SIERRA COLLEGE

Beginning Photovoltaic Systems

ESS 30

Instructor: Steve Geiger

Inverters

Types of Inverters

- What is an Inverter?
- Inverter Types:
  - Stand-Alone
  - Utility-Interactive

Inverter Basics

- How does an Inverter work? (DC to AC)
- Typical Cost of an Inverter: $.75 to $1 per watt
- No maintenance is required – no service contract
- Available from 0.7 to 6 KW AC for residential
- Almost all inverters have max. power point tracking and built in DC ground fault protection
- Single big inverter is typically better than 2 small cost wise

More About Inverters

- Residential: 120 V or 240 V AC
- 240 V usually requires 2 breaker spaces
- Larger than 6 KW are typically for 3 phase commercial power (208 V or 480 V AC)
- Typically 1 to 4 strings of modules feed the inverter
- Inverters range between 92-95% efficiency
- Temperature affects inverter performance
- Best to be a close to main service as possible
- Some inverters have built-in AC and DC disconnects

Common Inverter Brands

- SMA
- Fronius
- Xantrex
- Outback
- Enphase – Micro Inverter

Installing Inverters

- Location – cool, convenient, safe
- Mounting – In studs, possible back plate
- Connections – use EMT, Liquid Tight, and/or Raceway
- Aesthetics important

Thank You