

SOLAR ELECTRIC SYSTEMS

Summary by **Solar Assist, Eugene, Oregon 541/338-4957**

Solar Electric (or Photo-voltaic) Systems have recently become more viable for installation on urban homes and business'. Once thought to be used only for far out space projects, coastal buoys, and remote off grid homes these systems now are becoming commonplace in towns like Eugene and Corvallis. Refinements in grid-tied inverter technology has allowed the power quality to exceed that of the utility, thereby assuaging the fears of the utility of introducing power quality issues to their grid. Grid tied means the system is connected thru your electric panel to the utility grid and allows back-feeding of the power out to your neighbors if you are not consuming it while it is being produced. You get credit for this back-feeding while your meter spins backwards. Since you pay for the 'net' energy consumed the billing process is called 'net metered'. As well, efficiencies continue to improve for solar electric modules and inverters, delivering higher percentages of the power of the sun intercepted by your rooftop solar array. These solar electric modules have 20-25 year power production warranties. This insures that you will recoup your investment. Most inverters are warranted for 10 years. System sizes vary, but most Grid tied systems start at 2,000 Watts (2 Kw) of Solar Array capacity and range up to a 4, 5 or 6 Kw size that fit on most homes. Residential systems can get as large as 20 or 30 Kw but typically this is the realm of commercial systems. Installed prices typically range between \$8-10/ watt depending upon complexity and size. Systems with battery back up often cost more. For example a 2,000 watt system might cost \$20,000. After incentives of ~\$2-4,000 (from most local utilities), \$6,000 from state, and \$5,000 from federal tax credit, the final cost is around \$6,000. Finally, there are a variety of incentives that makes it much more affordable to finally become a producer of your own power instead of just another consumer on the block. Including the three previously mentioned incentives our last count was six direct financial benefits. The other two financial benefits to you are; the direct energy savings from your solar generator, and added value to your home. Check the incentives summary below or the INCENTIVES section on the home page for details.

Three Primary Categories:

- **Grid-Tie only: Net Metered electrical production is the primary goal. This system has two primary components (Solar Electric Array & Inverter). This system is the most cost efficient, but produces no power when a blackout occurs.**
- **Grid Back-up: Net Metered electrical production and some back-up power when there's a blackout for critical loads are these systems features. This system has four primary components (Solar Electric Array, charge controller, battery bank & Inverter). This system costs more, but the back-up feature is important to many, especially in rural areas.**
- **Off-Grid, Remote: You are your own utility. Applicable sites are typically ¼ mile or more from utility power. Most costly BUT no worry about blackouts. System is similar to Grid Back-up but a fossil fuel generator back-up is almost always necessary for a "Normal Lifestyle".**

INCENTIVES-These are available in state tax credit (up to \$6000 over 4 years), Federal Tax Credit (30% of cost after utility incentive, approximately \$5000 for 2,000 watt system), and Utility "Buy down" Incentives (~\$2/ watt in EWEB, EPUD & Energy Trust of Oregon Territories).