



# VSBN GREEN JOB FAIR

**Peter Lowenthal**

**Group Director, 360jmg**

**Executive Director,**

**MD-DC-VA Solar Energy Industries  
Association**

**GREEN Job Fair 2009, Arlington, VA**

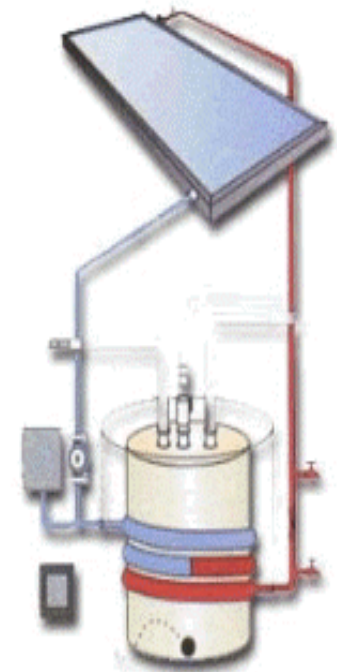
**February 27, 2009**





# Solar Energy Industry

- Covers three industries:
  - Photovoltaic / Concentrating PV
  - Solar Thermal
  - Solar Electric Power





# Primary Job Creation from the Solar Industry

- Solar Cell and Module Manufacturers
- Photovoltaic Equipment Manufactures
- Balance of Systems Manufactures and Supplies
- System Integrators & Packagers
- Distributors
- Installers
- Service & Repair Technicians (Operations & Maintenance)
- Sales Representatives /Marketers/Estimators
- Site Surveyors/ Assessors
- Researchers & Scientists
- Engineers/ Designers
- Trainers and Educations

• Interstate Renewable Energy Council  
[http://www.irecusa.org/uploads/media/Occupational\\_Profiles\\_August\\_2008\\_Final.pdf](http://www.irecusa.org/uploads/media/Occupational_Profiles_August_2008_Final.pdf)



# Indirect Job Creation from the Solar Industry

- Architects
  - Builders
  - Trade & Skilled Workers
    - Roofers
    - Electronic and Metal Workers
    - HVAC
    - Plumbers
  - Commodity Suppliers
    - Industries Impacted: Glass, Plastics, Steel, Aluminum, etc.
  - Electric Power Utility Workers
  - Finance
  - Industry event planning and publications
  - Business Managers
    - Administrative
    - Human Resources
    - Communications/Public Relations
    - Marketing
  - Policy & Program Managers
- Interstate Renewable Energy Council
- [http://www.irecusa.org/uploads/media/Occupational\\_Profiles\\_August\\_2008\\_Final.pdf](http://www.irecusa.org/uploads/media/Occupational_Profiles_August_2008_Final.pdf)



# Training and the Solar Industry

<b>Job Position</b>	<b>Training Required</b>
<b>Manufacturers</b>	<b>All level of training and Education</b>
<b>Installers Service &amp; Repair Technicians Distributors/Designers Electric Power Utility Workers</b>	<b>Technical training and community college Industry training / seminars</b>
<b>Site Surveyors/ Assessors /Sales</b>	<b>Technical and OJT</b>
<b>Builders /Developers/Design</b>	<b>College/university</b>
<b>Researchers &amp; Scientists Engineers/Designers/Archit/ Sales Representatives/Marketers/ Estimators/ Finance Business Managers</b>	<b>College/university Industry experience and workshops</b>



## Standard Occupational Classification Policy Committee (SOCPC)

- Recommends to revised 2010 SOC  
Solar Photovoltaic Installers (47-2231)
- Wind Turbine Service Technicians (49-9081)
- Workers in both of these occupations perform tasks that are sufficiently distinct from tasks in existing SOC occupations
- **WE ARE CLASSIFIED !**



# Training and Education

- Solar Energy International Boulder, Co
  - Solar Energy and Sustainability
  - Home ConstructionClasses travel
- Colleges and Community Colleges:
  - James Madison University
  - Frostburg State University
  - Anne Arundel Community College

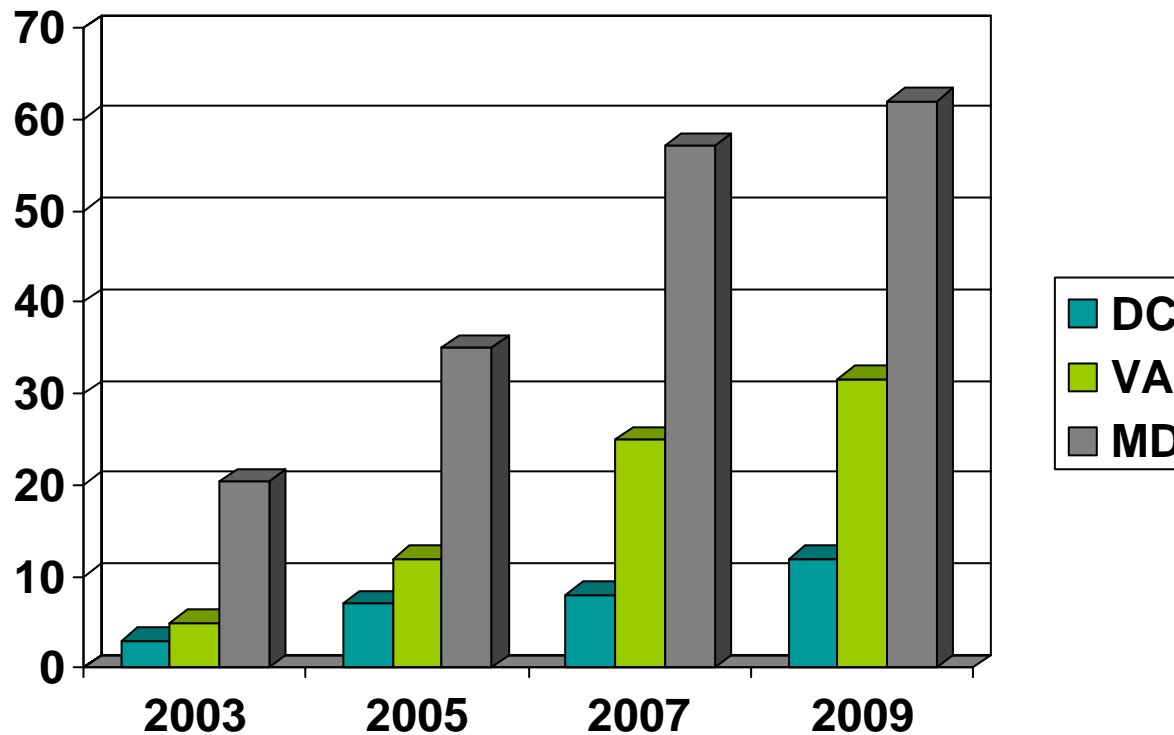


# SEIA (national) Membership

- 850 Members
- 42% Solar Contractors and installers
- 27% Project Consultants
- 13% Manufacturers
- 18% Other, Finance banking lawyers
- Chapters in States or regions
- MDV-SEIA, Cal-SEIA, CO-SEIA, FLA-SEIA, ARI-SEIA, MSEIA, Great Lakes SEIA, HI-SEIA NY-SEIA, TX-SEIA, SEBANE, ME-SEIA



# MDV-SEIA Membership 187 Members





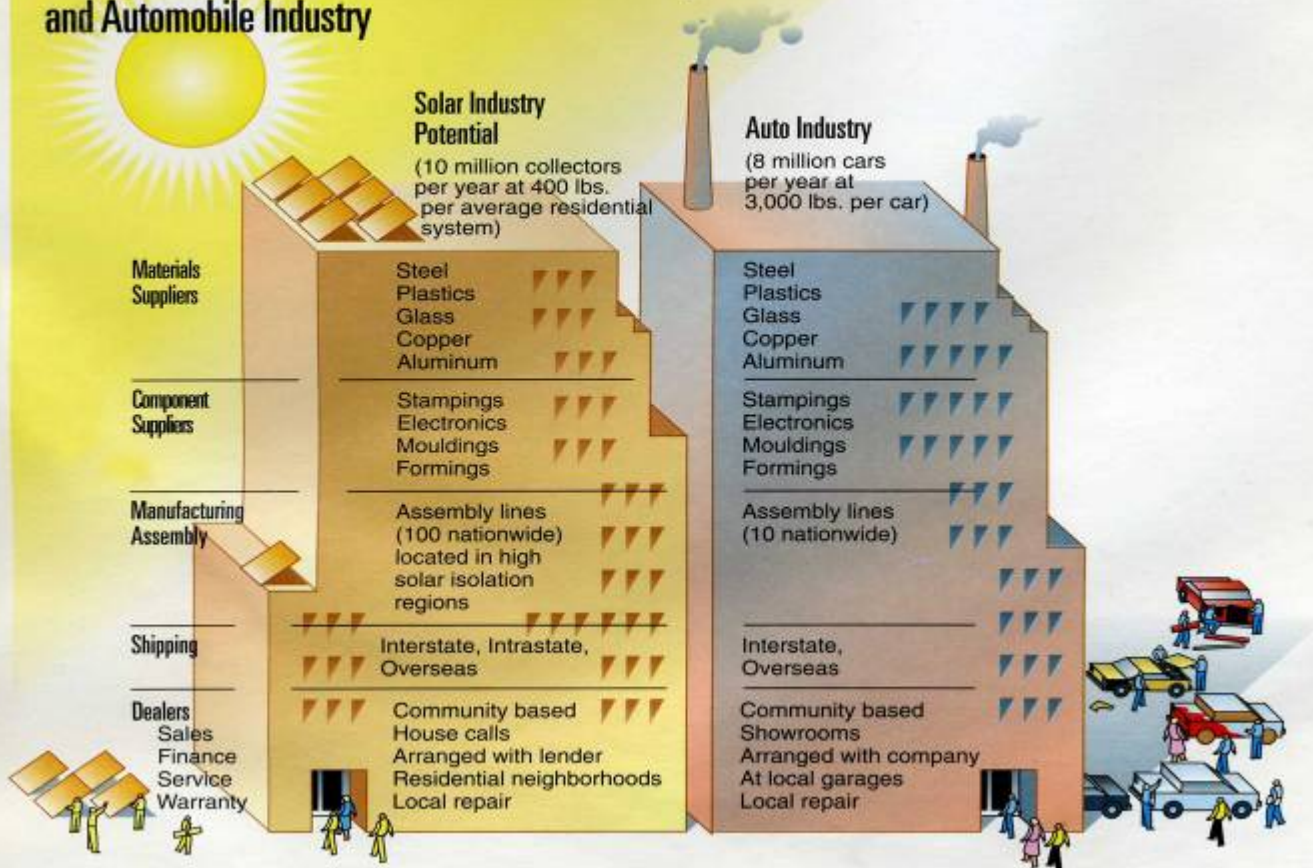
# Google Headquarters in California Big Systems Cost Less





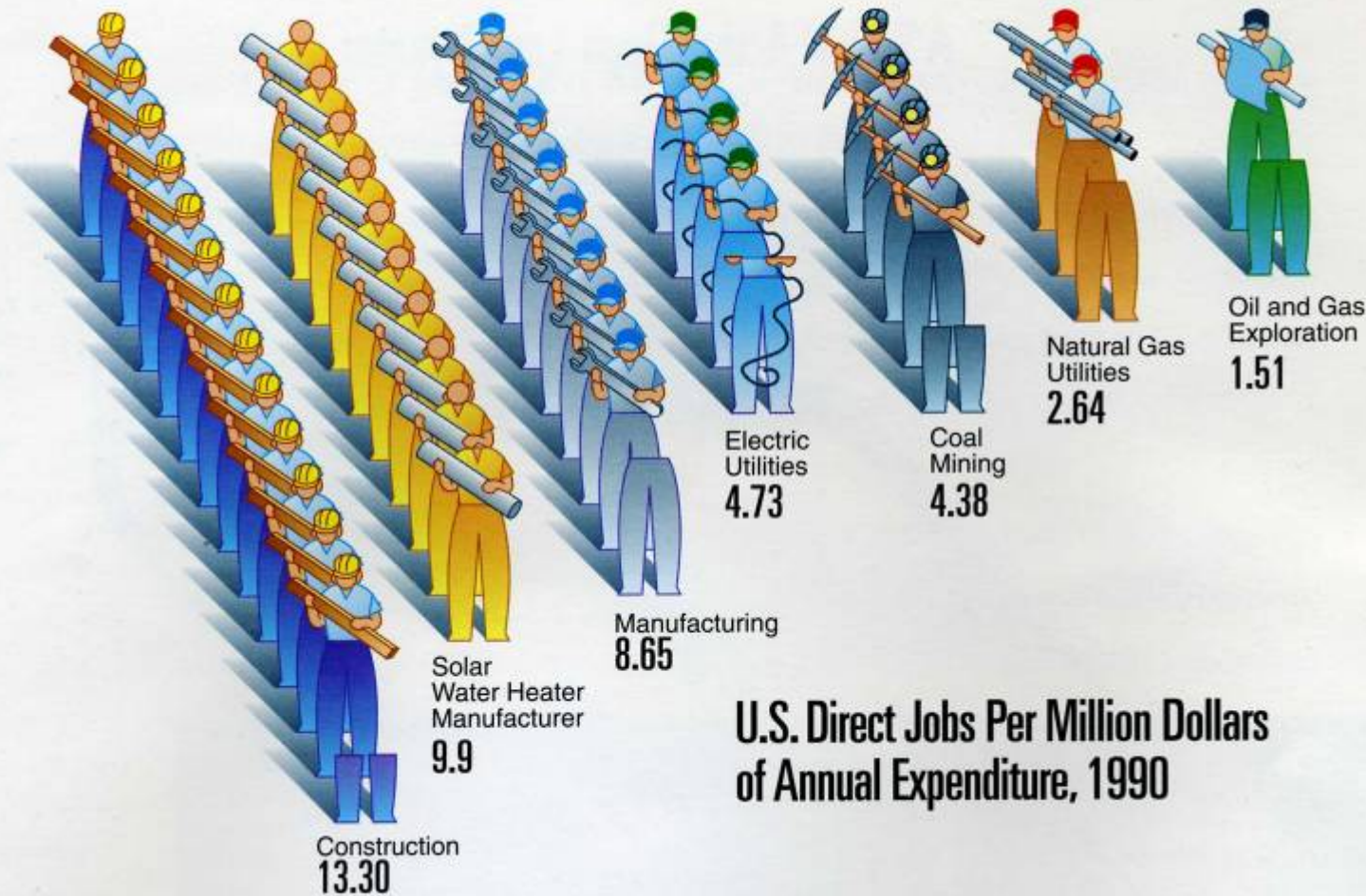
# Comparison Between Potential Solar Industry and Auto Industry

## Employment Comparison Between Solar Industry and Automobile Industry





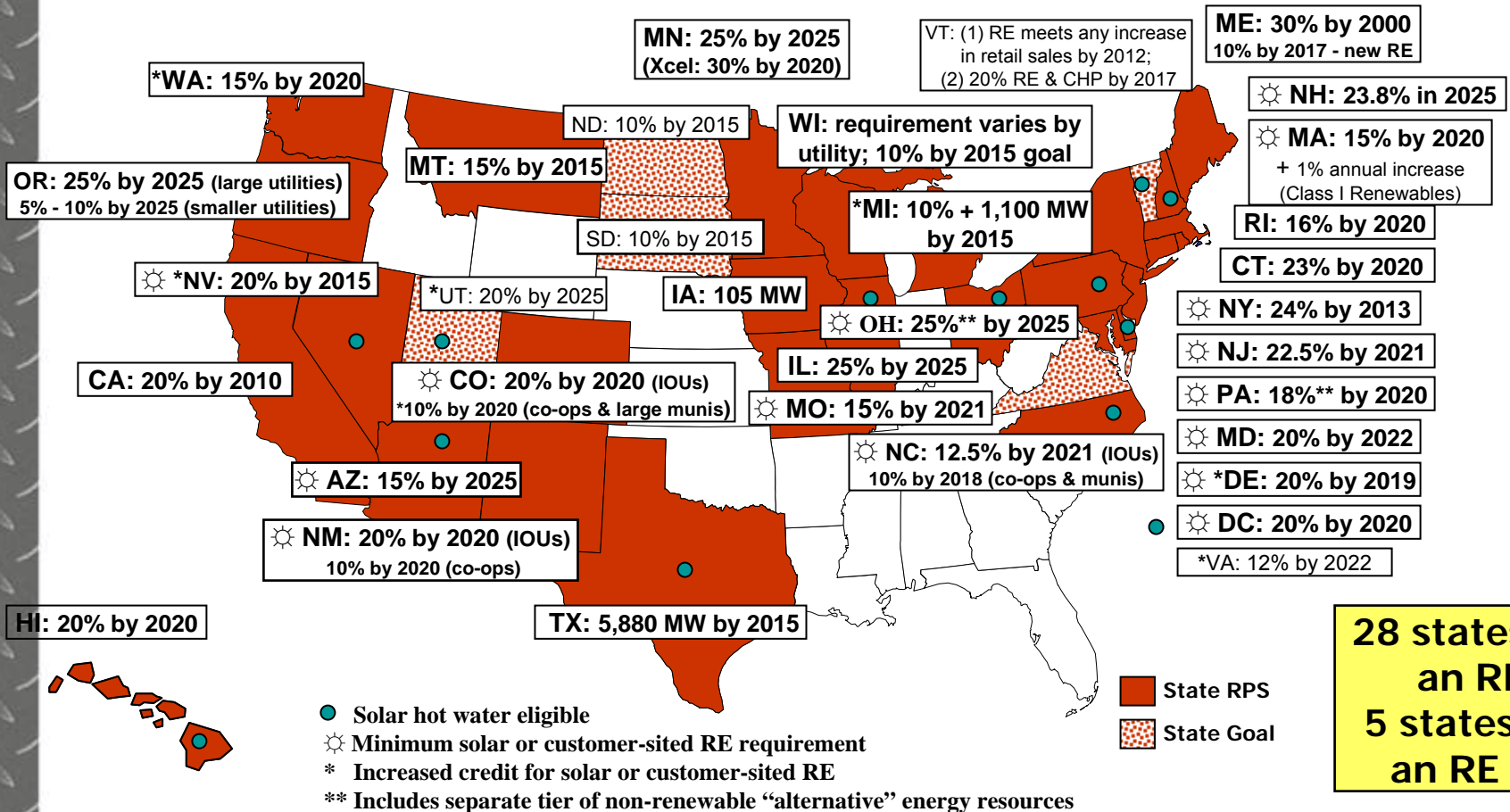
# Solar Thermal Manufacturing and Installation



**U.S. Direct Jobs Per Million Dollars  
of Annual Expenditure, 1990**

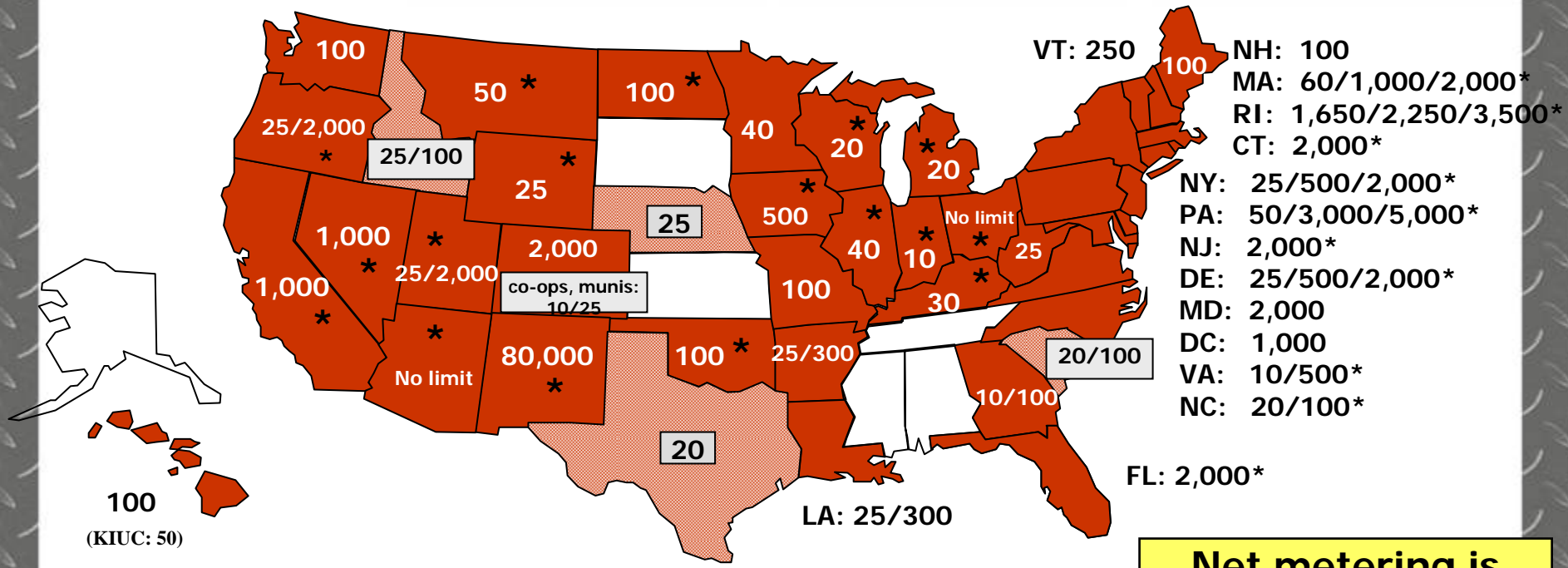


# Renewables Portfolio Standards





# Net Metering



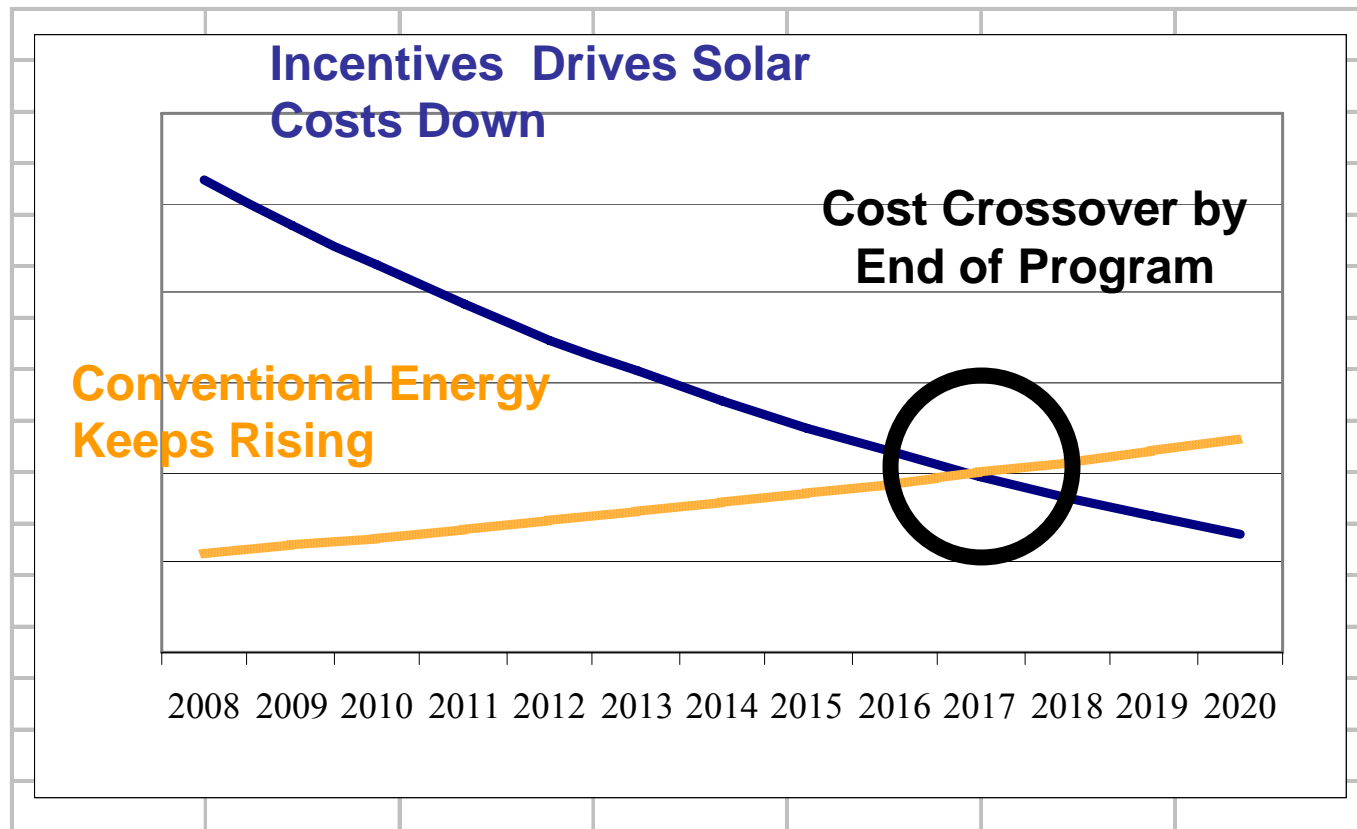
**Net metering is available in 44 states + D.C.**

*Note: Numbers indicate individual system size limit in kilowatts (kW). Some states' limits vary by customer type, technology and/or system application; this is the case when multiple numbers appear for one state. Other limits may also apply. For complete details, see [www.dsireusa.org](http://www.dsireusa.org).*



# Economics

## Crossover Point for Solar





# CONCLUSIONS

- Greater diversity of energy production will provide more employment
- Solar and efficiency will provide greatest quantity of jobs
- Solar Heating Manufacturing creates more jobs than PV manufacturing due to automation and multiple components



# This Old Solar Home, 1942 Colonial “Walking the talk”





# Thank you - Questions ?



Solar Tree, 22 KW, Geisdorf, Austria

Peter Lowenthal

Group Director

Renewable Energy / Clean  
Technology / Sustainability

360jmg

202-204-2179

[pslowenthal@comcast.net](mailto:pslowenthal@comcast.net)

[www.360jmg.com](http://www.360jmg.com)



# Wind Farm Under Construction Forward, PA, USA August 2007





# Renewable Energy Opportunities



## **Solar:**

- ITC extended to 2016
- Solar PV, Concentrating Solar Power
- Solar Water Heating
- Up to 30% of U.S. electricity
- More info at: [www.seia.org](http://www.seia.org)



## **Geothermal:**

- PTC extended 3 years
- Enhanced Geothermal Systems (EGS)
- Up to 20% of U.S. electricity
- More info at: [www.gea.org](http://www.gea.org)



## **Wind:**

- PTC extended 1 year
- Up to 20% of U.S. electricity
- Need for transmission
- More info at: [www.awea.org](http://www.awea.org)



## **Biomass:**

- PTC extended 3 years
- Over 100 MW potential
- More info at: [www.uschpa.org](http://www.uschpa.org)



## **Hydro**

- PTC extended 3 years
- Small hydro + additions
- More info at: [www.hydro.org](http://www.hydro.org)



## **Biofuels:**

- Corn-based and cellulosic ethanol
- Biodiesel
- Food vs. fuel policy issues
- More info at: [www.ethanolrfa.org](http://www.ethanolrfa.org)



## **Ocean:**

- PTC extended 3 years
- Current, tidal, wave energy
- Enormous potential
- More info at: [www.orec.org](http://www.orec.org)



## **Waste-to-Energy:**

- MSW, Recycling
- Landfill gas
- More info at: [www.wte.org](http://www.wte.org)