

Best Practices and Lessons-Learned Capture Worksheet

Date: 5 December 2011; Reviewed January 5, 2017

Subject: NEAT: Multiple Fuel Costs

Question: We have a range of electric, natural gas, and propane rates for our service area. How do we enter these various rates into NEAT to accurately depict the costs from different utility providers?

Discussion: You can build multiple fuel costs into your Setup Library. It takes a bit of research and planning to get started. First, you need to determine the range of fuel costs for each type of fuel. In Texas, utility bills have many hidden costs that vastly alter the price/unit reflected by the utility company and what the client is actually billed in the end. See the end of this Best Practice for capturing the correct amount/unit for your library. Let's look at a real-life example.

- Electric rates range from .10 to .20/kWh.
- Natural gas rates range from \$14 to \$20/Mcf.
Mcf stands for 1,000 cubic feet.
Ccf stands for 100 cubic feet.
 - **NOTE:** this is Mcf NOT Ccf---which most utility companies use on the billings.
 - 1 CCF = 100 Cubic feet, 1 Mcf = 1,000 Cubic feet, so there are 10 Ccf in 1 Mcf
 - If the rate is \$1.40/Ccf that would equal \$14.00/Mcf ($1.40 \times 10 = 14.00$)
- You find that propane has 3 rates that are consistently billed: \$3.00, \$4.50, and \$5.00.

MULTIPLE FUEL COSTS				
Electric Only	Electric +	Natural Gas	Electric +	Propane
\$ 0.10	\$ 0.10	\$ 14.00	\$ 0.10	\$ 3.00
	\$ 0.10	\$ 16.00	\$ 0.10	\$ 4.50
	\$ 0.10	\$ 18.00	\$ 0.10	\$ 5.00
	\$ 0.10	\$ 20.00		
\$ 0.12	\$ 0.12	\$ 14.00	\$ 0.12	\$ 3.00
	\$ 0.12	\$ 16.00	\$ 0.12	\$ 4.50
	\$ 0.12	\$ 18.00	\$ 0.12	\$ 5.00
	\$ 0.12	\$ 20.00		
\$ 0.14	\$ 0.14	\$ 14.00	\$ 0.14	\$ 3.00
	\$ 0.14	\$ 16.00	\$ 0.14	\$ 4.50
	\$ 0.14	\$ 18.00	\$ 0.14	\$ 5.00
	\$ 0.14	\$ 20.00		
\$ 0.16	\$ 0.16	\$ 14.00	\$ 0.16	\$ 3.00
	\$ 0.16	\$ 16.00	\$ 0.16	\$ 4.50
	\$ 0.16	\$ 18.00	\$ 0.16	\$ 5.00
	\$ 0.16	\$ 20.00		
\$ 0.18	\$ 0.18	\$ 14.00	\$ 0.18	\$ 3.00
	\$ 0.18	\$ 16.00	\$ 0.18	\$ 4.50
	\$ 0.18	\$ 18.00	\$ 0.18	\$ 5.00
	\$ 0.18	\$ 20.00		
\$ 0.20	\$ 0.20	\$ 14.00	\$ 0.20	\$ 3.00
	\$ 0.20	\$ 16.00	\$ 0.20	\$ 4.50
	\$ 0.20	\$ 18.00	\$ 0.20	\$ 5.00
	\$ 0.20	\$ 20.00		

Create a chart like this one to the left. In this example, we will be building fuel costs for the following type of homes:

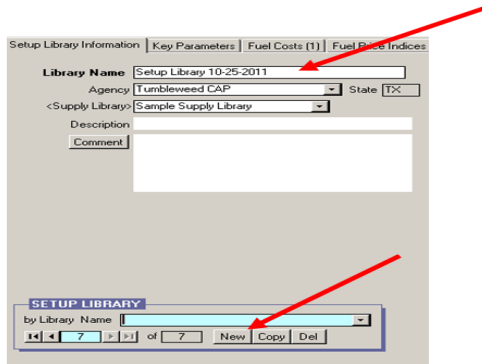
- All electric
- Electric and Natural Gas
- Electric and Propane

Notice that we will have dual-pricings available for our audits.

We recommend naming costs by the unit amount, not by provider or county.

Once you have finished collecting and organizing your data, you are ready to input the fuel costs into NEAT.

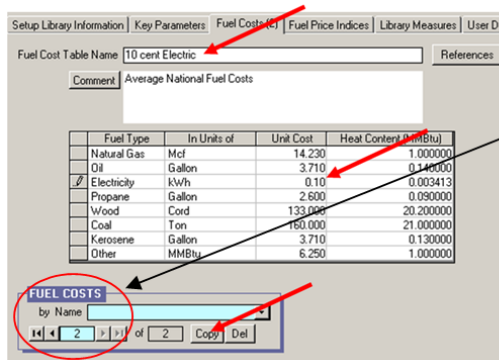
Click on Setup Library from the main menu page and create a NEW Setup Library. Name the New Library; it is recommended that you create a new library and rename it for identifying when changes were made. Otherwise, previous audits may be altered or lost when establishing the new fuel costs.



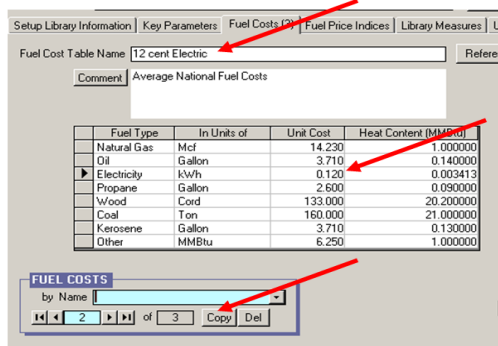
Next click on the Fuel Costs tab.

You will set up the various fuel costs for your service area in the Fuel Costs page. Be sure there is only 1 existing fuel cost name when you begin. If there are more, use the delete (Del) button to remove all but one.

Hit the Copy button. Type in the cost/unit and the type of fuel into the **Fuel Cost Table Name** field. Start with electricity costs. Then select the **Unit Cost** for the **Fuel Type**, pointed by 2nd arrow, and type in the new amount.

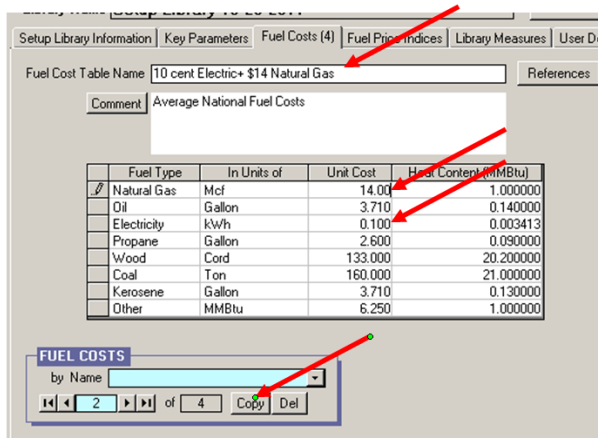


Start with a fresh fuel cost library— here is where you will see the number 1 to begin. Once you hit the copy button the number 2 will appear, as seen here. Continue to copy and change for incremental amounts identified in preplanning phase.



Once you are done entering the range of electricity costs, work on combination fuel costs. Here you will establish dual fuel pricings for electricity and natural gas, and electricity and propane. Use the chart that you created to keep from missing something. Mark each one off as you go and check each table name and unit cost for accuracy.

Use your back arrow on the bottom left corner to take you back to the first electric cost you entered. Then hit the copy button. Now you will enter both the electric and natural gas cost into the **"Fuel Cost Table Name"** field. By starting each combination with the correct electricity-only rate, you will not have to re-enter electricity unit costs each time—it will copy and you will only need to change the unit cost for the natural gas. See below:



NOTE: the name indicates both fuel costs and both unit costs match the name. You will enter the natural gas pricings for each electricity increment until all are entered. Now you have pricings for all combinations of electricity and gas.

Repeat this same process with propane pricings. When you are finished the Libraries and Other Options section in the Audit Information page will now have all electric pricings and combination pricings available to select from the Fuel Cost Library drop-down box. See below:

Audit Name: House with crawl space
 Client ID: 00004 House with crawl space
 Client Name: Crawspace, Joe
 Agency Name: Tumbleweed CAP
 Agency State: TX
 Comment: Typical home with crawl space
 Libreries and Other Options:
 <Setup Library> Setup Library 10-25-2011
 <Fuel Cost Library> 12 cent Electric + \$4.50 Propane
 <Supply Library> 10 cent Electric, 10 cent Electric + \$3.00 Prop, 10 cent Electric + \$4.50 Prop, 10 cent Electric + \$5.00 Prop, 10 cent Electric + \$14 Natural, 10 cent Electric + \$16.00 Nat, 10 cent Electric + \$18.00 Nat, 10 cent Electric + \$20.00 Nat, 12 cent Electric, 12 cent Electric + \$14.00 Nat, 12 cent Electric + \$3.00 Prop, 12 cent Electric + \$4.50 Prop, 12 cent Electric + \$5.00 Prop, 12 cent Electric + \$16 Nat Ga, 12 cent Electric + \$18 Nat Ga, 12 cent Electric + \$20 Nat Ga, 14 cent Electric, 14 cent Electric + \$14 Nat G, 14 cent Electric + \$16.00 Nat G, 14 cent Electric + \$18.00 Nat G, 14 cent Electric + \$20.00 Nat G, 14 cent Electric + \$3.00 Prop, 14 cent Electric + \$4.50 Prop

Summary:

Accurate fuel-costs result in better evaluation of the energy-savings that weatherization measures will achieve in each home, since incremental changes in fuel costs impact the SIR of measures. For Example: If two clients have the same exact homes, but one client pays 10 cents/kWh for electricity and the other pays 20 cents/kWh, you can expect to see higher SIRs for the second client, and possibly, even more ranking measures.

It will be important to have the fuel costs clearly identified in each file. Be sure they are calculated with the appropriate unit type; especially, Mcf for natural gas. The auditors will need to know these pricings for selecting the appropriate costs from the drop-down menu in the audit.

Calculating fuel cost/unit:

It is important to have 12 months billing history for all utility bills. Add up all 12 months billings. Add up all the units billed/month. Divide the total dollar amount by the total units to determine the **Unit Cost** that you will enter into the **Fuel Costs** of your **Setup Library**. REPEAT for each **Fuel Type** (electric, propane, etc) for which the client is billed. If 12 months billing is unavailable, average the months you have.

Example of calculations for Natural Gas:

Month	# Ccf billed	Total billed
January	75	\$100
February	70	\$95
March	30	\$55
April	25	\$50
May	20	\$40

June	10	\$25
July	8	\$18
August	9	\$19
September	10	\$25
October	15	\$35
November	25	\$50
December	70	\$95
12 months	367 total Ccf billed	\$607

$\$607/367 = 1.65/\text{Ccf} \times 10 = \$16.50/\text{Mcf}$

\$16.50/Mcf is what you would enter into the NEAT **Fuel Costs** for natural gas. REPEAT for electric, etc.