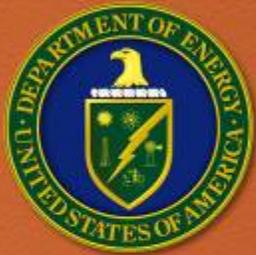


# WELCOME



## Solar Energy Development

Programmatic Environmental Impact Statement

# Programmatic EIS on Solar Energy Development Funded by DOE or Occurring on BLM-administered Lands in Six Western States



Public Scoping Meetings  
June – July 2008

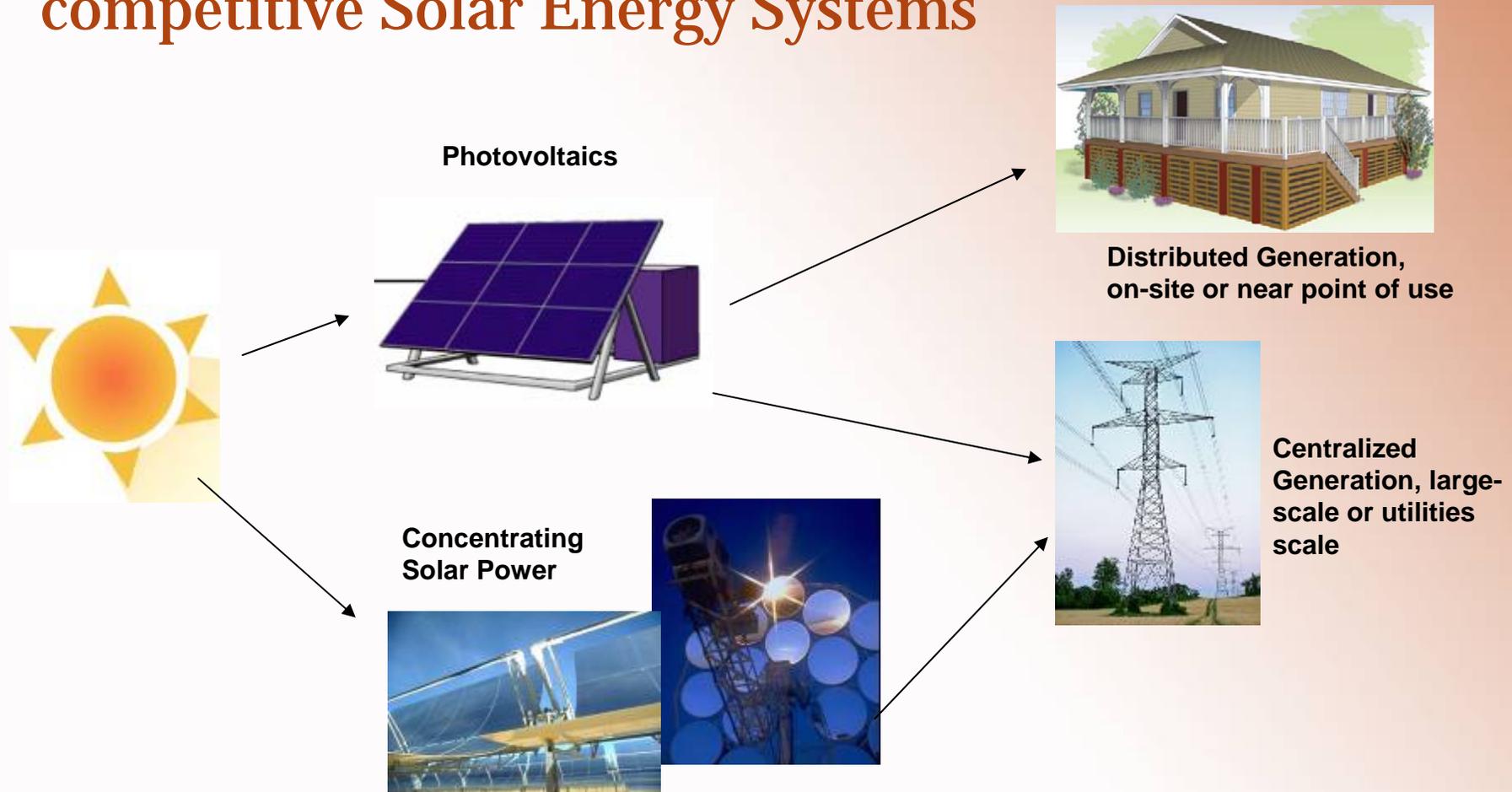


# Overview of DOE's Solar Energy Program

- DOE goals
  - Add energy supply from diverse sources ... making greater use of renewable sources.
  - Improve the quality of the environment by reducing greenhouse gas emissions and environmental impacts to land, water, and air from energy production and use.
- Solar Program Goal
  - Increase the use of solar power (it's renewable and emits no greenhouse gases)
- Solar Program Resources in 2008
  - Research and development - \$152M
  - Market transformation - 18M



# DOE's Solar Energy Program Supports Development of High-performance and Cost-competitive Solar Energy Systems



# Why is DOE Co-leading Preparation of this Programmatic EIS with BLM?

- A utility scale solar project, which generates enough power for tens of thousands of homes:
  - Requires intense solar radiation and the 6 states included in the Programmatic EIS (AZ, CA, CO, NV, NM, UT) have the best solar resource in the U.S.
  - Requires at least 5 acres for each MW – a 250 MW project needs 1,250 acres or 2 square miles.
- BLM manages 119 million acres of Federal land in the 6 states.



150 MW at Kramer Junction, CA



# What Results DOE Expects from the Programmatic EIS?

- Identification of land that is appropriate for solar deployment (technically and environmentally)
- Establishment of policy that would apply to solar energy projects supported by DOE:
  - Best practices for deploying solar projects,
  - Methods to minimize impact to natural and cultural resources.
- Tiering of future site-specific assessments to the PEIS.
- More accurate model for predicting the potential for solar energy development to provide power, create jobs, and mitigate climate change.



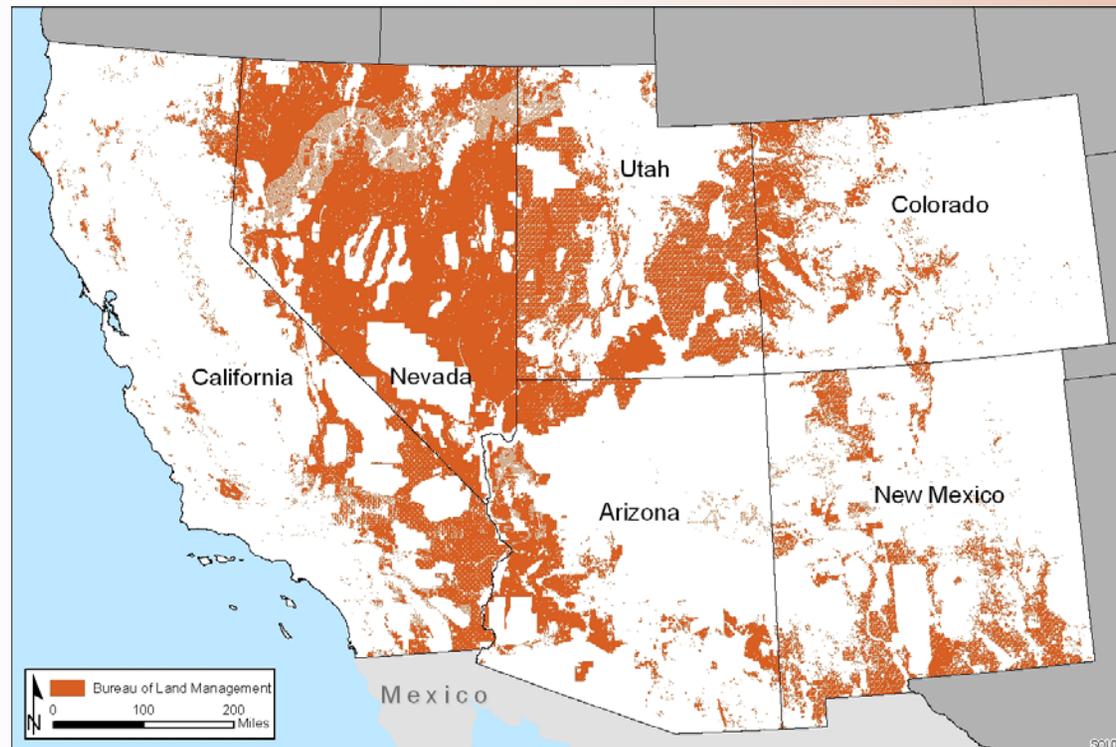
# BLM's Role and Interests in Solar Energy Development Program

- BLM manages approximately 258 million acres of Federal land across the U.S.



# BLM's Role and Interests in Solar Energy Development Program, cont.

- In the 6-state study area, BLM manages 119 million acres of Federal land.



# Why is BLM Involved in Preparation of this Programmatic EIS?

- Executive Order 13212, *Actions to Expedite Energy-Related Projects*, requires Federal agencies to expedite review of energy project applications.
- The Energy Policy Act of 2005 (Title II, Sec. 211) requires the DOI to approve at least 10,000 MW of renewable energy on public lands by 2015.



# What are BLM's Programmatic Goals?

- Establish a Solar Energy Development Program
- Identify BLM-administered lands suitable for utility-scale solar development
- Consider the need for additional transmission corridors crossing BLM-administered lands
- Amend BLM land use plans in the six-state area to address solar energy development



# Overview of Solar Technologies, Solar Resources, and Market Penetration

- Brief introduction of utility-scale solar technologies
  - (Proposed for Solar PEIS: utility scale  $\geq 10$  MW)
- Geographic Information System (GIS) based solar resources in Southwest U.S.
- Federal policies that facilitate deployment



# Solar Technologies and Market Sectors



- Solar with storage (Dispatchable)
  - Parabolic trough
  - Power tower
  - Linear Fresnel
- Solar without Storage (Non-Dispatchable)
  - Dish/Engine
  - Concentrating PV
  - Flat-plate PV



# Concentrating Solar Power: Dispatchable Power



## **Parabolic Troughs:**

Commercial, utility-scale deployments

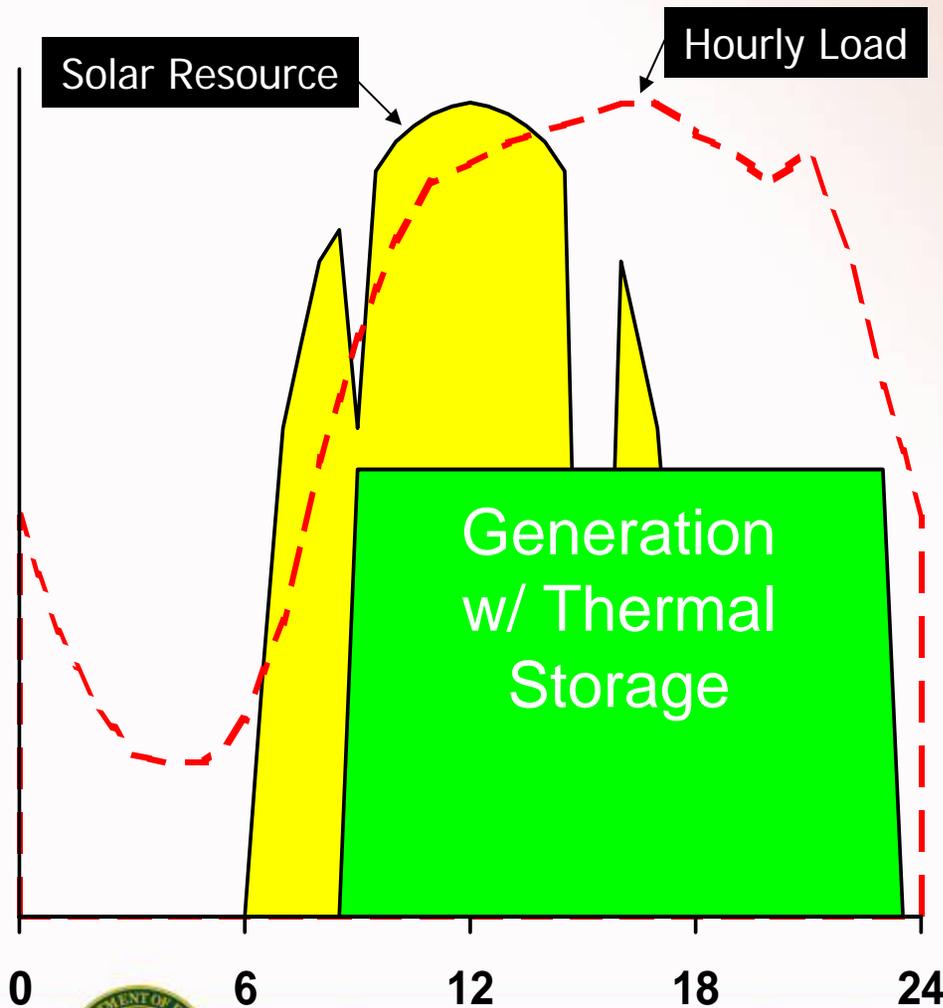


**Central Receiver:** Pre-commercial, pilot-scale deployments

- Up to 250 MW plants (or multiple plants in power parks) for peaking and bulk power
- Moderate solar-to-electric efficiency
- Thermal storage offers load following and capacity factors up to 70%



# Value of Dispatchable Power? Meeting Utility Power Demands



Storage provides:

**higher value**

*because power production can match utility needs*

**lower costs**

*because storage is cheaper than incremental turbine costs*



# Concentrating Solar Power: Non-Dispatchable Central Station/Distributed Power



**Dish/Stirling:** Pre-commercial,  
pilot-scale deployments



**Concentrating PV:** Pre-commercial,  
pilot-scale deployments

Modular (3-25kW)

High solar-to-electric efficiency



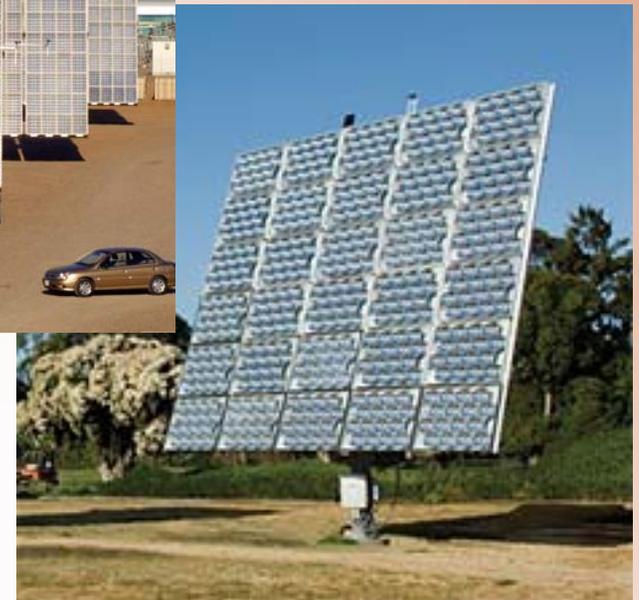
# Concentrating PV Systems: Non-Dispatchable Central Station/Distributed Power



Reflective



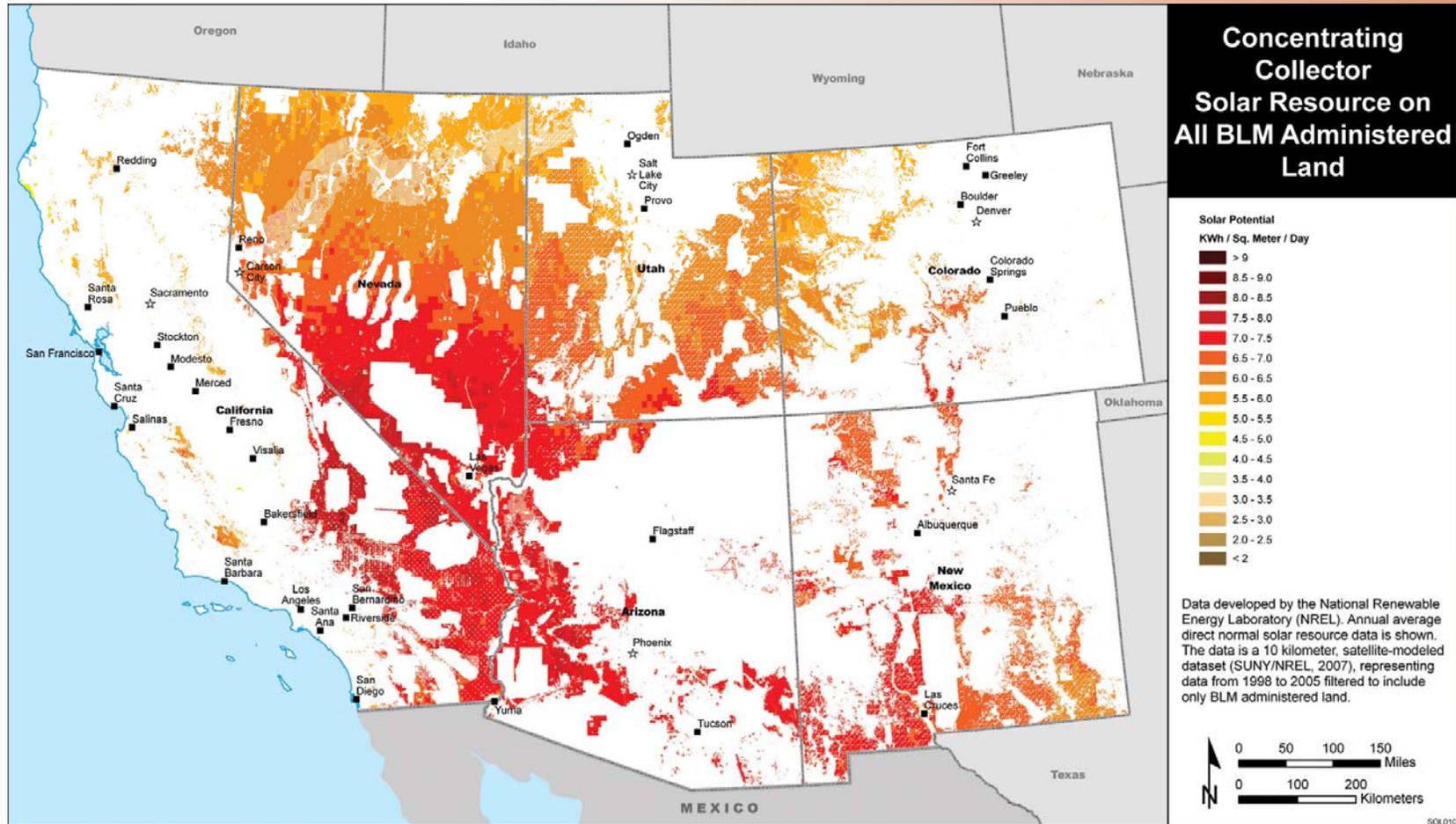
Refractive



Reflective + optical rod



# Direct Normal Insolation Solar Resource > 5.0 kWh/m<sup>2</sup>-day



# PV Flat Plate Systems Tracking & Fixed



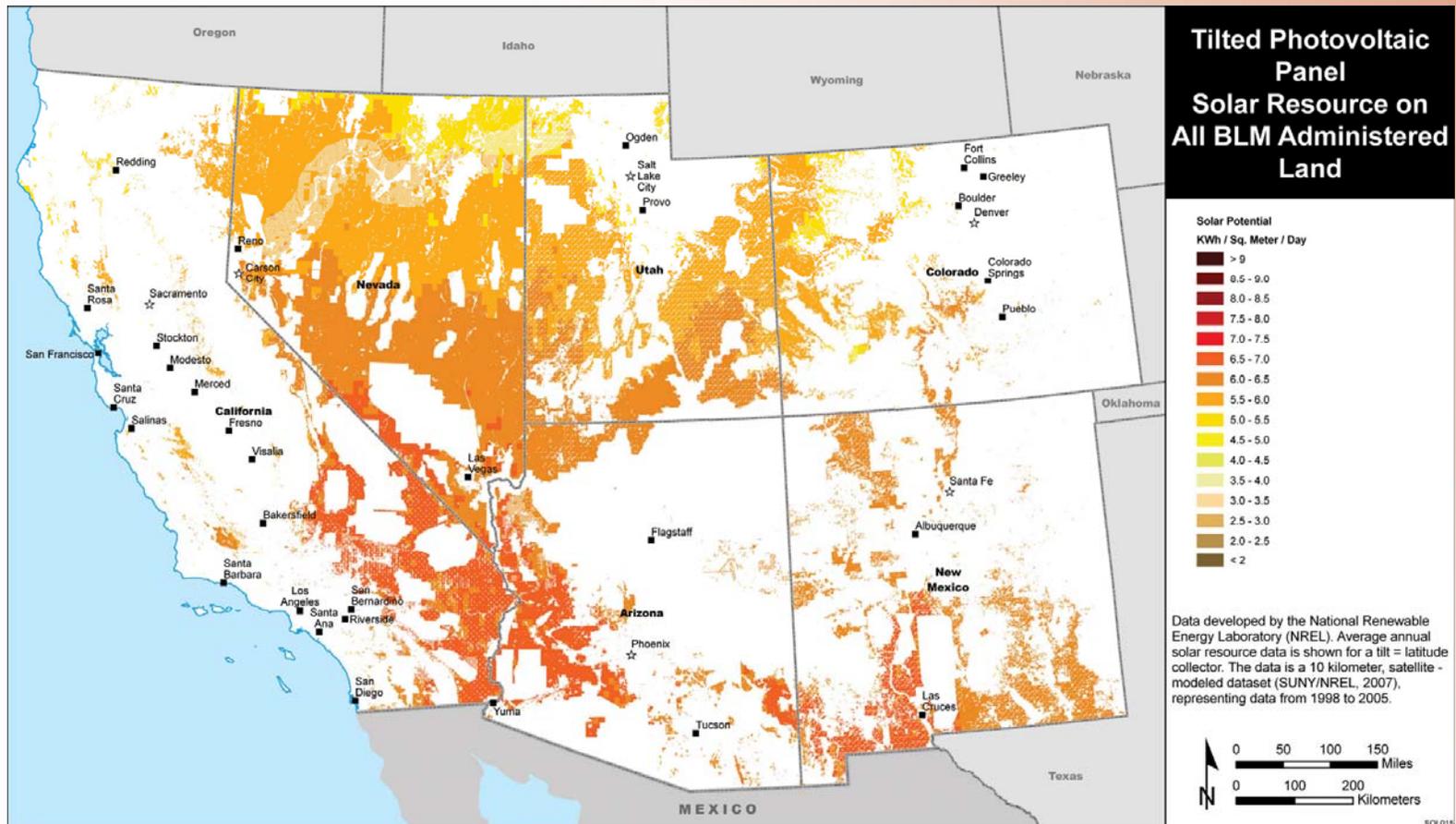
**Nellis AFB – 14.2 MW  
Flat Plate - Single Axis Tracking**



**11MW Flat Plate Fixed Tilt  
Serpa, Portugal**

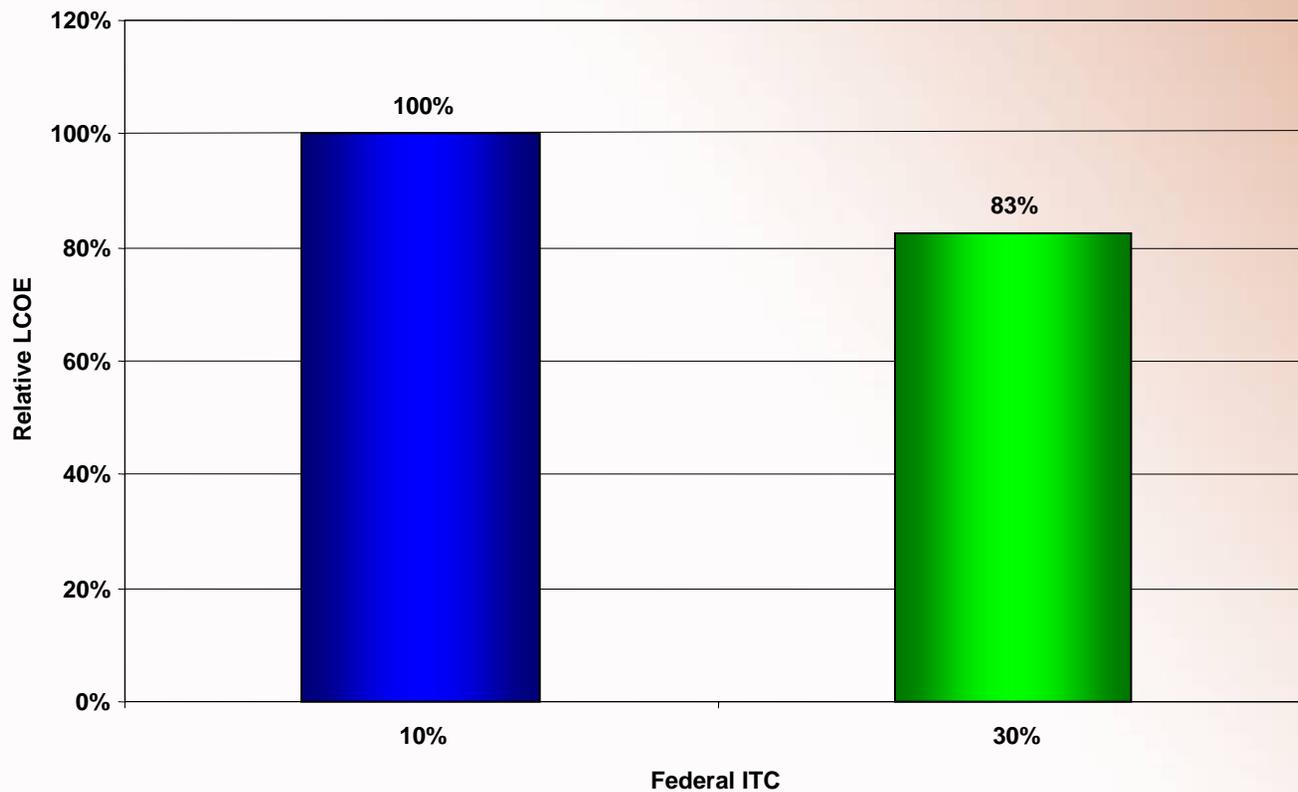


# Global Solar Resource for PV > 5.0 kWh/m<sup>2</sup>-day

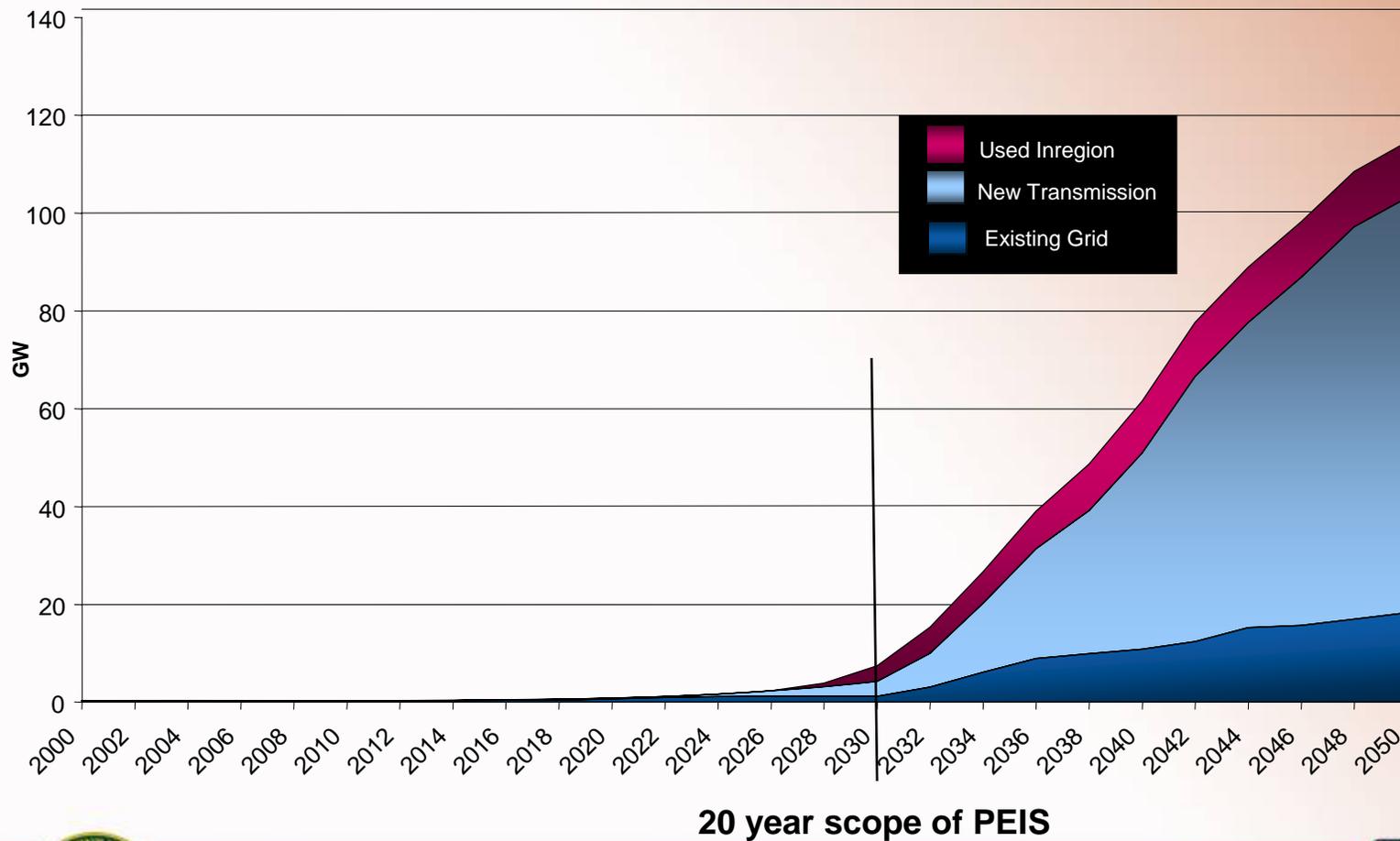


# Federal Policy Analysis

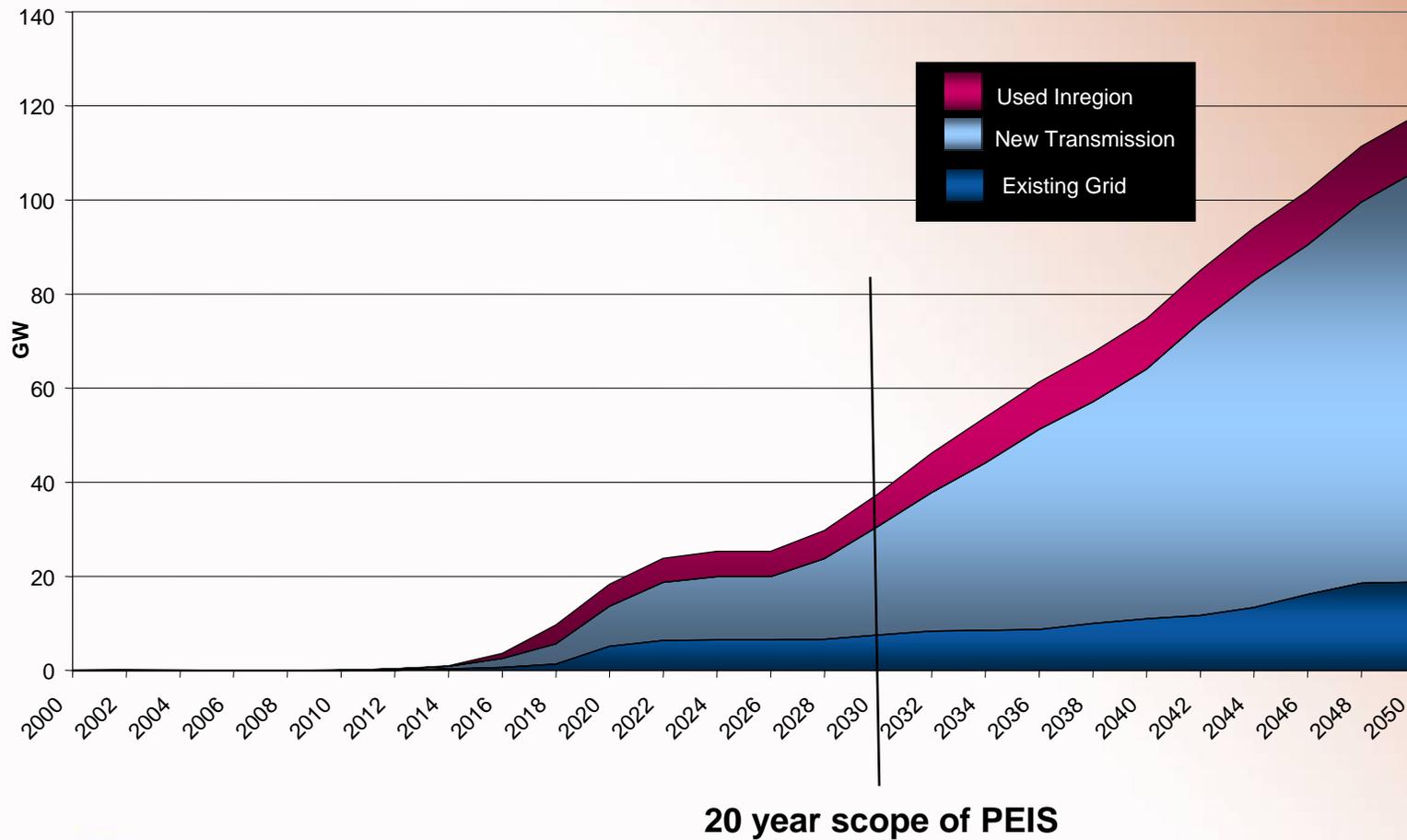
## Federal Investment Tax Credit



# Cumulative CSP Capacity No Extension of Solar ITC



# Cumulative CSP Capacity 8-year extension with declining ITC



# Overview of the NEPA Process

- What is in an EIS?
  - An EIS provides a comprehensive **analysis of environmental and socioeconomic impacts**
  - Describes the **purpose and need** for the proposed program
  - Identifies environmental **impacts and mitigation**
  - Analyzes **alternatives** to a proposed action
  - Analyzes the **short and long term impacts, cumulative impacts**, and the **commitment of resources** that could result
  - Describes how **public concerns** were treated in the analysis



# Overview of the NEPA Process, cont.

- Why is this EIS being prepared?
  - NEPA requires that an EIS be prepared for major federal actions with the potential for significant impact on the quality of the human environment.
  - The Agencies have determined that a programmatic EIS is appropriate to evaluate establishing specific agency-wide solar energy programs and additional related policy.
- What is a Programmatic EIS?
  - A Programmatic EIS evaluates the environmental impacts of broad agency actions, such as the development of programs or the setting of national policies.
  - It does not evaluate specific projects.
  - Instead, it considers
    - Generic impacts of actions – in this case, of solar energy technologies
    - Potentially applicable mitigation measures



# Overview of the NEPA Process, cont.

- What is scoping?
  - Scoping is the first phase of public involvement in an EIS. It is the process by which the Agencies gather information on:
    - Proposed action,
    - Alternatives to be considered,
    - Significant issues to be analyzed,
    - Possible mitigation measures,
    - Availability of data relevant to the analyses, and
    - Interested individuals and organizations and their specific concerns.



# Overview of the NEPA Process, cont.

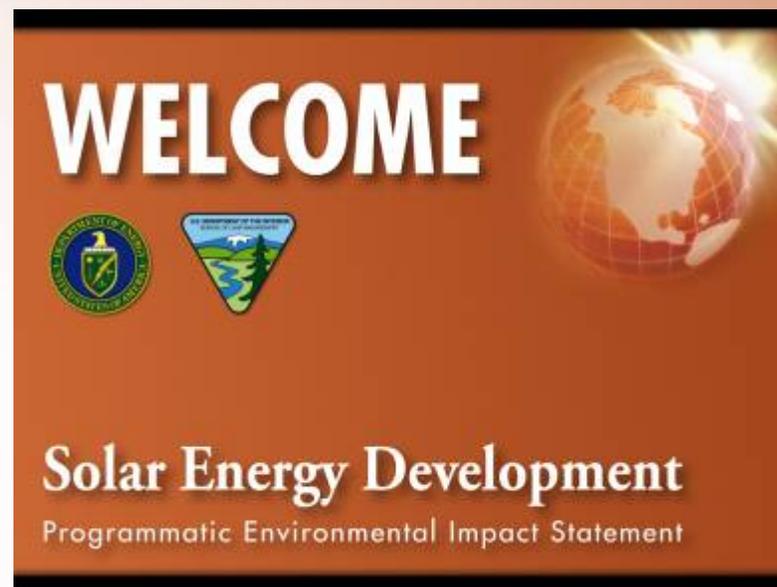
- What alternatives have been identified for evaluation in the Solar Energy PEIS?
  - No action alternative
  - Proposed action
    - Developing and implementing agency-specific programs that would facilitate environmentally responsible utility-scale solar energy development
    - Programs to include policies and mitigation strategies related to solar energy development in the 6-state study area
    - For BLM, amending individual land use plans to adopt the new program.
  - Limited development alternative (BLM only)
    - Limit development to previously proposed solar energy development projects which have complete plans of development and are awaiting application approval.



# Public Involvement Opportunities

There are a number of opportunities for public involvement:

- Public Scoping
  - May 29 through July 15, 2008
- Review of Draft EIS
  - Spring 2009
- Review of Final EIS
  - Spring 2010



# Solar Energy Development Programmatic EIS

## INFORMATION CENTER

HOME

ABOUT THE EIS

GETTING INVOLVED

SOLAR ENERGY GUIDE

EIS DOCUMENTS

NEWS ♦ FAQs ♦ GLOSSARY ♦ E-MAIL SERVICES

<http://solareis.anl.gov>

Provides access to:

- Information on the EIS process
- Information on solar energy resources and technologies
- EIS-related documents
- Project schedule
- Online comment forms
- Project updates
- Email notifications



# How to Provide Scoping Comments

There are 3 ways to provide scoping comments:

- At this scoping meeting
- Via the project website: <http://solareis.anl.gov>
- Via mail

Scoping comments will be accepted through July 15, 2008.



# How to Submit Written Comments

- Use the online comment form on the public Web site:  
<http://solareis.anl.gov/involve/comments>
- Fill out a paper comment form
  - Comment forms available at registration desk
  - Mail to address below or leave with a PEIS staff member tonight
- To submit other written comments and/or supplemental material
  - Leave with a PEIS staff member tonight or
  - Mail to:  
Solar Energy PEIS Scoping  
Argonne National Laboratory  
9700 S. Cass Avenue – EVS/900  
Argonne, IL 60439



# Providing Oral Comments Tonight

- Sign up to speak at registration desk
  - Speakers will be called in the order they sign up
  - Unregistered speakers will follow
- Making an oral comment:
  - State your name and affiliation
  - 3-minute limit, additional time as schedule allows
  - Limit comments to scope of Programmatic EIS
  - Leave written copies of remarks or any supplemental materials with a Solar Energy PEIS staff member
- Comments will be recorded in transcripts that will be posted on the public Web site.



## For More Information

- Visit the public information center:  
<http://solareis.anl.gov>
- Contact the Federal agencies:
  - Lisa Jorgensen, Department of Energy, Golden Field Office, [lisa.jorgensen@go.doe.gov](mailto:lisa.jorgensen@go.doe.gov), 303–275–4906
  - Linda Resseguie, BLM Washington Office, [linda\\_resseguie@blm.gov](mailto:linda_resseguie@blm.gov), 202–452–7774

