

Subject: Fuel Switching

Purpose: Policy and procedure for switching existing electric space heating, water heating, and clothes drying appliances to other fuels for the purpose of lowering electric usage.

General Guidelines for Fuel Switching

- a) In some cases, it may be cost-effective to replace the electric space heating or domestic hot water with a new appliance that uses another fuel. This can be calculated using the SMOC~ERS Software and is an allowable measure if a Savings to Investment Ratio (SIR) of 1 or greater is achieved.
- b) **CAVEAT: Please keep in mind the intent of the program is to benefit the customer by lowering the electrical usage of the home, but unforeseen consequences associated with fuel switching appliances may have a negative impact upon the customer. If the actual usage of the appliance remains unchanged, the fuel consumption has only been switched to another source that may or may not have payment programs that are beneficial to the customer. This must be discussed during the consumer education component. The post work electrical savings for the residence may appear to be great, but if the customer could not make payments for their heating fuel (or ran out of fuel) due to the increased usage by the "fuel switched appliance" or their arrearage for the heating fuel increased substantially, the customer did not benefit from the fuel switch.**
- c) It would not be possible to list all of the examples of potential fuel switching scenarios. Each consumer and their house would need to be examined by an auditor and the data would need to be analyzed by the SMOC~ERS software before any decisions could be made. Therefore, the following scenarios are examples designed to provide general guidance but is by no means designed to be the rule, nor should the possibilities be limited to this list. Auditors are encouraged to use their skills of assessment, the consumer interview, and the SMOC~ERS software to guide their decisions.
 - ✓ Replace an electric hot water tank with a natural gas, L.P., or fuel oil hot water tank.
 - ✓ Replace an electric forced air furnace with a natural gas, L.P., fuel oil, or wood furnace.
 - ✓ Replace electric baseboard heaters with natural gas, L.P., or fuel oil direct vent space heaters.
 - ✓ Replace an electric forced air furnace and electric hot water tank with a natural gas, L.P., or fuel oil hot water tank to provide potable hot water and heated water to an air handler system for heat.
 - ✓ Replace electric baseboard heaters with a natural gas, L.P., fuel oil, or wood furnace (a duct system would need to be installed and the cost included).

- ✓ Replace electric baseboard heaters and electric hot water tank, with a natural gas, L.P., or fuel oil hot water tank to provide potable hot water and heated water to an air handler system for heat (a duct system would need to be installed and the cost included).
 - ✓ Replace electric baseboard heaters and electric hot water tank, with a natural gas, L.P., or fuel oil hot water tank to provide potable hot water and heated water to baseboard radiators (plumbing would need to be run to the radiators and included in the cost).
 - ✓ Replace an electric hot water tank with a solar hot water tank system.
 - ✓ Replace an electric clothes dryer with a natural gas or L.P. clothes dryer.
- d) The following are other considerations that will impact the total job cost and in turn affect the SIR:
- ✓ Fuel must already be available and on site.
 - ✓ An existing distribution system should be in place.
 - ✓ Additional fuel supply lines may need to be installed to accommodate the new appliance?

Specific Information Needed for Fuel Switching in the SMOC~ERS Software

The following information will have to be entered into the SMOC software to generate a valid SIR for a fuel switch. The location for fuel switches for Hot Water Tanks and Clothes Dryers is found in the Residential Appliance Audit. The location for fuel switching for Space Heating is in the Residential Weatherization Audit.

- a) For a Hot Water Tank Fuel Switch
1. In the **Residential Appliance Audit**, in the **Hot Water Usage Analysis**, click on **Water Tank** tab.

<u>Existing Hot Water Tank</u>	<u>New Hot Water Tank</u>
Fuel Type	Fuel Type
Tank size in gallons	Efficiency (Energy Factor)
Water temperature	Tank Measure: (from drop down)
Existing insulation wrap (yes/no)	Total installed cost
Efficiency (Energy Factor)	
Adjust %	

2. Pressing the **Calculate** button after entering the above information will generate a **SIR** and a **New Annual Cost** for the new hot water tank.

b) For Space Heating Fuel Switch

1. In the **Residential Weatherization Audit**, in the **Heating** screen.

<u>Existing Appliance</u>	<u>New Appliance</u>
Pre distribution system	Post distribution system
Efficiency (%)	Efficiency (%)
Fuel Type	New Heat (from drop down)
Ignition Type	Install Measure (from drop down)
Heat Usage (Kwh)	Total installed cost
Heat Output (btu/h)	Post heating system
Pre heating system	Efficiency (AFUE %)
Efficiency (AFUE %)	

2. Pressing the **Update Fuel Switch SIR** button after entering the above information will generate a **SIR** for the new appliance.

