

## Estimating Fuel Mix and Energy Cost

### OVERVIEW

EPA's Portfolio Manager and Target Finder software help you set whole-building energy performance targets by estimating how much energy your existing property or property design would need to consume annually to reach your energy performance target (expressed as either a 1 - 100 ENERGY STAR score or % better than the national median). If you choose, you may enter your actual energy use and cost (for an existing property) or estimated design energy use and cost (for a new design) to evaluate progress towards these targets relative to your specific fuel mix, cost, and operation.

When establishing energy performance targets early in a project's design stage, evaluating various design options and occupancy use assumptions, exact fuel mix and energy costs are often not known. In these cases, Portfolio Manager and Target Finder will provide an estimated fuel mix and energy cost to help you assess how to reach your target performance level.

- **Estimated Fuel Mix** – If you are unable to provide a fuel mix for your property design, then your estimated fuel mix is based on the state/province in which the property will be located and the property type. Typical values are computed based on the Commercial Building Energy Consumption Survey for the United States and on the Survey on Commercial and Institutional Energy Use for Canada.
- **Estimated Fuel Costs** – If you are unable to provide fuel costs for your property design, then your estimated fuel costs are based on the energy type(s) (either provided by you or estimated in Portfolio Manager) and the state where your property will be located, based on data from the Energy Information Administration for the United States. For Canada, the data is obtained from a combination of sources including Natural Resources Canada, Statistics Canada, and provincial utility rate reports.

This document explains the reference data used for these estimates and the exact values applied within Portfolio Manager. This document includes two sections:

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## ESTIMATING FUEL MIX

When you enter a property design in Portfolio Manager or Target Finder, you will specify a target level of performance, either tied to the ENERGY STAR score or to the national median energy intensity of your property type. Portfolio Manager and Target Finder then compute the energy use you would need to have to reach this target.

Your target is first computed in Source Energy Intensity (Source EUI). Source energy is a complete accounting, including both the energy used on site and the energy associated with generation and transmission of energy to your property. Source Energy is the most equitable way to compare buildings with different fuel mixes because it ensures that buildings do not receive either a credit or a penalty based on their utility (learn more at [www.energystar.gov/SourceEnergy](http://www.energystar.gov/SourceEnergy)). For two properties of the same type, with the same operation and climate zone, the Source EUI target is always identical, regardless of fuel mix. However, to convert from Source EUI into Site EUI, we must take into account the specific fuel mix of your property. If you have not specified any estimated energy use associated with your design, then we estimate your fuel mix based on your property type and location:

- **Property Type.** Your EPA-Calculated Property Type is defined as the property use type that accounts for 50% or more of your property's gross floor area. Your EPA-Calculated Property Type is then mapped into the 19 Principal Building Activity (PBA) Categories available in the Commercial Building Energy Consumption Survey (or, CBECS) for the United States and the Survey on Commercial and Institutional Energy Use (SCIEU) for Canada. Mapping between EPA-Calculated Property Type and reference survey data is included in the Technical Reference for the National Median<sup>1</sup>.
- **Location.** Your location is primarily identified by your US State or Canadian Province. In order to be able to provide fuel mix estimates broken down by Property Type, it is necessary to combine states/provinces into broader regions. For the US, Census Regions are used; for Canada provinces or regions are used.

Available information from the reference survey is used to determine the expected percentage of electricity used by your property type and location<sup>2</sup>. Portfolio Manager and Target Finder will assume this percentage for your electricity use and then assume the rest of your energy use is natural gas. Figures 1 and 2 summarize the electric percentages used by property type and location for the U.S. and Canada, respectively.

If you know that your property design will use other forms of energy (oil, propane, etc.), it is recommended that you enter your own design energy estimates. When design energy estimates are provided, this fuel mix will be applied to convert your Source EUI into Site EUI and assess your target. It is possible for you to enter an estimated design energy use, without specifying estimated fuel costs. If you do this, we will assess both your consumption and target using the specified fuel mix and estimated costs, as described in the following section.

<sup>1</sup> More information on how buildings are mapped into their peer comparison categories is available at <http://www.energystar.gov/buildings/tools-and-resources/portfolio-manager-technical-reference-us-national-energy-use-intensity>. Note that while the CBECS survey is used for the majority of property types, there are a handful of other reference surveys, too.

<sup>2</sup> CBECS Table C15. Electricity Consumption and Conditional Energy Intensity by Census Region for Non-Mall Buildings, 2003 [http://www.eia.doe.gov/emeu/cbecs/cbecs2003/detailed\\_tables\\_2003/2003set10/2003pdf/c15.pdf](http://www.eia.doe.gov/emeu/cbecs/cbecs2003/detailed_tables_2003/2003set10/2003pdf/c15.pdf), and CBECS table C5. Consumption and Gross Energy Intensity by Census Region for Sum of Major Fuels for Non-Mall Buildings, 2003. [http://www.eia.doe.gov/emeu/cbecs/cbecs2003/detailed\\_tables\\_2003/2003set14/2003pdf/c5a.pdf](http://www.eia.doe.gov/emeu/cbecs/cbecs2003/detailed_tables_2003/2003set14/2003pdf/c5a.pdf). Percent electric is computed as the electricity (Table C15) divided by the total energy (Table C5) for each census region/principal building activity combination. SCIEU data used for Canadian Buildings is not available to the public, but a summary report can be found here: [http://oee.nrcan.gc.ca/publications/statistics/scieu09/scieu\\_e.pdf](http://oee.nrcan.gc.ca/publications/statistics/scieu09/scieu_e.pdf)

**Figure 1 – % Electricity Use by Property Type and US Census Region**

	Northeast	South	Midwest	West	U.S. Average		Northeast	South	Midwest	West	U.S. Average
Adult Education	26%	66%	31%	45%	45%	Other - Entertainment/Public Assembly	22%	66%	36%	59%	45%
Ambulatory Surgical Center	39%	76%	53%	62%	58%	Other - Lodging/Residential	28%	60%	41%	48%	46%
Aquarium	22%	66%	36%	59%	45%	Other - Mall	68%	83%	56%	74%	75%
Automobile Dealership	50%	78%	45%	78%	66%	Other - Public Services	39%	66%	44%	57%	45%
Bank Branch	56%	74%	56%	70%	63%	Other - Recreation	22%	66%	36%	59%	45%
Bar/Nightclub	22%	66%	36%	59%	45%	Other - Restaurant/Bar	39%	58%	48%	42%	51%
Barracks	28%	60%	41%	48%	46%	Other - Services	29%	68%	43%	45%	48%
Bowling Alley	22%	66%	36%	59%	45%	Other - Stadium	22%	66%	36%	59%	45%
Casino	22%	66%	36%	59%	45%	Other - Technology/Science	39%	66%	44%	57%	47%
College/University	26%	66%	31%	45%	45%	Other - Utility	39%	66%	44%	57%	47%
Convenience Store with Gas Station	39%	90%	78%	57%	83%	Other/Specialty Hospital	39%	47%	34%	36%	37%
Convenience Store without Gas Station	39%	90%	78%	57%	83%	Outpatient					
Convention Center	22%	66%	36%	59%	45%	Rehabilitation/Physical Therapy	39%	76%	53%	62%	58%
Courthouse	39%	66%	44%	57%	45%	Parking	39%	66%	44%	57%	47%
Data Center	100%	100%	100%	100%	100%	Performing Arts	22%	66%	36%	59%	45%
Distribution Center	49%	80%	41%	62%	54%	Personal Services	29%	68%	43%	45%	48%
Drinking Water Treatment & Distribution	95%	95%	95%	95%	95%	Police Station	39%	66%	44%	57%	45%
Enclosed Mall	68%	83%	56%	74%	75%						
Energy/Power Station	39%	66%	44%	57%	47%	Pre-school/Daycare	26%	66%	31%	45%	45%
Fast Food Restaurant	39%	58%	48%	42%	51%	Prison/Incarceration	39%	66%	44%	57%	45%
Financial Office	56%	74%	56%	70%	63%	Race Track	22%	66%	36%	59%	45%
Fire Station	39%	66%	44%	57%	45%	Refrigerated Warehouse	49%	80%	41%	62%	54%
Fitness Center/Health Club/Gym	22%	66%	36%	59%	45%	Repair Services (Vehicle, Shoe, Locksmith, etc)	29%	68%	43%	45%	48%
Food Sales	39%	90%	78%	57%	83%	Residential Care Facility	28%	60%	41%	48%	46%
Food Service	39%	58%	48%	42%	51%	Residence Hall/Dormitory	28%	60%	41%	48%	46%
Hospital (General Medical & Surgical)	39%	47%	34%	36%	37%	Restaurant	39%	58%	48%	42%	51%
Hotel	28%	60%	41%	48%	46%	Retail Store	50%	78%	45%	78%	66%
Ice/Curling Rink	22%	66%	36%	59%	45%	Roller Rink	22%	66%	36%	59%	45%
Indoor Arena	22%	66%	36%	59%	45%	Self-Storage Facility	49%	80%	41%	62%	54%
K-12 School	26%	66%	31%	45%	45%	Senior Care Community	28%	60%	41%	48%	46%
Laboratory	39%	66%	44%	57%	47%	Single Family Home	26%	65%	32%	43%	43%
Library	22%	66%	36%	59%	45%	Social/Meeting Hall	22%	66%	36%	59%	45%
Lifestyle Center	68%	83%	56%	74%	75%	Stadium (Closed)	22%	66%	36%	59%	45%
Mailing Center/Post Office	29%	68%	43%	45%	48%	Stadium (Open)	22%	66%	36%	59%	45%
Manufacturing/Industrial Plant	39%	66%	44%	57%	47%	Strip Mall	68%	83%	56%	74%	75%
Medical Office	56%	74%	56%	70%	63%	Supermarket/Grocery Store	39%	90%	78%	57%	83%
Mixed Use Property	39%	66%	44%	57%	47%	Swimming Pool	22%	66%	36%	59%	45%
Movie Theater	22%	66%	36%	59%	45%	Transportation Terminal/Station	22%	66%	36%	59%	45%
Multifamily Housing	53%	85%	71%	79%	73%	Urgent Care/Clinic/Other					
Museum	22%	66%	36%	59%	45%	Outpatient	56%	74%	56%	70%	63%
Non-Refrigerated Warehouse	49%	80%	41%	62%	54%	Veterinary Office	39%	76%	53%	62%	58%
Office	56%	74%	56%	70%	63%	Vocational School	39%	66%	44%	57%	47%
Other	39%	66%	44%	57%	47%	Wastewater Treatment Plant	75%	75%	75%	75%	75%
Other - Education	39%	66%	44%	57%	47%	Wholesale Club/Supercenter	50%	78%	45%	78%	66%
						Worship Facility	21%	60%	29%	49%	38%
						Zoo	22%	66%	36%	59%	45%

Note on Regions:

- Northeast includes: CT, ME MA, NH, RI VT, NJ, PA;
- Midwest includes: IL, IN, MI, OH, WI, IA, KS, MN, MO, NE, ND, SD;
- South Includes: DE, DC, FL, GA, MD, NC, SC, VA, WV, AL, KY, MS, TN, AR, LA, OK, TX;
- West Includes: AZ, CO, ID, MT, NV, NM, UT, WY, AK, CA, HI, OR, WA;
- US Average is used as the default for buildings not located in either the US or Canada.

**Figure 2 – % Electricity Use by Property Type and Canadian Province/Region**

	Atlantic Region	Quebec	Ontario	Prairies Region	British Columbia	Territories		Atlantic Region	Quebec	Ontario	Prairies Region	British Columbia	Territories
Adult Education	42%	42%	42%	42%	42%	42%	Other - Entertainment/Public Assembly	34%	34%	39%	26%	34%	34%
Ambulatory Surgical Center	61%	61%	61%	61%	61%	61%	Other - Lodging/Residential	59%	48%	48%	48%	37%	48%
Aquarium	34%	34%	39%	26%	34%	34%	Other - Mall	64%	64%	64%	64%	64%	64%
Automobile Dealership	52%	52%	52%	52%	52%	52%	Other - Public Services	47%	50%	41%	32%	50%	44%
Bank Branch	80%	84%	53%	36%	54%	60%	Other - Recreation	59%	59%	62%	59%	59%	59%
Bar/Nightclub	60%	60%	60%	60%	60%	60%	Other - Restaurant/Bar	45%	50%	46%	32%	45%	45%
Barracks	36%	36%	36%	36%	36%	36%	Other - Services	78%	46%	50%	32%	34%	46%
Bowling Alley	55%	55%	55%	55%	55%	55%	Other - Stadium	55%	55%	55%	55%	55%	55%
Casino	60%	60%	60%	60%	60%	60%	Other - Technology/Science	47%	50%	41%	32%	50%	44%
College/University	66%	66%	78%	66%	66%	66%	Other - Utility	47%	50%	41%	32%	50%	44%
Convenience Store with Gas Station	78%	68%	52%	43%	50%	60%	Other/Specialty Hospital Outpatient	35%	36%	31%	36%	37%	36%
Convenience Store without Gas Station	78%	68%	52%	43%	50%	60%	Rehabilitation/Physical Therapy	61%	61%	61%	61%	61%	61%
Convention Center	34%	34%	39%	26%	34%	34%	Parking	49%	49%	49%	49%	49%	49%
Courthouse	59%	59%	59%	59%	59%	59%	Performing Arts	34%	34%	39%	26%	34%	34%
Data Center	100%	100%	100%	100%	100%	100%	Personal Services	85%	41%	56%	31%	46%	46%
Distribution Center	61%	54%	47%	20%	40%	44%	Police Station	59%	59%	59%	59%	59%	59%
Drinking Water Treatment & Distribution	95%	95%	95%	95%	95%	95%	Pre-school/Daycare	43%	52%	40%	40%	46%	46%
Enclosed Mall	64%	64%	64%	64%	64%	64%	Prison/Incarceration	59%	59%	59%	59%	59%	59%
Energy/Power Station	47%	50%	41%	32%	50%	44%	Race Track	59%	59%	62%	59%	59%	59%
Fast Food Restaurant	45%	50%	46%	32%	45%	45%	Refrigerated Warehouse	65%	56%	48%	30%	48%	49%
Financial Office	80%	84%	53%	36%	54%	60%	Repair Services (Vehicle, Shoe, Locksmith, etc)	85%	41%	56%	31%	46%	46%
Fire Station	55%	55%	55%	55%	55%	55%	Residential Care Facility	36%	36%	36%	36%	36%	36%
Fitness Center/Health Club/Gym	55%	55%	55%	55%	55%	55%	Residence Hall/Dormitory	67%	61%	35%	21%	29%	44%
Food Sales	78%	68%	52%	43%	50%	60%	Restaurant	45%	50%	46%	32%	45%	45%
Food Service	45%	50%	46%	32%	45%	45%	Retail Store	52%	52%	52%	52%	52%	52%
Hospital (General Medical & Surgical)	35%	36%	31%	36%	37%	36%	Roller Rink	55%	55%	55%	55%	55%	55%
Hotel	59%	48%	48%	48%	37%	48%	Self-Storage Facility	61%	54%	47%	20%	40%	44%
Ice/Curling Rink	55%	55%	55%	55%	55%	55%	Senior Care Community	67%	61%	35%	21%	29%	44%
Indoor Arena	55%	55%	55%	55%	55%	55%	Single Family Home	49%	49%	49%	49%	49%	49%
K-12 School	48%	54%	31%	31%	34%	39%	Social/Meeting Hall	34%	34%	39%	26%	34%	34%
Laboratory	47%	50%	41%	32%	50%	44%	Stadium (Closed)	55%	55%	55%	55%	55%	55%
Library	34%	34%	39%	26%	34%	34%	Stadium (Open)	55%	55%	55%	55%	55%	55%
Lifestyle Center	67%	67%	67%	67%	67%	67%	Strip Mall	67%	67%	67%	67%	67%	67%
Mailing Center/Post Office	51%	48%	56%	51%	51%	51%	Supermarket/Grocery Store	78%	68%	52%	43%	50%	60%
Manufacturing/Industrial Plant	49%	49%	49%	49%	49%	49%	Swimming Pool	55%	55%	55%	55%	55%	55%
Medical Office	61%	84%	61%	61%	50%	61%	Transportation Terminal/Station	39%	39%	39%	20%	39%	39%
Mixed Use Property	47%	50%	41%	32%	50%	44%	Urgent Care/Clinic/Other Outpatient	61%	61%	61%	61%	61%	61%
Movie Theater	60%	60%	60%	60%	60%	60%	Veterinary Office	61%	61%	61%	61%	61%	61%
Multifamily Housing	49%	49%	49%	49%	49%	49%	Vocational School	42%	42%	42%	42%	42%	42%
Museum	34%	34%	39%	26%	34%	34%	Wastewater Treatment Plant	75%	75%	75%	75%	75%	75%
Non-Refrigerated Warehouse	61%	54%	47%	20%	40%	44%	Wholesale Club/Supercenter	52%	52%	52%	52%	52%	52%
Office	80%	84%	53%	36%	54%	60%	Worship Facility	30%	30%	31%	30%	30%	30%
Other	47%	50%	41%	32%	50%	44%	Zoo	34%	34%	39%	26%	34%	34%
Other - Education	43%	52%	40%	40%	46%	46%							

Note on Regions:

- Atlantic Region includes: Prince Edward Island, Nova Scotia, New Brunswick and Newfoundland & Labrador
- Prairies Region includes: Manitoba, Saskatchewan and Alberta
- Territories includes: Yukon, Northwest Territories, and Nunavut

## ESTIMATING FUEL COSTS

To assess the fuel cost associated with a performance target for a design project (in either Target Finder or the Design Tab of Portfolio Manager), we begin with the Source and Site EUI of your target. As discussed in the previous section, your target Source and Site EUI are determined based on the design energy estimates you enter, or on values that are estimated based on your property type and location. To convert your target Source and Site EUI into a target \$/ft<sup>2</sup> we will use the fuel rates you provide (if applicable). Otherwise, the fuel cost is estimated based on the fuel type and the state or province in which your property is located.

For the United States, average fuel costs are obtained from the Energy Information Administration (EIA) from regular reports including Electric Power Monthly and Natural Gas Monthly. Values and reference link for estimated U.S. costs are provided in Figure 3. For Canada, the data is obtained from a combination of sources including Natural Resources Canada, Statistics Canada, and provincial utility rate reports; specific reference links are provided in Figure 4. EPA and NRCan review available data and update reference costs on an annual basis.

**Figure 3 – Average Fuel Costs by U.S. State (in \$/kBtu)**

State	Electricity (Grid)	Natural Gas	Propane	#2 Fuel Oil & Diesel	Fuel Oil #4, 5, 6	Coal	District Heat	District Chilled Water	Wood
Alabama	\$0.0312	\$0.0116	\$0.0216	\$0.0236	\$0.0174	\$0.0049	\$0.0147	\$0.0266	\$0.0126
Alaska	\$0.0506	\$0.0083	\$0.0204	\$0.0273	\$0.0174	\$0.0030	\$0.0147	\$0.0183	\$0.0169
Arizona	\$0.0279	\$0.0105	\$0.0216	\$0.0250	\$0.0174	\$0.0036	\$0.0147	\$0.0235	\$0.0132
Arkansas	\$0.0223	\$0.0076	\$0.0220	\$0.0240	\$0.0174	\$0.0036	\$0.0147	\$0.0156	\$0.0111
California	\$0.0410	\$0.0088	\$0.0219	\$0.0253	\$0.0174	\$0.0030	\$0.0147	\$0.0263	\$0.0035
Colorado	\$0.0269	\$0.0079	\$0.0202	\$0.0238	\$0.0174	\$0.0041	\$0.0147	\$0.0188	\$0.0169
Connecticut	\$0.0492	\$0.0100	\$0.0247	\$0.0256	\$0.0200	\$0.0036	\$0.0147	\$0.0256	\$0.0101
Delaware	\$0.0332	\$0.0111	\$0.0229	\$0.0235	\$0.0174	\$0.0053	\$0.0147	\$0.0228	\$0.0126
District of Columbia	\$0.0369	\$0.0114	\$0.0242	\$0.0249	\$0.0174	\$0.0048	\$0.0147	\$0.0267	\$0.0126
Florida	\$0.0290	\$0.0112	\$0.0174	\$0.0243	\$0.0182	\$0.0036	\$0.0147	\$0.0253	\$0.0079
Georgia	\$0.0287	\$0.0095	\$0.0171	\$0.0238	\$0.0174	\$0.0048	\$0.0147	\$0.0233	\$0.0089
Hawaii	\$0.0911	\$0.0394	\$0.0212	\$0.0245	\$0.0174	\$0.0030	\$0.0147	\$0.0689	\$0.0016
Idaho	\$0.0222	\$0.0076	\$0.0208	\$0.0262	\$0.0157	\$0.0041	\$0.0147	\$0.0154	\$0.0169
Illinois	\$0.0252	\$0.0067	\$0.0207	\$0.0246	\$0.0174	\$0.0023	\$0.0147	\$0.0153	\$0.0127
Indiana	\$0.0282	\$0.0080	\$0.0209	\$0.0247	\$0.0174	\$0.0029	\$0.0147	\$0.0177	\$0.0026
Iowa	\$0.0239	\$0.0079	\$0.0207	\$0.0245	\$0.0169	\$0.0032	\$0.0147	\$0.0162	\$0.0045
Kansas	\$0.0279	\$0.0093	\$0.0207	\$0.0245	\$0.0174	\$0.0032	\$0.0147	\$0.0211	\$0.0127
Kentucky	\$0.0261	\$0.0088	\$0.0207	\$0.0245	\$0.0174	\$0.0049	\$0.0147	\$0.0197	\$0.0126
Louisiana	\$0.0259	\$0.0088	\$0.0216	\$0.0236	\$0.0174	\$0.0036	\$0.0147	\$0.0195	\$0.0126
Maine	\$0.0434	\$0.0164	\$0.0244	\$0.0250	\$0.0197	\$0.0036	\$0.0147	\$0.0245	\$0.0047
Maryland	\$0.0322	\$0.0102	\$0.0243	\$0.0257	\$0.0190	\$0.0048	\$0.0147	\$0.0221	\$0.0036
Massachusetts	\$0.0484	\$0.0119	\$0.0247	\$0.0251	\$0.0210	\$0.0036	\$0.0147	\$0.0239	\$0.0101
Michigan	\$0.0295	\$0.0080	\$0.0207	\$0.0246	\$0.0167	\$0.0037	\$0.0147	\$0.0191	\$0.0027
Minnesota	\$0.0266	\$0.0077	\$0.0209	\$0.0247	\$0.0168	\$0.0032	\$0.0147	\$0.0162	\$0.0066
Mississippi	\$0.0322	\$0.0081	\$0.0222	\$0.0243	\$0.0174	\$0.0036	\$0.0147	\$0.0219	\$0.0126
Missouri	\$0.0229	\$0.0087	\$0.0204	\$0.0241	\$0.0166	\$0.0032	\$0.0147	\$0.0189	\$0.0127
Montana	\$0.0318	\$0.0088	\$0.0196	\$0.0231	\$0.0146	\$0.0077	\$0.0147	\$0.0166	\$0.0169
Nebraska	\$0.0244	\$0.0076	\$0.0206	\$0.0244	\$0.0168	\$0.0032	\$0.0147	\$0.0163	\$0.0051
Nevada	\$0.0282	\$0.0084	\$0.0218	\$0.0252	\$0.0174	\$0.0041	\$0.0147	\$0.0171	\$0.0169
New Hampshire	\$0.0462	\$0.0151	\$0.0232	\$0.0256	\$0.0196	\$0.0036	\$0.0147	\$0.0274	\$0.0074



State	Electricity (Grid)	Natural Gas	Propane	#2 Fuel Oil & Diesel	Fuel Oil #4, 5, 6	Coal	District Heat	District Chilled Water	Wood
New Jersey	\$0.0351	\$0.0098	\$0.0245	\$0.0248	\$0.0190	\$0.0053	\$0.0147	\$0.0206	\$0.0034
New Mexico	\$0.0300	\$0.0076	\$0.0218	\$0.0239	\$0.0174	\$0.0041	\$0.0147	\$0.0181	\$0.0169
New York	\$0.0428	\$0.0081	\$0.0238	\$0.0250	\$0.0168	\$0.0053	\$0.0147	\$0.0247	\$0.0034
North Carolina	\$0.0247	\$0.0088	\$0.0172	\$0.0240	\$0.0187	\$0.0048	\$0.0147	\$0.0213	\$0.0123
North Dakota	\$0.0238	\$0.0075	\$0.0205	\$0.0243	\$0.0165	\$0.0020	\$0.0147	\$0.0174	\$0.0127
Ohio	\$0.0283	\$0.0065	\$0.0206	\$0.0245	\$0.0168	\$0.0048	\$0.0147	\$0.0178	\$0.0127
Oklahoma	\$0.0206	\$0.0080	\$0.0204	\$0.0241	\$0.0174	\$0.0036	\$0.0147	\$0.0173	\$0.0126
Oregon	\$0.0257	\$0.0097	\$0.0204	\$0.0232	\$0.0163	\$0.0030	\$0.0147	\$0.0189	\$0.0133
Pennsylvania	\$0.0280	\$0.0091	\$0.0243	\$0.0248	\$0.0176	\$0.0044	\$0.0147	\$0.0193	\$0.0053
Rhode Island	\$0.0523	\$0.0126	\$0.0248	\$0.0255	\$0.0201	\$0.0036	\$0.0147	\$0.0245	\$0.0101
South Carolina	\$0.0291	\$0.0093	\$0.0174	\$0.0243	\$0.0174	\$0.0050	\$0.0147	\$0.0235	\$0.0126
South Dakota	\$0.0258	\$0.0076	\$0.0203	\$0.0240	\$0.0164	\$0.0032	\$0.0147	\$0.0175	\$0.0127
Tennessee	\$0.0296	\$0.0092	\$0.0209	\$0.0247	\$0.0168	\$0.0049	\$0.0147	\$0.0230	\$0.0126
Texas	\$0.0236	\$0.0079	\$0.0221	\$0.0241	\$0.0175	\$0.0036	\$0.0147	\$0.0195	\$0.0077
Utah	\$0.0233	\$0.0075	\$0.0208	\$0.0245	\$0.0174	\$0.0036	\$0.0147	\$0.0157	\$0.0169
Vermont	\$0.0412	\$0.0090	\$0.0246	\$0.0264	\$0.0197	\$0.0036	\$0.0147	\$0.0297	\$0.0083
Virginia	\$0.0249	\$0.0089	\$0.0173	\$0.0238	\$0.0181	\$0.0038	\$0.0147	\$0.0191	\$0.0029
Washington	\$0.0225	\$0.0088	\$0.0217	\$0.0249	\$0.0171	\$0.0030	\$0.0147	\$0.0183	\$0.0169
West Virginia	\$0.0229	\$0.0086	\$0.0174	\$0.0244	\$0.0182	\$0.0049	\$0.0147	\$0.0173	\$0.0126
Wisconsin	\$0.0311	\$0.0073	\$0.0205	\$0.0244	\$0.0174	\$0.0061	\$0.0147	\$0.0191	\$0.0103
Wyoming	\$0.0256	\$0.0076	\$0.0204	\$0.0240	\$0.0154	\$0.0041	\$0.0147	\$0.0178	\$0.0169
<b>US Average</b>	<b>\$0.0315</b>	<b>\$0.0087</b>	<b>\$0.0212</b>	<b>\$0.0247</b>	<b>\$0.0174</b>	<b>\$0.0036</b>	<b>\$0.0147</b>	<b>\$0.0210</b>	<b>\$0.0054</b>

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- Other:** If you have energy designated as "other" then no costs are estimated/assumed. Any cost metrics will show Not Available.

**Figure 4 – Average Fuel Costs by Province (in \$/kBtu)**

Province / Territory	Electricity (Grid)	Natural Gas	Propane	#2 Fuel Oil & Diesel	Fuel Oil #4, 5, 6	Coal	District Heat	District Chilled Water	Wood
Newfoundland and Labrador	\$0.0368	\$0.0090	\$0.0381	\$0.0319	\$0.0319	\$0.0022	\$0.0230	\$0.0230	\$0.0131
Prince Edward Island	\$0.0466	\$0.0090	\$0.0399	\$0.0301	\$0.0301	\$0.0022	\$0.0230	\$0.0230	\$0.0131
Nova Scotia	\$0.0447	\$0.0090	\$0.0271	\$0.0312	\$0.0312	\$0.0022	\$0.0230	\$0.0230	\$0.0131
New Brunswick	\$0.0364	\$0.0067	\$0.0271	\$0.0317	\$0.0317	\$0.0022	\$0.0230	\$0.0230	\$0.0131
Quebec	\$0.0296	\$0.0084	\$0.0337	\$0.0340	\$0.0340	\$0.0022	\$0.0230	\$0.0230	\$0.0131
Ontario	\$0.0391	\$0.0074	\$0.0217	\$0.0343	\$0.0343	\$0.0022	\$0.0230	\$0.0230	\$0.0131
Manitoba	\$0.0234	\$0.0054	\$0.0324	\$0.0326	\$0.0326	\$0.0022	\$0.0230	\$0.0230	\$0.0131
Saskatchewan	\$0.0341	\$0.0041	\$0.0381	\$0.0298	\$0.0298	\$0.0022	\$0.0230	\$0.0230	\$0.0131
Alberta	\$0.0405	\$0.0034	\$0.0280	\$0.0320	\$0.0320	\$0.0022	\$0.0230	\$0.0230	\$0.0131
British-Columbia	\$0.0275	\$0.0071	\$0.0286	\$0.0342	\$0.0342	\$0.0022	\$0.0230	\$0.0230	\$0.0131
Yukon	\$0.0507	\$0.0457	\$0.0379	\$0.0382	\$0.0382	\$0.0022	\$0.0230	\$0.0230	\$0.0131
Northwest Territories	\$0.0469	\$0.0457	\$0.0379	\$0.0340	\$0.0340	\$0.0022	\$0.0230	\$0.0230	\$0.0131
Nunavut	\$0.2068	\$0.0457	\$0.0379	\$0.0340	\$0.0340	\$0.0022	\$0.0230	\$0.0230	\$0.0131

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