

## **Tanks or No Tanks? That is the Question!**

### **Tankless: Gas, Propane or Electric**

Tankless water heaters are a great complement to solar water heaters!

Be sure the Tankless unit has a "Modulation" feature to vary the flame or electric input depending on the temperature the solar water heating system is supplying.

Tankless systems rely on a great force of energy being fired onto the flow of water going by. When the flow gets to high, such as when two people take a shower at once. Solar allows tankless water heaters to overcome their greatest weakness, keeping up with a high rate of flow. Usually the solar will supply water so hot the tankless doesn't turn on at all and when it does, it turns on a lot less.

### **Gas, Propane, or Oil water heater tanks:**

If you have a good gas, propane, or oil water heater, it may be a great backup tank for your solar system as a "Two-Tank" system (see two tank diagrams). This allows you to save the cost of a tankless unit if you have room for a second tank. In open loop systems, gas, propane, or oil water heaters are less efficient when heated by solar because, if left on, you are violating the "First Law of Solar" which is keep it cool, in other words, you do not want to heat heated water, it is usually very inefficient.

### **Standard Electric water heater tanks:**

If you have an electric water heater, it is also a great backup for solar. If you are in warmer areas not subject to freeze, you can use often your standard water heater by simply removing the lower element from the upper element. The tank then works in effect like two tanks, the upper part is the backup, and the lower part is the solar. "Stratification" (heat rises) allows for this and you are not heating, (fossil fuel) heated water.

In colder areas, with a smaller family or for less demand, simply remove your old water heater and replace it with a Rheem, (Rudd, or Richmond) Heat Exchanger tank (81V080HE1) and use the upper element for back up. My family (now with 6 members) has done this for 21 years and we turn off the upper element during the summer, running 100% off the sun for our hot water.

For larger families, or for high demand, you may want to keep your tank for the backup and the Rheem tank will keep it off most of the time.

Remember that when there are heavy clouds or snow and no solar energy is available, your tankless or other backup will need to supply all your hot water.

**We hope this helps, please call or Email with any other questions!**

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