



To: Solar Future-Arizona Stakeholders
From: Mark Gabriel
Subject: **Forum Agenda and Plan**
Date: April 24, 2008

We at R. W. Beck are pleased to invite you to participate in a stakeholder process to help define and design the solar future for Arizona.

The Solar Stakeholder Forum is the first step in a process that seeks to build a landmark program to examine the impacts and implications of residential and commercial solar photovoltaics, daylighting and solar hot water heating. This process will be the first time all aspects from consumer participation and technology, to impacts on utility system performance and planning, will be understood as Arizona moves to support its renewable goals.

As a thought leader in the renewable and building industries, R. W. Beck, Inc., an engineering and management consulting firm, supported by Arizona Public Service, would like to invite you to participate in our ***Solar Stakeholder Forum*** on May 6, 2008. The session will be from 8 a.m. to 2 p.m. at the Phoenix Urban Research Laboratory (PURL), 8th Floor, 234 North Central Avenue, Phoenix, Arizona 85004. A map is attached to this memo. *Please plan on arriving at 7:45 a.m. to clear building security. An RSVP is required for participation in the Forum.*

We are pleased that Tom Key, Technical Lead Renewables and Hydropower from the ***Electric Power Research Institute***, will kick-off the session along with Jan Bennett, Senior Vice President Energy Delivery from ***Arizona Public Service***. Attendees will be from a wide range of disciplines and markets.

The stakeholder process is a critical component of the project, which will develop the methodologies to be used in the analysis, test various assumptions in the marketplace, and provide the opportunity for those interested in expanding solar in Arizona to express their views.

The goal of the study is to present objective, transparent findings for stakeholders to review and comment on, at each step of the way. The topics include how solar energy will perform in the Arizona market, what the technologies will look like, and how customers respond. These are critical questions that have been identified to ensure that issues such as how solar technologies can fit in a portfolio of energy resources and win broad approval for deployment can be addressed.

Participation in the Stakeholder Forum is crucial as we define issues around solar characterization, the impacts of solar on the distribution system, the impacts of solar on the transmission system, as well as the critical impact of solar on generation planning. The Forum will define the program methodologies and techniques that will be used to develop a broad plan for solar in Arizona. The Forum will outline the approaches that will be used in each of the Plan Tasks.



Workshops and Working Groups

Following the Stakeholder Forum, over the course of the next four months, we will host workshops, each covering items identified in the tasks outlined below. The first workshop/working group will be on Solar Characterization on May 7, 2008 from 9 a.m.-noon. This will cover the Solar Characterization Process and Methodology in great detail. All participants in the Forum are invited to participate in the workshops and working groups.

Task 1—Solar Characterization (Workshop date May 7, 2008, Location to be Announced)

- Implementation projections and adoption rates as a function of utility incentive levels for the free market, semi-strategic and strategic deployment framework scenarios
- Potential barriers to development of the solar Distributed Energy (DE) market in the APS service territory and strategies to ameliorate them
- Technological, economic and market-based risks and opportunities for each of the three planning horizons and deployment frameworks
- Program concept, description, target market definition, eligibility, incentives, rationale and objectives
- Delivery strategy and administration, marketing and communications
- Program implementation schedule
- Measurement, evaluation, and research plan

Task 2—Impacts of Solar on the Distribution System (Workshop Date TBD)

- Feeder equipment and source transformer capacities
 - Transformer and feeder peak load forecast
 - Capacity, voltage and energy losses at existing and projected loads
 - Source transformer losses at existing and projected loads
 - Reliability and power quality, existing and expected
 - Reactive power needs, criteria, and value
 - Proposed distribution system upgrades and capital and O&M costs
 - Fault current and protection coordination analysis
 - Analysis of Advanced Metering Infrastructure and other requirements for potential control, reporting, protection and metering needs for solar DE deployment
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Task 3—Impacts of Solar on the Transmission System (Workshop Date TBD)

- Incremental impact on system loads (to be simulated in the generation simulations of Task 4)
- Incremental impact on total T&D system losses
- Avoided and incurred marginal transmission capital costs, primarily based on avoided or delayed transmission system improvements
- Value of solar DE on the transmission system could vary with the level of deployment; hence, value curves will be developed based on sampling of solar DE deployment scenarios. Quantified costs and benefits.

Task 4—Impacts of Solar on Energy and Capacity Planning (Workshop Date TBD)

- Projected marginal net avoided variables costs, including energy, ancillary services and unit commitment benefits and costs
- Projected marginal net avoided fixed costs (capital and fixed O&M)
- Projected generation dispatch
- Projected impact on emissions
- Capacity expansion plans and costs

Attachments
