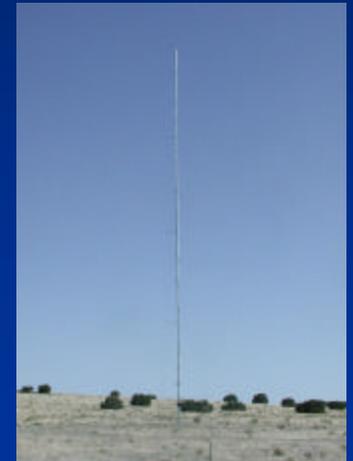


# Arizona's Environmental Portfolio Standard:

## The Path to Arizona's Sustainable Energy Future



# Built on a Solar Foundation

- **Strong Solar Electric Generation Emphasis**
- **50% of Energy Requirement from Solar Electric Generation in 2001 through 2003**
- **60% of Energy Requirement from Solar Electric generation in 2004 through 2012**
- **Credit Program based on kWh credits – Green Tags, which can be sold, traded or saved.**



# Energy Based Standards

- 2001 – 0.2% of Retail Energy Sold in Arizona
- 2002 – 0.4% of Retail Energy Sold in Arizona
- 2003 – 0.6% of Retail Energy Sold in Arizona
- 2004 thru 2012 - 0.8% of Retail Energy Sold in Arizona

If approved by Commission in 2004:

- 2005 – 1.00% of Retail Energy Sold in Arizona
- 2006 – 1.05% of Retail Energy Sold in Arizona
- 2007 thru 2012 – 1.10% of Retail Energy Sold in Arizona



# Funding

- Surcharge amount of \$0.000875 per kWh retail energy
- Capped for every retail electric service
  - Residential - \$0.35 per month
  - Small Commercial - \$13.00 per month
  - Large Commercial - \$39.00 per month
  - Large Commercial customer defined as one who has a monthly demand of 3 MW or more in 3 consecutive months.
- Allowable shift of Demand Side Management funds to Renewables

# Qualifying Renewable Energy Resources

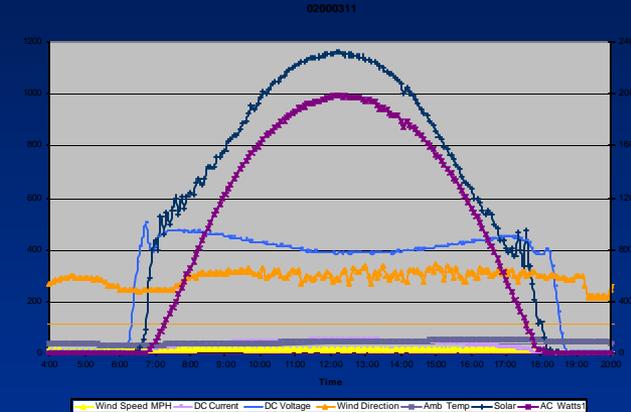
- Solar Electric Generation which may be located inside or outside Arizona
- Landfill Gas generation located in Arizona
- Wind Generation located in Arizona
- Biomass generation located in Arizona
- Solar water heating devices located in Arizona if displacing an electric hot water heater
- Solar air conditioning devices located in Arizona
  - Solar water heating and air conditioning qualify for up to 20% of total renewable energy need, and must be purchased or paid for by the Load Serving Entities.
- Installed and Operational for the first time on or after January 1, 1997.
- All qualifying resources must serve Arizona customers.

# Utilities Affected

- Arizona Public Service
  - Tucson Electric Power
  - Citizens Utilities
  - Navopache Electric Cooperative
  - Arizona Electric Power Cooperative
  - Ajo Improvement Company
  - Morenci Water and Electric
- 
- Collectively these utilities deliver about 50% of the retail electric energy used in Arizona.
  - Energy Service Providers exempt until 2004
  - Renewable Energy can be purchased or generated by the seller

# Multiplying Factors

- **Early Installation:**
  - 1997 through 1999 – 0.5
  - 2000 – 0.4
  - 2001 – 0.3
  - 2002 – 0.2
  - 2003 – 0.1
- **Good for 5 years after initial operation.**
- **Arizona & Solar Economic Development:**
  - Arizona Content – Arizona Content % - 0.5
  - Solar Electric Installed in Arizona – 0.5
- **Distributed Solar Electric Generator:**
  - Customer Owned, customer premise installed – 0.5
  - Green Pricing Program – 0.5
  - Net Meter or Net Billing Program – 0.5
  - Solar Leasing Program – 0.5
  - Maximum of 0.5 multiplier from all four factors.



# Multiplying Factors (Continued)

- In Arizona Manufacturing Credits

- KWh credits are equal to the amount of the nameplate capacity of the solar electric generators produced in Arizona and sold in a calendar year = 2190 hours. Can be used up to 20% of credit needs in 2003 and after. No double dip in year sold.



# Standards and Operating Procedures

**“The Director, Utilities Division, shall establish workshops or working groups, as needed, to recommend operating procedures and standards. Operating procedures and standards should include, but are not limited to, the topics of green pricing, green electricity, net metering, net billing, solar leasing, credit trading, sale or trading of excess portfolio kWhs, and other administrative details necessary to implement the portfolio standard. The Director, Utilities Division, shall have the authority to approve the operating procedures and standards.”**



# Program Review

- “...Staff to establish , no later than January 1, 2003, an environmental Portfolio Cost Evaluation Working Group to study the costs and benefits of the EPS. This working group will present its recommendations to the Commission whether in 2005 and after the portfolio percentage should increase as currently scheduled.”
- “The Commission will re-examine the required percentages, appropriate surcharge and the amount of the deficiency payment in 2003 based on actual experience.”
- Recommendations due June 30, 2003.

# The TEP Response to the EPS

- **Landfill Gas to Energy – 5,500 kW**
  - Los Realos Landfill to Irvington Generation Station
  - Displaces Coal with Landfill gas.
  - Reduces CO2 emissions by over 20,000 tons/year
- **Small Solar Electric Generation – 124 kW**
  - SunShare Program, Option 1 – 9 kW
  - SunShare Program, Option 2 – 18 kW
  - Existing Partnering Opportunities – 43 kW
  - Other Partnering Projects – 54 kW
  - Reasonable Economics, but insufficient demand to meet short term solar electric generation goals.
- **Large Distributed Solar Electric Generation – 2,701 kW**
  - DeMoss Petrie – 216 kW
  - Operating Headquarters – 55 kW
  - Springerville Solar System – 2,430 kW
- **GreenWatts – 20% of Solar Electric Generation Adopted**



# The TEP Response to the EPS

## •Revenue Sources:

- EPS Surcharge Funding
- System Benefit Charge
- Investment Tax Credits
- Credit Sales
- GreenWatts Revenue

## •Expenditures:

- Solar Electric Generation Installation
- SunShare Program
- Wind Resource Survey
- Biomass R&D
- Landfill Gas Survey



# The TEP Response to the EPS

## •Challenges:

120 degree F. Annual Temperature Range

115 degree F. Ambient Temperatures

1500+ Watts/m<sup>2</sup> Cloud Enhanced Insolation

## •Opportunities:

Pay as You Build Financing

Integration with control system of fossil generation



# **A portfolio standard developed with the active participation of all stakeholders is an excellent tool to establish renewable energy programs.**

**Base the portfolio standard on energy, not capacity.**

- Match the timing and amount of financing sources to reasonably expected expenditures.**
- Set realistic energy percentage goals - but make them a stretch.**
- Include a program progress review early in the program.**
- Provide financing certainty to encourage long term contracts.**
- Goals should provide for sustainable program growth.**
- Provide a simple means to fairly reduce the economic gaps between different renewable energy sources/technologies.**
- Encourage green credit trading, purchasing.**
- Report the results of the programs – both successes and failures – for the betterment of renewable energy development.**