57	2.20	3.06	1.51	2.13	2.98	4.14	1.14	1.60	2.25	3.12	1.45	2.05	2.88	4.00
2005	1.12	1.62	2.33	3.31	1.54	2.24	3.21	4.57	1.16	1.68	2.42	3.44	1.49	2.16	3.10	4.41
2006	1.13	1.67	2.46	3.59	1.57	2.34	3.43	5.00	1.18	1.75	2.58	3.76	1.51	2.25	3.31	4.82
2007	1.14	1.73	2.61	3.89	1.60	2.44	3.68	5.49	1.20	1.83	2.76	4.12	1.57	2.38	3.59	5.35
2008	1.15	1.79	2.77	4.23	1.63	2.54	3.93	6.00	1.23	1.91	2.95	4.51	1.63	2.54	3.91	5.98
2009	1.15	1.84	2.92	4.56	1.67	2.66	4.21	6.58	1.26	2.01	3.17	4.96	1.67	2.67	4.23	6.61
2010	1.16	1.89	3.07	4.91	1.69	2.76	4.47	7.16	1.28	2.10	3.40	5.44	1.71	2.81	4.55	7.28
2011	1.16	1.94	3.22	5.28	1.71	2.87	4.76	7.80	1.29	2.17	3.60	5.90	1.74	2.92	4.84	7.93
2012	1.16	1.99	3.38	5.68	1.72	2.97	5.04	8.46	1.30	2.24	3.81	6.39	1.75	3.02	5.13	8.61
2013	1.16	2.04	3.55	6.11	1.74	3.07	5.35	9.19	1.31	2.32	4.03	6.92	1.77	3.13	5.44	9.35
2014	1.16	2.09	3.73	6.57	1.76	3.18	5.68	9.98	1.32	2.39	4.27	7.50	1.79	3.24	5.78	10.16
2015	1.16	2.15	3.92	7.06	1.78	3.30	6.02	10.84	1.33	2.47	4.51	8.13	1.81	3.36	6.13	11.04

Table S–4, continued. Projected average fuel price indices with assumed general price inflation rates of 0, 2.5, 5, and 7.5 percent by end–use sector and major fuel.

Census Region 4 (Montana, Idaho, Wyoming, Colorado, New Mexico, Arizona, Utah, Nevada, Washington, Oregon, California, Alaska, Hawaii)

COMMERCIAL

	ELECTRICITY				DISTILLATE FUEL				RESIDUAL FUEL				NATURAL GAS				STEAM COAL			
YEAR	0%	2.5%	5%	7.5%	0%	2.5%	5%	7.5%	0%	2.5%	5%	7.5%	0%	2.5%	5%	7.5%	0%	2.5%	5%	7.5%
1990	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1991	1.00	1.03	1.05	1.08	1.02	1.04	1.07	1.09	0.98	1.00	1.03	1.05	1.01	1.04	1.06	1.09	0.98	1.01	1.03	1.06
1992	1.00	1.05	1.10	1.15	1.03	1.08	1.14	1.19	1.03	1.08	1.13	1.19	1.02	1.07	1.12	1.18	0.98	1.03	1.08	1.14
1993	1.00	1.07	1.15	1.24	1.10	1.18	1.27	1.36	1.14	1.23	1.32	1.42	1.03	1.11	1.19	1.28	0.99	1.06	1.14	1.23
1994	1.00	1.11	1.22	1.34	1.15	1.27	1.40	1.53	1.25	1.38	1.52	1.67	1.05	1.15	1.27	1.40	0.99	1.09	1.20	1.32
1995	1.02	1.15	1.30	1.46	1.19	1.35	1.53	1.72	1.33	1.51	1.70	1.91	1.07	1.21	1.36	1.53	1.00	1.13	1.27	1.43
1996	1.02	1.18	1.37	1.58	1.25	1.45	1.68	1.93	1.45	1.68	1.94	2.24	1.11	1.29	1.49	1.71	1.00	1.16	1.35	1.55
1997	1.03	1.22	1.44	1.70	1.32	1.57	1.86	2.19	1.58	1.87	2.22	2.61	1.13	1.35	1.59	1.88	1.01	1.20	1.42	1.67
1998	1.04	1.26	1.53	1.85	1.38	1.68	2.04	2.46	1.72	2.09	2.53	3.06	1.17	1.43	1.74	2.09	1.02	1.24	1.51	1.82
1999	1.05	1.31	1.63	2.02	1.44	1.79	2.23	2.75	1.84	2.29	2.85	3.52	1.23	1.53	1.91	2.35	1.03	1.29	1.60	1.98
2000	1.07	1.36	1.74	2.20	1.47	1.88	2.39	3.03	1.93	2.47	3.15	3.98	1.27	1.63	2.07	2.62	1.04	1.33	1.69	2.14
2001	1.08	1.41	1.84	2.38	1.53	2.00	2.61	3.38	2.02	2.65	3.46	4.48	1.31	1.72	2.25	2.91	1.05	1.37	1.79	2.32
2002	1.08	1.46	1.95	2.58	1.57	2.11	2.81	3.73	2.11	2.84	3.79	5.03	1.35	1.82	2.43	3.23	1.06	1.42	1.89	2.51
2003	1.09	1.51	2.06	2.80	1.61	2.22	3.04	4.13	2.19	3.02	4.14	5.62	1.41	1.94	2.66	3.61	1.06	1.47	2.01	2.72
2004	1.11	1.56	2.19	3.04	1.65	2.32	3.26	4.53	2.26	3.20	4.48	6.23	1.46	2.07	2.90	4.03	1.07	1.52	2.12	2.95
2005	1.11	1.61	2.31	3.29	1.69	2.45	3.52	5.01	2.33	3.37	4.84	6.89	1.50	2.18	3.13	4.45	1.08	1.56	2.24	3.19
2006	1.12	1.67	2.45	3.57	1.73	2.57	3.78	5.51	2.40	3.57	5.24	7.64	1.53	2.28	3.35	4.88	1.08	1.61	2.37	3.45
2007	1.13	1.72	2.59	3.87	1.77	2.70	4.06	6.06	2.47	3.76	5.66	8.45	1.59	2.42	3.65	5.45	1.09	1.66	2.51	3.74
2008	1.14	1.78	2.75	4.20	1.81	2.82	4.35	6.64	2.53	3.95	6.10	9.31	1.66	2.59	4.00	6.11	1.10	1.72	2.65	4.05
2009	1.15	1.83	2.90	4.53	1.85	2.96	4.67	7.31	2.59	4.13	6.53	10.22	1.72	2.74	4.34	6.78	1.11	1.77	2.80	4.38
2010	1.15	1.88	3.05	4.88	1.88	3.08	4.98	7.97	2.64	4.33	7.01	11.23	1.77	2.89	4.69	7.50	1.11	1.83	2.96	4.73
2011	1.15	1.93	3.20	5.25	1.90	3.20	5.30	8.69	2.70	4.53	7.52	12.33	1.79	3.01	4.99	8.18	1.13	1.90	3.15	5.16
2012	1.15	1.98	3.36	5.64	1.92	3.31	5.63	9.44	2.74	4.72	8.02	13.45	1.81	3.12	5.29	8.88	1.15	1.98	3.36	5.63
2013	1.15	2.03	3.53	6.07	1.95	3.44	5.98	10.27	2.79	4.92	8.57	14.72	1.83	3.23	5.63	9.67	1.16	2.05	3.58	6.14
2014	1.15	2.08	3.71	6.53	1.97	3.56	6.35	11.18	2.84	5.13	9.15	16.10	1.85	3.35	5.98	10.52	1.18	2.14	3.81	6.70
2015	1.15	2.13	3.90	7.02	1.99	3.70	6.75	12.16	2.89	5.35	9.78	17.60	1.88	3.48	6.35	11.44	1.20	2.22	4.06	7.31

Table S-5. Projected average fuel price indices with assumed general price inflation rates of 0, 2.5, 5, and 7.5 percent by end-use sector and major fuel.

United States Average

RESIDENTIAL

	ELECTRICITY				DISTILLATE FUEL				LIQUEFIED PETROLEUM GAS				NATURAL GAS			
YEAR	0%	2.5%	5%	7.5%	0%	2.5%	5%	7.5%	0%	2.5%	5%	7.5%	0%	2.5%	5%	7.5%
1990	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1991	1.00	1.03	1.05	1.08	1.01	1.04	1.06	1.09	1.00	1.02	1.05	1.07	1.06	1.09	1.12	1.14
1992	1.01	1.06	1.11	1.16	1.02	1.07	1.13	1.18	1.00	1.05	1.10	1.15	1.07	1.12	1.18	1.24
1993	1.00	1.08	1.16	1.24	1.07	1.15	1.24	1.33	1.00	1.07	1.15	1.24	1.08	1.16	1.25	1.34
1994	1.00	1.11	1.22	1.34	1.11	1.22	1.35	1.48	0.99	1.09	1.20	1.32	1.09	1.20	1.33	1.46
1995	1.01	1.14	1.29	1.45	1.14	1.29	1.46	1.64	1.00	1.13	1.27	1.43	1.11	1.26	1.42	1.59
1996	1.01	1.17	1.35	1.55	1.18	1.37	1.59	1.83	1.00	1.16	1.34	1.54	1.15	1.33	1.53	1.77
1997	1.01	1.20	1.42	1.67	1.23	1.47	1.74	2.05	1.01	1.20	1.42	1.67	1.17	1.39	1.64	1.94
1998	1.01	1.23	1.50	1.81	1.28	1.55	1.89	2.28	1.02	1.25	1.51	1.82	1.20	1.46	1.78	2.14
1999	1.02	1.28	1.59	1.96	1.32	1.65	2.05	2.53	1.04	1.30	1.61	1.99	1.25	1.56	1.94	2.39
2000	1.03	1.32	1.68	2.13	1.34	1.72	2.19	2.77	1.05	1.34	1.71	2.16	1.29	1.65	2.09	2.65
2001	1.04	1.36	1.78	2.30	1.39	1.82	2.37	3.07	1.07	1.41	1.83	2.38	1.32	1.73	2.26	2.93
2002	1.05	1.41	1.88	2.49	1.41	1.90	2.54	3.37	1.09	1.47	1.96	2.60	1.36	1.83	2.44	3.23
2003	1.06	1.46	1.99	2.70	1.45	1.99	2.73	3.70	1.12	1.54	2.11	2.87	1.40	1.94	2.65	3.60
2004	1.06	1.50	2.11	2.93	1.47	2.08	2.91	4.05	1.14	1.61	2.26	3.14	1.45	2.05	2.87	3.99
2005	1.07	1.55	2.22	3.17	1.51	2.18	3.13	4.46	1.17	1.70	2.43	3.46	1.49	2.15	3.09	4.40
2006	1.07	1.59	2.34	3.41	1.53	2.28	3.35	4.88	1.19	1.77	2.60	3.79	1.51	2.25	3.30	4.81
2007	1.08	1.64	2.47	3.69	1.56	2.38	3.58	5.34	1.22	1.85	2.79	4.16	1.56	2.38	3.58	5.35
2008	1.08	1.69	2.61	3.99	1.59	2.48	3.82	5.84	1.24	1.94	2.99	4.57	1.62	2.53	3.91	5.97
2009	1.09	1.74	2.75	4.30	1.62	2.59	4.09	6.40	1.27	2.04	3.22	5.04	1.67	2.67	4.22	6.60
2010	1.09	1.78	2.89	4.62	1.64	2.69	4.35	6.96	1.30	2.13	3.45	5.53	1.71	2.81	4.54	7.27
2011	1.09	1.83	3.03	4.97	1.66	2.79	4.62	7.58	1.31	2.21	3.66	6.00	1.73	2.91	4.83	7.92
2012	1.09	1.87	3.18	5.34	1.67	2.88	4.89	8.21	1.32	2.28	3.87	6.50	1.75	3.01	5.12	8.59
2013	1.09	1.92	3.35	5.75	1.69	2.98	5.19	8.92	1.34	2.36	4.10	7.05	1.77	3.12	5.44	9.34
2014	1.09	1.97	3.51	6.18	1.71	3.09	5.51	9.69	1.35	2.44	4.34	7.64	1.79	3.23	5.77	10.15
2015	1.09	2.02	3.69	6.65	1.72	3.20	5.84	10.52	1.36	2.52	4.60	8.28	1.81	3.35	6.12	11.02

Table S–5, continued. Projected average fuel price indices with assumed general price inflation rates of 0, 2.5, 5, and 7.5 percent by end–use sector and major fuel.

United States Average

	COMMERCIAL																			
	ELECTRICITY				DISTILLATE FUEL				RESIDUAL FUEL				NATURAL GAS				STEAM COAL			
YEAR	0%	2.5%	5%	7.5%	0%	2.5%	5%	7.5%	0%	2.5%	5%	7.5%	0%	2.5%	5%	7.5%	0%	2.5%	5%	7.5%
1990	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1991	1.00	1.02	1.05	1.07	1.02	1.04	1.07	1.09	0.98	1.01	1.03	1.06	1.05	1.07	1.10	1.12	0.99	1.02	1.04	1.07
1992	1.00	1.05	1.11	1.16	1.03	1.08	1.13	1.19	1.02	1.07	1.13	1.18	1.05	1.11	1.16	1.22	0.99	1.04	1.10	1.15
1993	1.00	1.07	1.15	1.24	1.09	1.17	1.26	1.35	1.12	1.20	1.29	1.39	1.06	1.14	1.23	1.32	1.00	1.07	1.15	1.24
1994	1.00	1.11	1.22	1.34	1.14	1.25	1.38	1.52	1.21	1.33	1.47	1.61	1.08	1.19	1.31	1.44	1.00	1.10	1.22	1.34
1995	1.01	1.14	1.28	1.44	1.18	1.33	1.50	1.69	1.27	1.44	1.63	1.83	1.10	1.24	1.40	1.58	1.00	1.14	1.28	1.44
1996	1.00	1.16	1.35	1.55	1.23	1.43	1.65	1.90	1.37	1.59	1.84	2.12	1.14	1.32	1.53	1.76	1.01	1.17	1.36	1.56
1997	1.00	1.19	1.41	1.67	1.29	1.54	1.82	2.15	1.48	1.76	2.08	2.45	1.17	1.39	1.64	1.93	1.02	1.21	1.43	1.69
1998	1.01	1.23	1.49	1.80	1.34	1.64	1.99	2.40	1.59	1.94	2.35	2.84	1.21	1.47	1.78	2.15	1.02	1.25	1.51	1.83
1999	1.02	1.28	1.59	1.96	1.40	1.75	2.17	2.68	1.69	2.12	2.63	3.25	1.26	1.57	1.96	2.42	1.03	1.29	1.60	1.98
2000	1.03	1.32	1.68	2.13	1.43	1.83	2.32	2.94	1.77	2.27	2.89	3.65	1.30	1.67	2.12	2.69	1.04	1.33	1.69	2.14
2001	1.04	1.37	1.78	2.31	1.48	1.94	2.53	3.28	1.85	2.42	3.16	4.09	1.35	1.77	2.30	2.98	1.05	1.37	1.79	2.32
2002	1.05	1.41	1.88	2.50	1.52	2.04	2.72	3.61	1.92	2.58	3.45	4.57	1.39	1.87	2.49	3.30	1.06	1.42	1.90	2.52
2003	1.06	1.46	1.99	2.71	1.56	2.15	2.94	3.99	1.99	2.74	3.75	5.09	1.44	1.99	2.72	3.69	1.07	1.47	2.01	2.73
2004	1.07	1.51	2.11	2.94	1.59	2.25	3.15	4.37	2.05	2.89	4.06	5.64	1.49	2.11	2.96	4.11	1.08	1.52	2.13	2.96
2005	1.07	1.55	2.23	3.17	1.63	2.37	3.40	4.83	2.10	3.04	4.37	6.22	1.54	2.23	3.19	4.55	1.09	1.57	2.26	3.21
2006	1.08	1.60	2.35	3.42	1.67	2.48	3.64	5.31	2.16	3.21	4.72	6.88	1.57	2.32	3.42	4.98	1.09	1.62	2.38	3.47
2007	1.08	1.65	2.48	3.70	1.70	2.59	3.90	5.83	2.22	3.38	5.09	7.59	1.63	2.47	3.72	5.56	1.10	1.68	2.52	3.77
2008	1.09	1.70	2.62	4.00	1.74	2.71	4.18	6.38	2.27	3.54	5.47	8.35	1.69	2.64	4.08	6.23	1.11	1.73	2.68	4.09
2009	1.09	1.75	2.76	4.32	1.78	2.84	4.49	7.02	2.31	3.70	5.85	9.15	1.75	2.79	4.42	6.91	1.12	1.79	2.83	4.43
2010	1.09	1.79	2.90	4.64	1.80	2.95	4.78	7.65	2.36	3.87	6.27	10.03	1.80	2.94	4.77	7.63	1.13	1.85	3.00	4.80
2011	1.09	1.84	3.05	4.99	1.83	3.07	5.08	8.33	2.41	4.05	6.71	11.00	1.82	3.06	5.08	8.32	1.15	1.92	3.19	5.23
2012	1.09	1.88	3.20	5.37	1.84	3.17	5.39	9.05	2.44	4.20	7.14	11.99	1.84	3.17	5.38	9.04	1.16	2.00	3.40	5.71
2013	1.09	1.93	3.36	5.77	1.86	3.29	5.72	9.84	2.48	4.38	7.63	13.10	1.86	3.29	5.72	9.83	1.18	2.08	3.62	6.22
2014	1.09	1.98	3.53	6.21	1.88	3.41	6.08	10.69	2.52	4.56	8.14	14.31	1.88	3.41	6.08	10.69	1.20	2.16	3.86	6.79
2015	1.10	2.03	3.71	6.68	1.91	3.53	6.45	11.62	2.56	4.75	8.68	15.63	1.91	3.53	6.46	11.63	1.21	2.25	4.11	7.41

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☐ Document describes a computer program; SF-185, FIPS Software Summary, is attached.

11. ABSTRACT (A 200-word or less factual summary of most significant information. If document includes a significant bibliography or literature survey, mention it here)

This is the 1990 annual edition of energy prices and discount factors for performing life-cycle cost analyses of energy conservation and renewable energy projects. It supports the Federal life-cycle costing methodology as described in NBS Handbook 135 (HB 135) and private sector life-cycle cost analysis as described in NBS Special Publication 709 (SP 709). Tables A, B, and C are revisions of appendices A, B, and C, respectively, of HB 135. Tables A (7%), Ba, and C apply to Federal energy conservation and renewable energy projects. Tables A (10%), Bb, and C apply to Federal projects that require energy price forecasts but are not primarily energy conserving. Tables S, in the last section of this report, are revisions to appendix B, Part I of SP 709 and are provided for the convenience of private sector analysts wishing to make use of Federal energy price forecasts.

12. KEY WORDS (Six to twelve entries; alphabetical order; capitalize only proper names; and separate key words by semicolons)

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