



U.S. Department of Energy  
Energy Efficiency and Renewable Energy

# Introduction to Solar

## by David Martindale

# SunWize Technologies

- Solar Technology Company
- Systems Integrator
- Manufacturer
- Distributor



# Why Choose Solar?



- **Non-polluting**
- **Utility power is unavailable**
- **Maintenance free**
- **Rapid deployment to remote locations**
- **Off grid vs. grid tie**



# Off-Grid Systems



- **Utility power is unavailable**
- **Remote locations**
- **Rugged terrain**
- **Ease of Installation**
- **Rapid deployment**



# Applications-Telecommunications



- **Microwave repeater sites**
- **Broadband**
- **VSAT's and gateways**
- **Rural telephony**
- **Radio networks**



# Applications-Transportation Aids



- **Traffic signboards**
- **Intelligent transportation systems**
- **Navigation aids**
- **Railroad crossing warning devices**



# Applications-Government/Military



- **Facility electricity**
- **Water pumping**
- **Area lighting**
- **Emergency backup power**
- **Surveillance**
- **Communications**



# Applications-Oil/Gas Industry



- **RTU/SCADA**
- **Flow metering**
- **Cathodic protection**
- **Instrumentation**
- **Seismic monitoring**
- **Value control/actuation**



# Applications-Security



- **CCTV**
- **Surveillance cameras**
- **Perimeter protection**
- **Lighting**
- **Call boxes**



# Applications-Rural Development



- **Water pumping**
- **Refrigeration**
- **Solar home systems**
- **Central village electrification**
- **Area lighting**



# Grid-Tied Systems



- **On site power**
- **Augment existing power**
- **Reduce utility load demand**
- **Reduce pollution**



# Applications-Residential



- **Reduce utility bill**
- **Add value to home**
- **Variety of systems available**
- **UL listed components**
- **NABCEP certified installers**



# Applications-Commercial



- **Reduce utility bill**
- **Low maintenance**
- **Non-polluting**
- **Rebates and incentives**



# Funding Options



- **NYSERDA**
- **LIPA**
- **NJCEP**
- **CCEF**
- **[www.dsireusa.org](http://www.dsireusa.org)**



# Example: System Costs

- **PON 843**
- **\$6 per watt and 80% of system cost**
- **Up to \$240,000.000**
- **At \$10/watt installed for 30kW system**
- **Approx. 12 year payback then 8% return**