

5 Energy Costs and Currency Specification

5.1 Overview

This chapter provides default time-of-use tariffs that may be used for COMNET purposes that use cost as the metric. The COMNET valuation methodology provides default time-of-use rate schedules for electricity, gas, steam and chilled water. COMNET software shall incorporate these rates into the calculation procedure so that the default rate schedules are easily available to the user. The default rates simplify the process and provide a means to take credit for measures that have large savings during peak periods. Local utility rates may be used instead of the defaults when desired. The software shall have the capability to assign energy charges for different seasons, day types, and periods within the day. A procedure is provided at the end of this chapter to convert TOU energy costs to EPA source energy, for purposes that use EPA source energy as the metric. Appendix F describes the methodology used to create the TOU energy costs presented in this chapter.

5.2 Geographic Regions

Default TOU energy costs are provided for 16 regions. These are consistent with the DOE/ASHRAE climate zones. Figure 5.2-1 [1] below provides a map of the climate zones in the continental United States. Climate zone 1 is the tropical zone which includes Hawaii and the tip of Florida moving up to climate zone 8 which includes the northern arctic region of Alaska. Every county is in one unique climate zone.

There are 15 combinations of the 8 thermal zones and the 3 humidity zones. However, zone 3B is divided into two parts. Most of climate zone 3B is characterized by hot and dry summers; however, Los Angeles' climate is influenced by its coastal location. There are only five counties assumed to be in climate zone 3B (LA), Santa Barbara, Ventura, Los Angeles, Orange County, and San Diego. For each of the climate zones, the default TOU energy costs are shown in <u>Table 5.2-1</u> [2] through <u>Table 5.2-16</u> [3].

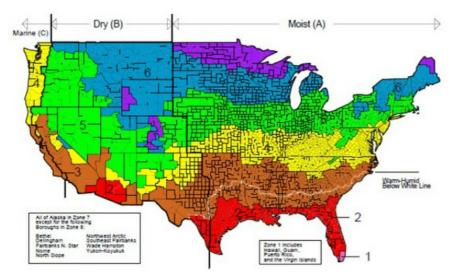


Figure 5.2-1: "United States Climate Zones"

Table 5.2-1: "Energy Cost Specification by Season and TOU Period – Climate Zone 1A"

Fuel	Seasons	Day Types	Time Periods	Hours in TOU Period (1-24)	Present Value of Energy Cost
Electricity (\$/kWh)	Summer (June-	Weekdays	Peak	12-21	\$2.85
	August)		Mid-Peak	9-11, 22-24	\$0.91
			Off-Peak	1-8	\$0.85
		Weekends/Holidays	Off-Peak	1-24	\$0.85
	Fall (September-	Weekdays	Peak	12-21	\$1.13
	November)		Mid-Peak	8-11, 22-24	\$0.81
			Off-Peak	1-7	\$0.77
		Weekends/Holidays	Off-Peak	1-24	\$0.77
	Winter (December-	Weekdays	Peak	NA	NA

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	February)		Mid-Peak	8-23	\$0.78
		Weekends/Holidays	Off-Peak	24-7	\$0.71
			Off-Peak	1-24	\$0.71
	Spring (March-May)	Weekdays	Peak	13-21	\$0.96
			Mid-Peak	9-12, 22-23	\$0.84
			Off-Peak	24-8	\$0.77
		Weekends/Holidays	Off-Peak	1-24	\$0.77
Gas (\$/therm)	Low Demand Season (April-October)	All	All	1-24	\$9.33
	High Demand Season (November-March)	All	All	1-24	\$11.42
Steam (\$/Mlb)	Low Demand Season (April-October)	All	All	1-24	\$133.74
	High Demand Season (November-March)	All	All	1-24	\$163.80
Chilled Water (\$/ton-hr)	Low Demand Season (April-October)	All	All	1-24	\$1.15
	High Demand Season (November-March)	All	All	1-24	\$1.41

Table 5.2-2: "Energy Cost Specification by Season and TOU Period – Climate Zone 2A"

Fuel	Seasons	Day Types	Time Periods	Hours in TOU Period (1-24)	Present Value of Energy Cost
Electricity	Summer (June-	Weekdays	Peak	14-21	\$2.51
(\$/kWh)	September)		Mid-Peak	22-1, 11-13	\$0.85
			Off-Peak	2-10	\$0.81
		Weekends/Holidays	Off-Peak	1-24	\$0.81
	Fall (October-	Weekdays	Peak	13-23	\$0.99
	November)		Mid-Peak	9-12	\$0.78
			Off-Peak	24-8	\$0.75
		Weekends/Holidays	Off-Peak	1-24	\$0.75
	Winter (December-	Weekdays	Peak	NA	NA
	February)		Mid-Peak	8-22	\$0.85
			Off-Peak	23-7	\$0.77
		Weekends/Holidays	Off-Peak	1-24	\$0.77
	Spring (March-May)	Weekdays	Peak	13-22	\$1.06
			Mid-Peak	10-12, 23-24	\$0.87
			Off-Peak	1-9	\$0.82
		Weekends/Holidays	Off-Peak	1-24	\$0.82
Gas (\$/therm)	Low Demand Season (April-October)	All	All	1-24	\$8.60
	High Demand Season (November-March)	All	All	1-24	\$11.85
Steam (\$/Mlb)	Low Demand Season (April-October)	All	All	1-24	\$123.31
	High Demand Season (November-March)	All	All	1-24	\$169.94
Chilled Water (\$/ton-hr)	Low Demand Season (April-October)	All	All	1-24	\$1.06
	High Demand Season (November-March)	All	All	1-24	\$1.46

Table 5.2-3: "Energy Cost Specification by Season and TOU Period – Climate Zone 2B"

Fuel	Seasons	Day Types	Time Periods	Hours in TOU Period (1-24)	Present Value of Energy Cost
Electricity	Summer (June-	Weekdays	Peak	9-21	\$2.47
(\$/kWh)	August)		Mid-Peak	NA	NA

			Off-Peak	22-8	\$0.74
		Weekends/Holidays	Off-Peak	1-24	\$0.74
	Fall (September-	Weekdays	Peak	13-21	\$0.94
	November)		Mid-Peak	11-12	\$0.86
			Off-Peak	22-10	\$0.79
		Weekends/Holidays	Off-Peak	1-24	\$0.79
	Winter (December-	Weekdays	Peak	7-9, 18-22	\$0.92
	February)		Mid-Peak	10-13	\$0.88
			Off-Peak	23-6, 14-17	\$0.82
		Weekends/Holidays	Off-Peak	1-24	\$0.82
	Spring (March-May)	Weekdays	Peak	13-21	\$0.89
			Mid-Peak	10-12, 22-23	\$0.80
			Off-Peak	24-9	\$0.74
		Weekends/Holidays	Off-Peak	1-24	\$0.74
Gas (\$/therm)	Low Demand Season (April-October)	All	All	1-24	\$8.37
	High Demand Season (November-March)	All	All	1-24	\$11.78
Steam (\$/Mlb)	Low Demand Season (April-October)	All	All	1-24	\$120.05
	High Demand Season (November-March)	All	All	1-24	\$168.88
Chilled Water (\$/ton-hr)	Low Demand Season (April-October)	All	All	1-24	\$1.03
	High Demand Season (November-March)	All	All	1-24	\$1.45

Table 5.2-4: "Energy Cost Specification by Season and TOU Period – Climate Zone 3A"

Fuel	Seasons	Day Types	Time Periods	Hours in TOU Period (1-24)	Present Value of Energy Cost
Electricity	Summer (June-	Weekdays	Peak	12-19	\$3.48
(\$/kWh)	August)		Mid-Peak	8-11, 20-23	\$0.89
			Off-Peak	24-7	\$0.82
		Weekends/Holidays	Off-Peak	1-24	\$0.82
	Fall (September-	Weekdays	Peak	12-20	\$0.91
	October)		Mid-Peak	7-11, 21-22	\$0.79
			Off-Peak	23-6	\$0.76
		Weekends/Holidays	Off-Peak	1-24	\$0.76
	Winter (November-	Weekdays	Peak	6-11, 18-21	\$0.84
	February)		Mid-Peak	12-17	\$0.79
			Off-Peak	22-5	\$0.75
		Weekends/Holidays	Off-Peak	1-24	\$0.75
	Spring (March-May)	Weekdays	Peak	12-21	\$0.97
			Mid-Peak	7-11	\$0.88
			Off-Peak	22-6	\$0.77
		Weekends/Holidays	Off-Peak	1-24	\$0.77
Gas (\$/therm)	Low Demand Season (April-October)	All	All	1-24	\$8.90
	High Demand Season (November-March)	All	All	1-24	\$11.95
Steam (\$/Mlb)	Low Demand Season (April-October)	All	All	1-24	\$127.61
	High Demand Season (November-March)	All	All	1-24	\$171.38
Chilled Water (\$/ton-hr)	Low Demand Season (April-October)	All	All	1-24	\$1.10
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Table 5.2-5: "Energy Cost Specification by Season and TOU Period – Climate Zone 3B (LA)"

Fuel	Seasons	Day Types	Time Periods	Hours in TOU Period (1-24)	Present Value of Energy Cost
Electricity	Summer (June-	Weekdays	Peak	13-19	\$3.59
(\$/kWh)	August)		Mid-Peak	9-12, 20-23	\$0.94
			Off-Peak	24-8	\$0.59
		Weekends/Holidays	Off-Peak	1-24	\$0.59
	Fall (September-	Weekdays	Peak	NA	NA
	November)		Mid-Peak	9-22	\$1.40
			Off-Peak	23-8	\$0.71
		Weekends/Holidays	Off-Peak	1-24	\$0.71
	Winter (December-	Weekdays	Peak	11-15, 18-22	\$1.04
	March)		Mid-Peak	8-10, 16-17	\$0.96
			Off-Peak	23-7	\$0.72
		Weekends/Holidays	Off-Peak	1-24	\$0.72
	Spring (April-May)	Weekdays	Peak	12-18	\$1.08
			Mid-Peak	8-11, 19-23	\$0.97
			Off-Peak	24-7	\$0.65
		Weekends/Holidays	Off-Peak	1-24	\$0.65
Gas (\$/therm)	Low Demand Season (April-October)	All	All	1-24	\$8.77
	High Demand Season (November-March)	All	All	1-24	\$11.22
Steam (\$/Mlb)	Low Demand Season (April-October)	All	All	1-24	\$125.72
	High Demand Season (November-March)	All	All	1-24	\$160.95
Chilled Water (\$/ton-hr)	Low Demand Season (April-October)	All	All	1-24	\$1.08
	High Demand Season (November-March)	All	All	1-24	\$1.38

 $Table \ 5.2-6: \textit{"Energy Cost Specification by Season and TOU Period-Climate Zone 3B"}$

Fuel	Seasons	Day Types	Time Periods	Hours in TOU Period (1-24)	Present Value of Energy Cost
Electricity	Summer (June-	Weekdays	Peak	14-20	\$3.60
(\$/kWh)	September)		Mid-Peak	9-13, 21-22	\$0.83
			Off-Peak	23-8	\$0.71
		Weekends/Holidays	Off-Peak	1-24	\$0.71
	Fall (October-	Weekdays	Peak	17-21	\$1.00
	November)		Mid-Peak	7-16	\$0.95
			Off-Peak	22-6	\$0.83
		Weekends/Holidays	Off-Peak	1-24	\$0.83
	Winter (December- February)	Weekdays	Peak	17-21	\$0.91
			Mid-Peak	7-16	\$0.79
			Off-Peak	22-6	\$0.75
		Weekends/Holidays	Off-Peak	1-24	\$0.75
	Spring (March-May)	Weekdays	Peak	12-21	\$0.87
			Mid-Peak	7-11	\$0.81
			Off-Peak	22-6	\$0.73
		Weekends/Holidays	Off-Peak	1-24	\$0.73
Gas (\$/therm)	Low Demand Season (April-October)	All	All	1-24	\$8.90
	High Demand Season	All	All	1-24	\$11.83

	(November-March)			- = -	¥=====
Steam (\$/Mlb)	Low Demand Season (April-October)	All	All	1-24	\$127.68
	High Demand Season (November-March)	All	All	1-24	\$169.57
Chilled Wate (\$/ton-hr)	er Low Demand Season (April-October)	All	All	1-24	\$1.10
	High Demand Season (November-March)	All	All	1-24	\$1.46

Table 5.2-7: "Energy Cost Specification by Season and TOU Period – Climate Zone 3C"

Fuel	Seasons	Day Types	Time Periods	Hours in TOU Period (1-24)	Present Value of Energy Cost
Electricity	Summer (July-	Weekdays	Peak	NA	NA
(\$/kWh)	September)		Mid-Peak	8-11, 17-18	\$1.53
			Off-Peak	19-7, 12-16	\$1.11
		Weekends/Holidays	Off-Peak	1-24	\$1.11
	Fall (October-	Weekdays	Peak	9-20	\$0.95
	November)		Mid-Peak	6-8, 21-23	\$0.79
			Off-Peak	24-5	\$0.74
		Weekends/Holidays	Off-Peak	1-24	\$0.74
	Winter (December-	Weekdays	Peak	NA	NA
	April)		Mid-Peak	8-22	\$1.29
			Off-Peak	23-7	\$0.77
		Weekends/Holidays	Off-Peak	1-24	\$0.77
	Spring (May-June)	Weekdays	Peak	9-18	\$1.01
			Mid-Peak	7-8, 19-23	\$0.75
			Off-Peak	24-6	\$0.66
		Weekends/Holidays	Off-Peak	1-24	\$0.66
Gas (\$/therm)	Low Demand Season (April-October)	All	All	1-24	\$9.36
	High Demand Season (November-March)	All	All	1-24	\$11.18
Steam (\$/Mlb)	Low Demand Season (April-October)	All	All	1-24	\$134.26
	High Demand Season (November-March)	All	All	1-24	\$160.36
Chilled Water (\$/ton-hr)	Low Demand Season (April-October)	All	All	1-24	\$1.15
, ,	High Demand Season (November-March)	All	All	1-24	\$1.38

Table 5.2-8: "Energy Cost Specification by Season and TOU Period – Climate Zone 4A"

Fuel	Seasons	Day Types	Time Periods	Hours in TOU Period (1-24)	Present Value of Energy Cost
Electricity	Summer (June-	Weekdays	Peak	12-20	\$3.41
(\$/kWh)	August)		Mid-Peak	8-11, 21-23	\$1.02
			Off-Peak	24-7	\$0.83
		Weekends/Holidays	Off-Peak	1-24	\$0.83
	Fall (September- November)	Weekdays	Peak	NA	NA
			Mid-Peak	7-24	\$0.88
			Off-Peak	1-6	\$0.72
		Weekends/Holidays	Off-Peak	1-24	\$0.72
	Winter (December-	Weekdays	Peak	NA	NA
	February)		Mid-Peak	7-20	\$0.96
			Off-Peak	21-6	\$0.83
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	Spring (March-May)	Weekdays	Peak	NA	NA
			Mid-Peak	8-22	\$0.95
			Off-Peak	23-7	\$0.77
		Weekends/Holidays	Off-Peak	1-24	\$0.77
Gas (\$/therm)	Low Demand Season (April-October)	All	All	1-24	\$9.07
	High Demand Season (November-March)	All	All	1-24	\$11.99
Steam (\$/Mlb)	Low Demand Season (April-October)	All	All	1-24	\$130.05
	High Demand Season (November-March)	All	All	1-24	\$171.95
Chilled Water (\$/ton-hr)	· Low Demand Season (April-October)	All	All	1-24	\$1.12
	High Demand Season (November-March)	All	All	1-24	\$1.48

Table 5.2-9: "Energy Cost Specification by Season and TOU Period – Climate Zone 4B"

Fuel	Seasons	Day Types	Time Periods	Hours in TOU Period (1-24)	Present Value of Energy Cost
Electricity	Summer (June-	Weekdays	Peak	11-20	\$3.04
Electricity Summ \$/kWh) Augus Fall (\$ Octob	August)		Mid-Peak	8-10, 21-22	\$0.86
			Periods Period (1-24) Peak 11-20 \$3.04 Mid-Peak 8-10, 21-22 \$0.86 Off-Peak 23-7 \$0.85 Holidays Off-Peak 1-24 \$0.85 Peak 12-20 \$0.91 Mid-Peak 7-11, 21-22 \$0.80 Off-Peak 23-6 \$0.76 Holidays Off-Peak 1-24 \$0.76 Peak 18-22 \$0.84 Mid-Peak 7-17 \$0.81 Off-Peak 23-6 \$0.75 Holidays Off-Peak 1-24 \$0.75 Peak 11-16, 19-21 \$0.96 Mid-Peak 7-10, 17-18 \$0.91 Off-Peak 22-6 \$0.77	\$0.85	
		Weekends/Holidays		\$0.85	
	Fall (September-	Weekdays		\$0.91	
	October)			\$0.80	
		Weekdays Periods Period (1-24) Weekdays Peak 11-20 \$3.04 Mid-Peak 8-10, 21-22 \$0.86 Off-Peak 23-7 \$0.85 Weekends/Holidays Off-Peak 1-24 \$0.85 Weekdays Peak 12-20 \$0.91 Mid-Peak 7-11, 21-22 \$0.80 Off-Peak 23-6 \$0.76 Weekdays Peak 18-22 \$0.84 Mid-Peak 7-17 \$0.81 Off-Peak 23-6 \$0.75 Weekdays Peak 18-22 \$0.84 Mid-Peak 7-17 \$0.81 Off-Peak 23-6 \$0.75 Weekdays Peak 11-16, 19-21 \$0.96 Mid-Peak 7-10, 17-18 \$0.91 Off-Peak 22-6 \$0.77 Weekends/Holidays Off-Peak 1-24 \$0.77 All All 1-24 \$1.15 All All 1-24 \$1.94 <td>\$0.76</td>	\$0.76		
- \ I		Weekends/Holidays	Off-Peak	1-24	\$0.76
	Winter (November-February)	Weekdays	Peak	18-22	\$0.84
			Mid-Peak	7-17	\$0.81
			Off-Peak	23-6	\$0.75
-		Weekends/Holidays	Off-Peak	1-24	\$0.75
	Spring (March-May)	Weekdays	Peak	11-16, 19-21	\$0.96
			Mid-Peak	7-10, 17-18	\$0.91
			Off-Peak	22-6	\$0.77
		Weekends/Holidays	Off-Peak	1-24	\$0.77
Gas (\$/therm)	Low Demand Season (April-October)	All	All	1-24	\$8.33
	High Demand Season (November-March)	All	All	1-24	\$11.15
Steam (\$/Mlb)	Low Demand Season (April-October)	All	All	1-24	\$119.46
	High Demand Season (November-March)	All	All	1-24	\$159.81
Chilled Water (\$/ton-hr)	Low Demand Season (April-October)	All	All	1-24	\$1.03
	High Demand Season (November-March)	All	All	1-24	\$1.37

Table 5.2-10: "Energy Cost Specification by Season and TOU Period – Climate Zone 4C"

Fuel	Seasons	Day Types	Time Periods	Hours in TOU Period (1-24)	Present Value of Energy Cost
Electricity	Summer (June-	Weekdays	Peak	10-18	\$2.25
(\$/kWh)	August)		Mid-Peak	7-9, 19-23	\$0.96
			Off-Peak	24-6	\$0.64
		Weekends/Holidays	Off-Peak	1-24	\$0.64
	Fall (Cantambar	Waakdowe	Dank	NI A	NI A

	ran (september-	weckuays	гсак	INA	INA
	October)		Mid-Peak	8-23	\$0.91
			Off-Peak	24-7	\$0.76
		Weekends/Holidays	Off-Peak	1-24	\$0.76
	Winter (November-	Weekdays	Peak	8-12, 17-21	\$1.52
	March)		Mid-Peak	13-16, 22-23	\$0.95
			Off-Peak	24-7	\$0.76
	Spring (April-May) Low Demand Season (April-October)	Weekends/Holidays	Off-Peak	1-24	\$0.76
		Weekdays	Peak	NA	NA
			Mid-Peak	8-23	\$0.76
			Off-Peak	24-7	\$0.60
		Weekends/Holidays	Off-Peak	1-24	\$0.60
Gas (\$/therm)	Low Demand Season (April-October)	All	All	1-24	\$9.01
- -	High Demand Season (November-March)	All	All	1-24	\$11.10
Steam (\$/Mlb)	Low Demand Season (April-October)	All	All	1-24	\$129.13
	High Demand Season (November-March)	All	All	1-24	\$159.20
Chilled Water (\$/ton-hr)	Low Demand Season (April-October)	All	All	1-24	\$1.11
	High Demand Season (November-March)	All	All	1-24	\$1.37

Table~5.2-11:~"Energy~Cost~Specification~by~Season~and~TOU~Period-Climate~Zone~5A"

Fuel	Seasons	Day Types	Time Periods	Hours in TOU Period (1-24)	Present Value of Energy Cost
Electricity	Summer (June-	Weekdays	Peak	13-21	\$3.08
(\$/kWh)	August)		Mid-Peak	Period (1-24) 13-21 \$3.08 k 10-12, 22-24 \$1.05 x 1-9 \$0.76 x 1-24 \$0.76 13-22 \$1.07 k 9-12 \$0.91 x 23-8 \$0.72 x 1-24 \$0.72 18-22 \$1.21 k 8-17, 23-24 \$0.99 x 1-7 \$0.80 x 1-24 \$0.80 x 1-24 \$0.80 x 1-20 \$1.20 k 9-11, 21-24 \$1.01 x 1-8 \$0.78	\$1.05
			Off-Peak	1-9	\$0.76
		Weekends/Holidays	Off-Peak	1-24	\$0.76
	Fall (September-	Weekdays	Peak	13-22	\$1.07
	October)		Mid-Peak	9-12	\$0.91
			Off-Peak	23-8	\$0.72
		Weekends/Holidays	Periods Period (1-24) Peak 13-21 \$3.08 Mid-Peak 10-12, 22-24 \$1.05 Off-Peak 1-9 \$0.76 Pekends/Holidays Off-Peak 1-24 \$0.76 Pekends/Holidays Off-Peak 23-8 \$0.72 Pekends/Holidays Off-Peak 1-24 \$0.72 Pekends/Holidays Off-Peak 1-24 \$0.72 Pekends/Holidays Off-Peak 1-24 \$0.99 Off-Peak 1-7 \$0.80 Peak 12-20 \$1.20 Mid-Peak 9-11, 21-24 \$1.01 Off-Peak 9-11, 21-24 \$1.01 Off-Peak 1-8 \$0.78 Pekends/Holidays Off-Peak 1-24 \$0.78 All 1-24 \$11.78 All 1-24 \$11.78 All 1-24 \$128.57 All 1-24 \$168.85	\$0.72	
	Winter (November-	Periods Period (1-24)	\$1.21		
	March)		\$0.99		
			Off-Peak	1-7	\$0.80
		Weekends/Holidays	Off-Peak	1-24	\$0.80
	Spring (April-May)	Weekdays	Peak	12-20	\$1.20
			Mid-Peak	9-11, 21-24	\$1.01
			Off-Peak	1-8	\$0.78
		Weekends/Holidays	Off-Peak	1-24	\$0.78
Gas (\$/therm)	Summer (June- /kWh)	\$8.97			
		All	All	1-24	\$11.78
Steam (\$/Mlb)		All	All	1-24	\$128.57
		All	All	1-24	\$168.85
Chilled Water (\$/ton-hr)		All	All	1-24	\$1.10
	_	All	All	1-24	\$1.45

Table 5.2-12: "Energy Cost Specification by Season and TOU Period – Climate Zone 5B"

Fuel	Seasons	Day Types	Time Periods	Hours in TOU Period (1-24)	Present Value of Energy Cost
Electricity	Summer (June-	Weekdays	Peak	11-20	\$2.69
(\$/kWh)	August)		Periods Period (1-24) Peak 11-20 \$2.69 Mid-Peak 8-10, 21-22 \$0.81 Off-Peak 23-7 \$0.76 Mid-Peak 1-24 \$0.76 Peak 13-20 \$0.71 Mid-Peak 6-12, 21-22 \$0.61 Off-Peak 23-5 \$0.54 Mid-Peak 9-17 \$1.10 Mid-Peak 7-8, 18-23 \$1.07 Off-Peak 24-6 \$0.93 Mid-Peak NA NA Mid-Peak 7-22 \$0.96 Off-Peak 23-6 \$0.80	\$0.81	
			Off-Peak	23-7	\$0.76
		Weekends/Holidays	Off-Peak	1-24	\$0.76
	Fall (September-	Weekdays	Peak	13-20	\$0.71
	October)		Mid-Peak	6-12, 21-22	\$0.61
			Off-Peak	23-5	\$0.54
		Peak 11-20 \$2.69	\$0.54		
	Winter (November-		\$1.10		
	March)		Mid-Peak	7-8, 18-23	\$1.07
			Off-Peak	24-6	\$0.93
		Weekends/Holidays	Off-Peak	1-24	\$0.93
	Spring (April-May)	Weekdays	Peak	NA	NA
			Mid-Peak	7-22	\$0.96
			Off-Peak	23-6	\$0.80
		Weekends/Holidays	Off-Peak	1-24	\$0.80
Gas (\$/therm)	Low Demand Season (April-October)	All	All	1-24	\$8.28
	High Demand Season (November-March)	All	All	1-24	\$10.71
Steam (\$/Mlb)	Low Demand Season (April-October)	All	All	1-24	\$118.69
	High Demand Season (November-March)	All	All	1-24	\$153.51
Chilled Water (\$/ton-hr)	· Low Demand Season (April-October)	All	All	1-24	\$1.02
	High Demand Season (November-March)	All	All	1-24	\$1.32

Table~5.2-13:~"Energy~Cost~Specification~by~Season~and~TOU~Period-Climate~Zone~6A"

Fuel	Seasons	Day Types	Time Periods	Hours in TOU Period (1-24)	Present Value of Energy Cost
Electricity	Summer (June-	Weekdays	Peak	12-20	\$3.32
(\$/kWh)	August)		Mid-Peak	Period (1-24)	\$0.97
			Off-Peak	1-8	\$0.78
		Weekends/Holidays	Off-Peak	1-24	\$0.78
	Fall (September-	Weekdays	Peak	12-21	\$1.11
	October)		Mid-Peak	8-11, 22-23	\$0.84
			Off-Peak	24-7	\$0.80
		Weekends/Holidays	Off-Peak	1-24	\$0.80
	Winter (November-	Weekdays	Peak	9-13, 18-22	\$1.16
	March)		Mid-Peak	14-17	\$1.00
		Mid-Peak 9-11, 21-24 \$0.97	\$0.83		
			\$0.83		
	Spring (April-May)	Weekdays	Periods Period (1-24) Peak 12-20 \$3.32 Mid-Peak 9-11, 21-24 \$0.97 Off-Peak 1-8 \$0.78 ays Off-Peak 1-24 \$0.78 Peak 12-21 \$1.11 Mid-Peak 8-11, 22-23 \$0.84 Off-Peak 24-7 \$0.80 ays Off-Peak 1-24 \$0.80 Peak 9-13, 18-22 \$1.16 Mid-Peak 14-17 \$1.00 Off-Peak 23-8 \$0.83 ays Off-Peak 1-24 \$0.83 Peak NA NA Mid-Peak 8-23 \$0.89 Off-Peak 24-7 \$0.71 ays Off-Peak 1-24 \$8.86 All 1-24 \$8.86 All 1-24 \$11.53	NA	
			Mid-Peak	8-23	\$0.89
			Off-Peak	24-7	\$0.71
		Weekends/Holidays	Off-Peak	1-24	\$0.71
Gas (\$/therm)	Low Demand Season (April-October)	All	All	1-24	\$8.86
	High Demand Season (November-March)	All	All	1-24	\$11.53
Steam (\$/Mlb)	Low Demand Season (April-October)	All	All	1-24	\$127.02

	High Demand Season	All	All	1-24	\$165.38
	(November-March)				
Chilled Water	Low Demand Season	All	All	1-24	\$1.09
(\$/ton-hr)	(April-October)				
	High Demand Season	All	All	1-24	\$1.42
	(November-March)				

Table~5.2-14:~"Energy~Cost~Specification~by~Season~and~TOU~Period-Climate~Zone~6B"

Fuel	Seasons	Day Types	Time Periods	Hours in TOU Period (1-24)	Present Value of Energy Cost
Electricity	Summer (June-	Weekdays	Peak	12-21	\$2.27
(\$/kWh)	August)		Periods Period (1-24)	\$0.79	
			Off-Peak	24-7	\$0.76
		Weekends/Holidays	Off-Peak	1-24	\$0.76
	Fall (September-	Weekdays	Peak	NA	NA
	October)		Mid-Peak	8-18	\$0.84
			Off-Peak	19-7	\$0.81
		Weekends/Holidays	Periods Period (1-24)		
	Winter (November-	Weekdays			
	March)	Weekdays Periods Period (1-24) Weekdays Peak 12-21 \$2.27 Mid-Peak 8-11, 22-23 \$0.79 Off-Peak 24-7 \$0.76 Weekends/Holidays Off-Peak 1-24 \$0.76 Weekdays Peak NA			
			Off-Peak	22-7	\$0.79
		Weekends/Holidays	Off-Peak	1-24	\$0.79
	Spring (April-May)	Weekdays	Peak	NA	NA
			Mid-Peak	7-23	\$0.86
			eekends/Holidays Off-Peak 1-24 \$0.79 eekdays Peak NA NA Mid-Peak 7-23 \$0.86 Off-Peak 24-6 \$0.80 eekends/Holidays Off-Peak 1-24 \$0.80	\$0.80	
		Weekends/Holidays	Off-Peak	1-24	\$0.80
Gas (\$/therm)	Low Demand Season (April-October)	Mid-Peak	1-24	\$8.32	
	High Demand Season (November-March)	All	All	1-24	\$10.63
Steam (\$/Mlb)	Low Demand Season (April-October)	All	All	1-24	\$119.26
	High Demand Season (November-March)	All	All	1-24	\$152.40
Chilled Water (\$/ton-hr)	Low Demand Season (April-October)	All	All	1-24	\$1.02
	High Demand Season (November-March)	All	All	1-24	\$1.31

Table 5.2-15: "Energy Cost Specification by Season and TOU Period – Climate Zone 7"

Fuel	Seasons	Day Types	Time Periods	Hours in TOU Period (1-24)	Present Value of Energy Cost
Electricity	Summer (June-	Weekdays	Periods Period (1-24) Peak 10-21 \$2.48 Mid-Peak 7-9, 22-23 \$0.77 Off-Peak 24-6 \$0.62 ays Off-Peak 1-24 \$0.62 Peak NA NA Mid-Peak 8-21 \$0.90 Off-Peak 22-7 \$0.58 ays Off-Peak 1-24 \$0.58 Peak 8-13, 17-22 \$1.28 Mid-Peak 14-16 \$1.00 Off-Peak 23-7 \$0.86 ays Off-Peak 1-24 \$0.86 Peak NA NA NA	\$2.48	
(\$/kWh)	August)	Periods Period (1-24) Weekdays Peak 10-21 \$2.48 Mid-Peak 7-9, 22-23 \$0.77 Off-Peak 24-6 \$0.62 Weekends/Holidays Off-Peak 1-24 \$0.62 Weekdays Peak NA NA Mid-Peak 8-21 \$0.90 Off-Peak 22-7 \$0.58 Weekends/Holidays Off-Peak 1-24 \$0.58 Weekdays Peak 8-13, 17-22 \$1.28 Mid-Peak 14-16 \$1.00 Off-Peak 23-7 \$0.86	\$0.77		
			Periods Period (1-24) Peak 10-21 \$2.48 Mid-Peak 7-9, 22-23 \$0.77 Off-Peak 24-6 \$0.62 Off-Peak 1-24 \$0.62 Peak NA NA Mid-Peak 8-21 \$0.90 Off-Peak 22-7 \$0.58 Off-Peak 1-24 \$0.58 Peak 8-13, 17-22 \$1.28 Mid-Peak 14-16 \$1.00 Off-Peak 23-7 \$0.86 Off-Peak 1-24 \$0.86	\$0.62	
		Weekends/Holidays	Off-Peak	1-24	\$0.62
	Fall (September-	Weekdays	Peak	NA	NA
	September)		Mid-Peak	8-21	\$0.90
			Off-Peak	22-7	\$0.58
		Weekends/Holidays	Off-Peak	1-24	\$0.58
	Winter (October-	Weekdays	Peak	8-13, 17-22	\$1.28
	March)		Mid-Peak	14-16	\$1.00
			Off-Peak	23-7	\$0.86
		Weekends/Holidays	Off-Peak	1-24	\$0.86
	Spring (April-May)	Weekdays	Peak	NA	NA
			Mid-Peak	7-21	\$1.13

			Off-Peak	22-6	\$0.82
		Weekends/Holidays	Off-Peak	1-24	\$0.82
Gas (\$/therm)	Low Demand Season (April-October)	All	All	1-24	\$8.95
	High Demand Season (November-March)	All	All	1-24	\$11.41
Steam (\$/Mlb)	Low Demand Season (April-October)	All	All	1-24	\$128.26
	High Demand Season (November-March)	All	All	1-24	\$163.63
Chilled Water (\$/ton-hr)	Low Demand Season (April-October)	All	All	1-24	\$1.10
	High Demand Season (November-March)	All	All	1-24	\$1.40

Table 5.2-16: "Energy Cost Specification by Season and TOU Period - Climate Zone 8"

Fuel	Seasons	Day Types	Time Periods	Hours in TOU Period (1-24)	Present Value of Energy Cost
Electricity	Summer (June-	Weekdays	Peak	9-23	\$0.78
(\$/kWh)	Name	NA	NA		
			Periods	\$0.65	
		Weekends/Holidays		\$0.65	
	Fall (September-	Weekdays	Peak	8-23	\$0.79
	September)	Periods Period (1-24) Peak Pe	NA		
Electricity Summer (June- \$\forall \text{KWh}\text{ August}\text{ W} Fall (September- September) Winter (October- April) Spring (May-May) Winter (May-May) Spring (May-May) Winter (October- April) Winter (October- A		Off-Peak	24-7	\$0.68	
		Weekends/Holidays	Off-Peak	1-24	\$0.68
	Winter (October-	Weekdays	Peak	8-23	\$1.61
	April)		Mid-Peak	NA	NA
			Off-Peak	24-7	\$0.81
		Weekends/Holidays	Off-Peak	1-24	\$0.81
	Spring (May-May)	Weekdays	Peak	9-23	\$0.77
			Mid-Peak	NA	NA
			Off-Peak	24-8	\$0.64
		Weekends/Holidays	Off-Peak	1-24	\$0.64
Gas (\$/therm)		All	All	1-24	\$9.20
	•	All	All	1-24	\$11.56
Steam (\$/Mlb)		All	All	1-24	\$131.93
		All	All	1-24	\$165.76
Chilled Water (\$/ton-hr)		All	All	1-24	\$1.13
	High Demand Season (November-March)	All	All	1-24	\$1.42

5.3 Calculating Zero Energy Performance Index (zEPI)

The zero energy performance index (zEPI) is the ratio of energy performance of the rated building to the average energy consumption of a similar building at the turn of the millennium that is operated in a similar climate, for similar hours of and similar operating conditions. zEPI is used by some rating programs and COMNET purposes. The COMNET modeling rules and procedures produce an estimate of the energy performance of the proposed design. The energy performance of the baseline building can be determined in a variety of ways. For comparison, the rated building energy performance and baseline building energy performance need to be compared in consistent units; the units are specified for each purpose. This section provides a method for converting EPA source energy to energy costs, consistent with the COMNET default tariffs.

The process, using the COMNET tariffs, is similar except that the zEPI energy efficiency ratio is calculated as the ratio of energy cost instead of source energy. The following procedure enables the energy performance of the baseline building to be converted to COMNET energy costs:

- A. Estimate the energy cost of the rated building through simulations and using the default tariffs provided in this chapter.
- B. Estimate the electricity, gas, steam and/or other fuels of the baseline building or comparator building for a similar climate and for similar operating conditions.
- C. Use the EPA source energy multipliers to convert the baseline building estimates to EPA source energy. The source-site ratio for electricity is 3.34; natural gas is 1.047; fuel oil and propane are 1.01; steam is 1.45; hot water is 1.35; chilled water is 1.05; wood, coal, coke and other fuels are 1.00. The EPA source energy multipliers are static and do not vary with season, day, or hour. 1
- D. Convert the EPA source energy to COMNET TOU costs using the conversion factors in Table 5.3-1 [4].
- E. Calculate the zEPI as the ratio of the proposed design energy costs divided by the baseline building energy costs, as determined in the previous step.

A benefit of using the COMNET tariffs for zEPI is that building features such as daylighting or thermal storage that reduce energy demand in periods when the utility grid is stressed and when more expensive generating sources are on-line are given more credit. The procedure in this section enables proper credit for thermal storage, daylighting, photovoltaic production and other measures that reduce energy consumption during peak periods.

Note that if the energy performance of the baseline building is determined though simulations, the COMNET default tariffs may be directly applied and this procedure is not applicable. Note also that some rating programs may require that the ratio of the rated building and the baseline building be compared using source energy. In this case, this procedure is also not applicable.

Table 5.3-1: "Source Energy Conversion Factors (\$/kBtu)"

5B \$0.0943 \$0.0984 \$0.0993 \$0.0875 \$0.0915 \$0.0984 \$0.0984 \$0.0948 \$0.0948 6A \$0.0998 \$0.1014 \$0.1016 \$0.1030 \$0.0961 \$0.1012 \$0.1024 \$0.1019 \$0.0188 \$0.0928 6B \$0.0901 \$0.0915 \$0.0923 \$0.0937 \$0.0879 \$0.0914 \$0.0915 \$0.0929 \$0.0928 7 \$0.0994 \$0.1013 \$0.1015 \$0.1027 \$0.0957 \$0.1011 \$0.1024 \$0.1020 \$0.1032 \$0.0941 8 \$0.0949 \$0.0933 \$0.0959 \$0.0977 \$0.0883 \$0.0938 \$0.0943 \$0.0998 \$0.0984 Climate Zone Belacation Food Service Inpatient Health Care Nursing Lodging \$0.0939 \$0.0940 \$0.0940 \$0.0998 \$0.0984 1A \$0.0952 \$0.0930 \$0.0993 \$0.0996 \$0.0991 \$0.0939 \$0.0940 \$0.0941 \$0.0942 2A \$0.0957 \$0.0930	Climate Zone	Vacant	Office	Laboratory	Refrigerated Warehouse	Food Sales	Public Order and Safety	Outpatient Health Care	Refrigerated Warehouse	Religious Worship	Public Assembly
28 80,0956 80,0020 80,0022 80,0035 80,0093 80,0024 80,0024 80,0074 80,0074 80,0094 80,0093 80,0004 80,0094 80,0095 80,0078 80,0073 80,0078 80,0078 80,0073 80,0003 80,0003 80,0096 80,0095 80,0003 80	1 A	\$0.0944	\$0.0929	\$0.0928	\$0.0956	\$0.0892	\$0.0932	\$0.0937	\$0.0939	\$0.0911	\$0.0921
1A 50.0974 \$0.0942 \$0.0950 \$0.0983 \$0.0981 \$0.0960 \$0.0961 \$0.0961 \$0.0951 \$0.0951 \$0.0031 \$0.0041 \$0.0043 \$0.0043 \$0.0043 \$0.0043 \$0.0043 \$0.0043 \$0.0043 \$0.0043 \$0.0043 \$0.0044 \$0.0043 \$0.0044 \$0.0043 \$0.0044 \$0.0043 \$0.0044 \$0.0043 \$0.0043 \$0.0044 \$0.0044 \$0.0043 \$0.0044 \$0.0044 \$0.0043 \$0.0043 \$0.0044 \$0.0043 \$0.0043 \$0.0043 \$0.0045 \$0.0043 \$0.0044 \$0.0043 \$0.0044 \$0.0044 \$0.0044 \$0.0044 \$0.0044 \$0.0044 \$0.0044 \$0.0044 \$0.0044 \$0.0044 \$0.0044 \$0.0044 \$0.0044 \$0.0044 \$0.	2A	\$0.0915	\$0.0908	\$0.0900	\$0.0929	\$0.0880	\$0.0902	\$0.0898	\$0.0904	\$0.0909	\$0.0874
Section Supplementary Su	2B	\$0.0936	\$0.1020	\$0.1022	\$0.0935	\$0.0895	\$0.1025	\$0.1024	\$0.0922	\$0.1015	\$0.1016
BB 30.0939 \$0.1010 \$0.0055 \$0.0945 \$0.0088 \$0.1011 \$0.0947 \$0.0953 \$0.0953 3C \$0.9019 \$0.0922 \$0.0926 \$0.0916 \$0.0073 \$0.00921 \$0.0901 \$0.0040 \$0.0040 4A \$0.0973 \$0.0984 \$0.00938 \$0.0938 \$0.0958 \$0.09030 \$0.0930 \$0.0950 \$0.0966 \$0.0074 4C \$0.0924 \$0.0955 \$0.0930 \$0.0958 \$0.0969 \$0.0978 \$0.0964 \$0.0940 \$0.0960 \$0.0978 4C \$0.0924 \$0.0095 \$0.0938 \$0.0078 \$0.00940 \$0.0940 \$0.0096 \$0.0948 \$0.0940 \$0.0096 \$0.0948 \$0.0941 \$0.0096 \$0.0949 \$0.00940 \$0.0093 \$0.0093 \$0.0093 \$0.0093 \$0.0093 \$0.0093 \$0.0093 \$0.0093 \$0.0093 \$0.0094 \$0.0094 \$0.0010 \$0.0049 \$0.0094 \$0.0094 \$0.0094 \$0.0094 \$0.0094 \$0.0094 \$0.0094 \$0.0094	3A	\$0.0974	\$0.0942	\$0.0950	\$0.0983	\$0.0893	\$0.0960	\$0.0961	\$0.0954	\$0.0954	\$0.0957
SCC 80.0919 80.0922 80.0926 80.0916 80.0978 80.0922 80.0921 80.0941 80.0943 80.0948 80.0101 80.0978 80.0980 80.0934 90.1040 80.0958 4A 80.0923 80.0934 80.0938 80.0938 80.0980 80.0993 80.0998 90.0956 4C 80.0924 80.0935 80.0938 80.0980 80.0984 80.0910 80.0962 80.0955 5A 80.0074 80.0935 80.0931 80.0984 80.0964 80.0964 80.0942 80.0101 80.0987 5B 80.0943 80.0934 80.0939 80.0958 80.0915 80.0942 80.0114 80.0923 80.0957 80.0914 80.0124 80.0124 80.0124 80.0102 80.0942 80.0131 80.0932 80.0937 80.0957 80.0114 80.0124 80.0114 80.0124 80.0124 80.0124 80.0124 80.0124 80.0124 80.0124 80.0124 80.0124 80.0124 80.0124	3B (LA)	\$0.0967	\$0.0981	\$0.0980	\$0.0980	\$0.0916	\$0.0981	\$0.0981	\$0.0978	\$0.1003	\$0.1003
AA 80.0973 80.0984 80.0984 80.0101 80.0974 80.0980 80.0973 80.0984 80.0086 80.0936 80.0930 80.0996 80.0930 80.0999 80.0986 80.0986 4C 80.0924 80.0935 80.0938 80.0936 80.0930 80.0999 80.0996 80.0966 5C 80.0074 80.0950 80.0936 80.0948 80.0949 80.0010 80.0943 80.0943 80.0943 80.0943 80.0943 80.0943 80.0943 80.0943 80.0166 80.0936 80.0944 80.0944 80.0943 80.0162 80.0162 80.0944 80.0944 80.0944 80.0163 80.0932 80.0932 80.0952 80.0952 80.0162 80.0952 80.0162 80.0952 80.0162 80.0952 80.0944 80.0953 80.0972 80.0952 80.0943 80.0952 80.0952 80.0952 80.0952 80.0952 80.0952 80.0952 80.0952 80.0952 80.0953 80.0953 80.0952 80.0952 <td< td=""><td>3B</td><td>\$0.0959</td><td>\$0.1010</td><td>\$0.1005</td><td>\$0.0955</td><td>\$0.0945</td><td>\$0.1008</td><td>\$0.1011</td><td>\$0.0949</td><td>\$0.0967</td><td>\$0.0953</td></td<>	3B	\$0.0959	\$0.1010	\$0.1005	\$0.0955	\$0.0945	\$0.1008	\$0.1011	\$0.0949	\$0.0967	\$0.0953
4B 800928 800932 800938 800988 800906 800930 800930 800986 800946 4C 800924 800955 800950 800928 800876 800948 800949 800910 800962 800945 5A 800404 800949 800984 800949 800866 800948 800949 6B 800943 800948 800904 800966 800948 800966 800948 800948 6A 800998 81014 801016 801030 80097 800915 800948 801019 801028 800923 800924 6B 800994 801013 801015 801032 800879 800914 800915 801029 801032 801022 801032 801032 800923 800949 800914 800915 800923 800937 800879 800916 800915 800923 801032 800937 800946 800915 800924 800924 800948 800948 800948 <td>3C</td> <td>\$0.0919</td> <td>\$0.0922</td> <td>\$0.0926</td> <td>\$0.0916</td> <td>\$0.0878</td> <td>\$0.0922</td> <td>\$0.0921</td> <td>\$0.0901</td> <td>\$0.0947</td> <td>\$0.0948</td>	3C	\$0.0919	\$0.0922	\$0.0926	\$0.0916	\$0.0878	\$0.0922	\$0.0921	\$0.0901	\$0.0947	\$0.0948
4C S0.0924 S0.0955 S0.0950 S0.0928 S0.0876 S0.0948 S0.0949 S0.0940 S0.0961 S0.0943 5A S0.107 \$10.029 \$10.031 \$0.0951 \$0.0964 \$0.1056 \$0.0214 \$0.0942 \$0.1010 \$0.0987 6A \$0.0998 \$0.0104 \$0.0103 \$0.0951 \$0.0915 \$0.0124 \$0.1019 \$0.0194 \$0.0924 6B \$0.0994 \$0.0101 \$0.0103 \$0.0937 \$0.0879 \$0.0914 \$0.0102 \$0.0924 \$0.0103 \$0.0023 \$0.0937 \$0.0879 \$0.0114 \$0.0102 \$0.0924 \$0.0924 \$0.0938 \$0.0937 \$0.0879 \$0.0114 \$0.0124 \$0.0120 \$0.0924 \$0.0923 \$0.0937 \$0.0873 \$0.0914 \$0.0915 \$0.0924 \$0.0938 \$0.0914 \$0.0917 \$0.0924 \$0.0948 \$0.0949 \$0.0948 \$0.0948 \$0.0949 \$0.0948 \$0.0948 \$0.0949 \$0.0948 \$0.0948 \$0.0949 \$0.0924 \$0.0948 \$0.0932 <td>4A</td> <td>\$0.0973</td> <td>\$0.0984</td> <td>\$0.0984</td> <td>\$0.1010</td> <td>\$0.0947</td> <td>\$0.0980</td> <td>\$0.0973</td> <td>\$0.0984</td> <td>\$0.1040</td> <td>\$0.1008</td>	4A	\$0.0973	\$0.0984	\$0.0984	\$0.1010	\$0.0947	\$0.0980	\$0.0973	\$0.0984	\$0.1040	\$0.1008
5A \$0,1007 \$0,1029 \$0,1031 \$0,0951 \$0,0964 \$0,1056 \$0,1021 \$0,0942 \$0,1010 \$0,0987 5B \$0,0943 \$0,0984 \$0,0993 \$0,0875 \$0,0916 \$0,0984 \$0,0966 \$0,0948 \$0,0948 6A \$0,0991 \$0,01014 \$0,1016 \$0,1030 \$0,0961 \$0,0124 \$0,1019 \$0,0192 \$0,0928 6B \$0,0901 \$0,0915 \$0,0923 \$0,0937 \$0,0879 \$0,0914 \$0,0015 \$0,0929 \$0,0928 7 \$0,0994 \$0,1013 \$0,1055 \$0,0927 \$0,0857 \$0,0111 \$0,1024 \$0,1020 \$0,1032 \$0,0041 8 \$0,0994 \$0,0013 \$0,0957 \$0,0884 \$0,0934 \$0,0998 \$0,0984 \$0,0998 \$0,0984 \$0,0998 \$0,0984 \$0,0998 \$0,0984 \$0,0998 \$0,0984 \$0,0998 \$0,0984 \$0,0998 \$0,0984 \$0,0984 \$0,0998 \$0,0984 \$0,0998 \$0,0984 \$0,0984 \$0,0984 </td <td>4B</td> <td>\$0.0928</td> <td>\$0.0932</td> <td>\$0.0938</td> <td>\$0.0958</td> <td>\$0.0906</td> <td>\$0.0930</td> <td>\$0.0930</td> <td>\$0.0959</td> <td>\$0.0986</td> <td>\$0.0956</td>	4B	\$0.0928	\$0.0932	\$0.0938	\$0.0958	\$0.0906	\$0.0930	\$0.0930	\$0.0959	\$0.0986	\$0.0956
5B 30.0943 80.0984 80.0993 80.075 80.0915 80.0984 90.0984 90.0148 80.016 90.010 80.0061 90.0162 80.0124 90.1019 90.1018 80.022 6B 30.0901 80.0915 80.0923 80.0937 80.0879 80.0914 80.0915 80.012 80.0924 7 80.0994 90.0933 80.015 80.027 80.0832 80.0938 80.0914 80.012 80.020 80.042 8 90.094 90.0933 80.095 80.077 80.083 80.0938 80.0918 80.0998 80.0944 8 90.094 90.0933 80.095 80.077 80.083 80.0938 80.0941 80.0918 80.0984 80.0948 1A 80.095 80.0930 80.095 80.0917 80.0918 80.0918 80.0948 80.0918 80.0948 80.0918 80.0918 80.0924 80.0924 80.0924 80.0924 80.0924 80.0934 80.0934 80.0934 80.093	4C	\$0.0924	\$0.0955	\$0.0950	\$0.0928	\$0.0876	\$0.0948	\$0.0949	\$0.0910	\$0.0962	\$0.0945
6A S0.0998 S0.1014 S0.1016 S0.030 S0.0961 S0.1012 S0.0124 S0.0191 S0.0182 S0.0923 S0.0937 S0.0879 S0.0914 S0.0915 S0.0929 S0.0928 7 80.0944 \$0.1013 \$0.1015 \$0.1027 \$0.0957 \$0.0111 \$0.1024 \$0.1020 \$0.0943 \$0.0933 \$0.0959 \$0.0977 \$0.0883 \$0.0938 \$0.0940 \$0.0933 \$0.0959 \$0.0977 \$0.0883 \$0.0938 \$0.0940 \$0.0918 \$0.0998 \$0.0944 61mate Zone Bulcation Pool Service Impatient Halth Nursing Lodging \$1.0589, 80, 80, 80 \$0.0940 \$0.0918 \$0.0998 \$0.0944 1A \$0.0952 \$0.0923 \$0.0909 \$0.0916 \$0.0939 \$0.0940 \$0.0917 \$0.0912 2A \$0.0913 \$0.0926 \$0.0917 \$0.0911 \$0.0914 \$0.0914 \$0.0914 \$0.0914 \$0.0914 \$0.0914 \$0.0914 \$0.0914 \$0.0914 \$0.0914 \$0.0914	5A	\$0.1007	\$0.1029	\$0.1031	\$0.0951	\$0.0964	\$0.1056	\$0.1021	\$0.0942	\$0.1010	\$0.0987
6B 0.0901 0.0915 0.0923 0.0937 0.0879 0.0914 0.0915 0.0929 0.0928 7 0.0994 0.0133 0.1015 0.1027 0.0987 0.1011 0.1024 0.1020 0.1032 0.1041 8 0.0049 0.0933 0.0059 0.0977 0.0883 0.0938 0.0943 0.0918 0.0998 0.0984 Climate Zon Eduction Pod Service Ingate All Nation No.0916 0.0934 0.0944 0.0940 0.0957 0.0942 1A 5.0052 0.0930 0.0923 0.0909 0.0016 0.0039 0.0944 0.0940 0.0957 0.0942 2A 0.0052 0.0933 0.0083 0.0909 0.0016 0.0033 0.0944 0.0917 0.0926 0.0912 0.0930 0.0912 0.0930 0.0948 0.0991 0.0991 0.0991 0.0991 0.0991 0.0991 0.0991 0.0991 0.0991 0.0991 0.0991 0.0991	5B	\$0.0943	\$0.0984	\$0.0993	\$0.0875	\$0.0915	\$0.0984	\$0.0984	\$0.0866	\$0.0948	\$0.0948
7 80.0994 \$0.1013 \$0.1015 \$0.027 \$0.0957 \$0.0111 \$0.1024 \$0.1020 \$0.0932 \$0.0948 8 \$0.0949 \$0.0933 \$0.0959 \$0.0977 \$0.0883 \$0.0938 \$0.0943 \$0.0988 \$0.0984 Climate Zone Education Food Service Inpatient Health Nursing Lodging Strip Shopping Enclosed Mall Retail Other than Service Ober- 1A \$0.0552 \$0.0930 \$0.0923 \$0.0904 \$0.0939 \$0.0940 \$0.0940 \$0.0952 \$0.0924 2A \$0.0874 \$0.0913 \$0.0887 \$0.0990 \$0.0914 \$0.0911 \$0.0972 \$0.0924 3B \$0.0261 \$0.0917 \$0.0918 \$0.0991 \$0.0914 \$0.0914 \$0.0914 \$0.0914 \$0.0914 \$0.0914 \$0.0914 \$0.0914 \$0.0914 \$0.0914 \$0.0914 \$0.0914 \$0.0914 \$0.0914 \$0.0914 \$0.0914 \$0.0924 \$0.0935 \$0.0936 \$0.0936 \$0.0946	6A	\$0.0998	\$0.1014	\$0.1016	\$0.1030	\$0.0961	\$0.1012	\$0.1024	\$0.1019	\$0.1018	\$0.1022
8 50.0949 50.0933 50.0959 50.0977 50.0883 50.0938 50.0943 50.0918 50.0988 50.0984 Climate Zone Education Food Service Inpatient Health Care Nursing Lodging Strip Shopping Mall Enclosed Mall Retail Other than Mall Service Other 1A \$0.0952 \$0.0930 \$0.0992 \$0.0916 \$0.0939 \$0.0940 \$0.0940 \$0.0957 \$0.0942 2A \$0.0874 \$0.0913 \$0.0988 \$0.0901 \$0.0971 \$0.0917 \$0.0912 3B \$0.1021 \$0.0926 \$0.0917 \$0.0911 \$0.0901 \$0.0973 \$0.0973 \$0.0934 3A \$0.0954 \$0.0930 \$0.0914 \$0.0917 \$0.0952 \$0.0964 \$0.0960 \$0.0966 \$0.0973 \$0.0966 \$0.0973 \$0.0966 \$0.0975 \$0.0966 \$0.0974 \$0.0966 \$0.0986 \$0.0987 \$0.0916 \$0.0966 \$0.0934 \$0.0091 \$0.00966 \$0.0934 \$0.0092 \$0.0096	6B	\$0.0901	\$0.0915	\$0.0923	\$0.0937	\$0.0879	\$0.0914	\$0.0915	\$0.0917	\$0.0929	\$0.0928
Climate Zone Education Food Service Inpatient Health Care Nursing Lodging Strip Shopping Mall Enclosed Mall Retail Other than Mall Service Other 1A \$0.0952 \$0.0930 \$0.0923 \$0.0990 \$0.0916 \$0.0939 \$0.0940 \$0.0940 \$0.0957 \$0.0942 2A \$0.0874 \$0.0913 \$0.0888 \$0.09001 \$0.0911 \$0.0911 \$0.0973 \$0.0972 \$0.0934 3A \$0.0266 \$0.0917 \$0.0914 \$0.0952 \$0.0960 \$0.0966 \$0.0956 \$0.0956 \$0.0956 \$0.0956 \$0.0956 \$0.0956 \$0.0966 \$0.0975 \$0.0966 \$0.0975 \$0.0966 \$0.0975 \$0.0966 \$0.0975 \$0.0966 \$0.0975 \$0.0966 \$0.0975 \$0.0966 \$0.0975 \$0.0966 \$0.0975 \$0.0966 \$0.0975 \$0.0966 \$0.0975 \$0.0966 \$0.0975 \$0.0966 \$0.0975 \$0.0916 \$0.0975 \$0.0011 \$0.0044 \$0.0014 \$0.0022 \$0.0944 \$0.0091 <t< td=""><td>7</td><td>\$0.0994</td><td>\$0.1013</td><td>\$0.1015</td><td>\$0.1027</td><td>\$0.0957</td><td>\$0.1011</td><td>\$0.1024</td><td>\$0.1020</td><td>\$0.1032</td><td>\$0.1041</td></t<>	7	\$0.0994	\$0.1013	\$0.1015	\$0.1027	\$0.0957	\$0.1011	\$0.1024	\$0.1020	\$0.1032	\$0.1041
Name	8	\$0.0949	\$0.0933	\$0.0959	\$0.0977	\$0.0883	\$0.0938	\$0.0943	\$0.0918	\$0.0998	\$0.0984
2A \$0.0874 \$0.0913 \$0.0887 \$0.0888 \$0.0900 \$0.0914 \$0.0911 \$0.0926 \$0.0924 2B \$0.1021 \$0.0926 \$0.0917 \$0.0911 \$0.0901 \$0.0975 \$0.0961 \$0.0973 \$0.0972 \$0.0934 3A \$0.0957 \$0.0930 \$0.0926 \$0.0914 \$0.0917 \$0.0952 \$0.0945 \$0.0960 \$0.0967 \$0.0956 3B \$0.1004 \$0.0954 \$0.0938 \$0.0939 \$0.0936 \$0.0986 \$0.0987 \$0.0986 \$0.0975 \$0.0966 3B \$0.0966 \$0.0978 \$0.0938 \$0.0938 \$0.0987 \$0.1011 \$0.1019 \$0.1018 \$0.0966 3C \$0.0948 \$0.0914 \$0.0917 \$0.0903 \$0.0908 \$0.0905 \$0.0910 \$0.0948 \$0.0922 4A \$0.1005 \$0.1009 \$0.0972 \$0.0966 \$0.0937 \$0.1029 \$0.1021 \$0.1046 \$0.1040 \$0.0944 4B \$0.0954 \$0.0918 \$0.09	Climate Zone	Education	Food Service	•	Nursing	Lodging		Enclosed Mall		Service	Other
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	6A	\$0.1030	\$0.0981	\$0.0979	\$0.0976	\$0.0995	\$0.1023	\$0.1024	\$0.1022	\$0.1020	\$0.0997
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		\$0.0928	\$0.0893	\$0.0891	\$0.0892	\$0.0900	\$0.0917	\$0.0921	\$0.0922	\$0.0924	\$0.0903

^{1.} ENERGY STAR Performance Ratings Methodology for Incorporating Source Energy use, U. S. Environmental Protection Agency.

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- [3] http://www.comnet.org/mgp/content/52-geographic-regions#energy-cost-specification-by-season-and-TOU-period---climate-zone-8
- [4] http://www.comnet.org/mgp/content/53-calculating-zero-energy-performance-index-zepi#source-energy-conversion-factors-(\$/kBtu)

^{2.} Source energy conversions from "ENERGY STAR Performance Ratings Methodology for Incorporating Source Energy Use", December 2007, were used to generate this table.