

EarthDancer - Environmental considerations

1. So let's get into SunDancer's carbon footprint.
2. According to explainthatstuff.com/powerplants you will discover that the net thermodynamic efficiency of coal fired systems are at about 22% by the time the power gets to a homeowner or business.
3. Let's compare that to a SunDancer. First, the SunDancer is stationed at your house so there are no line losses. Second, when the sun is out, about nine hours a day on average, there is zero carbon footprint. The thermodynamic efficiency of SunDancer operating off of natural gas is 60%. How does that compare to the best the power company has? The best technology they have right now are Combined Power Systems which operate at 50%. But that 50% is at the power plant, not your home. Once line losses are considered, the efficiency of these systems are about 42%. This means that SunDancer, operating straight off of natural gas, has a carbon footprint of about 70% of the best that the power companies can do. As we mentioned, we don't anticipate selling SunDancer in a "natural gas only" mode.
4. When SunDancer is operating in solar mode, there is no carbon footprint. This cuts the overall carbon footprint to about 45% of that of the best systems that the power companies have, and that is if you are using natural gas when the sun is not available. People can do that, but they don't have to.
5. When SunDancer is being powered by biomass which is solar energy stored in plant material is the same carbon footprint as solar - in other words none. When SunDancer is being powered by plastic trash, the carbon footprint is the same as when it is being powered by natural gas. There is an environmental benefit in that the trash does not have to go into a landfill, but we don't get much of a bump on carbon footprint. This will vary from user to user but we are estimating that about half of the material gasified will be biomass, and about half plastic. In this situation the carbon footprint will be reduced by an additional 50%, so the carbon footprint of a SunDancer is about 22% that of the best systems the power companies have, and this is significant.
6. For the first time we will have tools that make technical and economic sense as well as environmental sense.