

# NABCEP Certification: It's Value to Utilities, and States

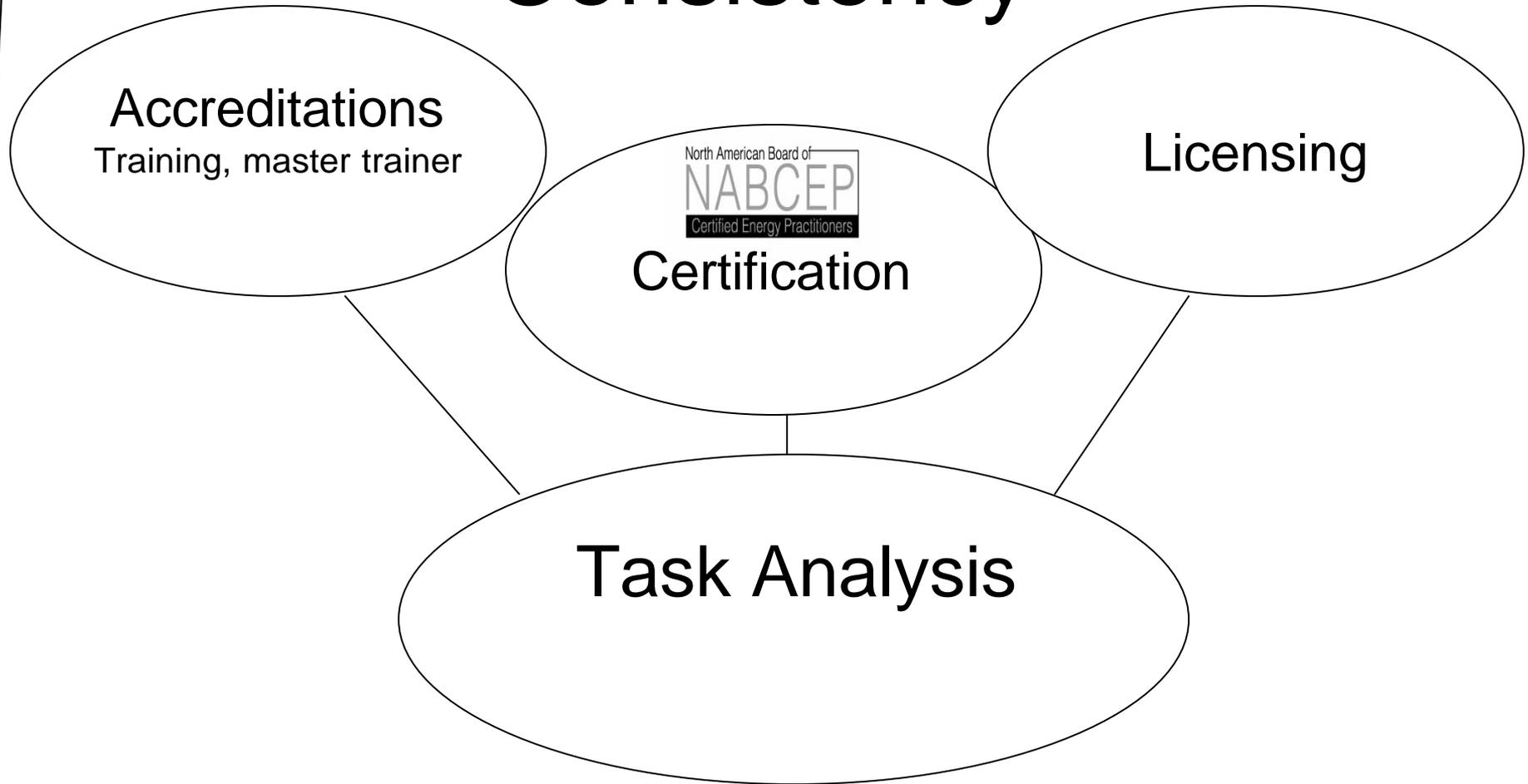
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US PV installations increased by 53% in 2002, reaching 44 MW— growth nearly all in grid-connected sector. *Paul Maycock*

# The Role of States in Certification

- Maintain **voluntary** aspect of certification
- Develop accredited training programs
- Industry targeted incentives for certification
  - Installer training
  - Certification testing
  - Master trainers
- Assure consistent, **standard** competencies for accreditation, training, and certification.....

# Consistency



# The Task Analysis

- 1. Working safely with photovoltaic systems***
- 2. Conducting a site assessment***
- 3. Selecting a system design***
- 4. Adapting the mechanical design***
- 5. Adapting the electrical design***
- 6. Installing subsystems and components at the site***
- 7. Performing a system checkout and inspection***
- 8. Maintaining and troubleshooting a system***

# The Role of States in Certification

.....a **standard** set of competencies  
lead to safe, reliable and code compliant  
installations.

# State Values

Reliable PV systems assure return on policy investments

- Economic Development
  - Jobs
  - Revenues
- Portfolio diversity
- Environment
- Infrastructure
- Price Risk

# Arizona EPS

- Increase utility fuel diversity
- Allow utilities to gain actual experience with solar technologies
- Move away from old central station fossil fuel power plants to new, clean distributed solar generation
- Encourage the “Sustained Orderly Development” of the solar technologies, in order to bring down the future price of the equipment.

# Arizona EPS

preliminary estimate selected benefits

<b>Parameter</b>	<b>Result</b>
Jobs Created by 2010	<b>600 jobs</b>
Wage, salary, and state income tax revenue (1998-2020)	<b>\$200 million</b>
Global warming CO <sub>2</sub> emissions avoided by 2020	<b>12 million tons, \$120 million</b>
Acid rain SO <sub>x</sub> emissions avoided by 2020	<b>32 thousand tons, \$85 million</b>
SMOG NO <sub>x</sub> emissions avoided by 2020	<b>38 thousand tons, \$40 million</b>

Source: ASES 1998, R. Williamson, H. Wenger

“Costs Benefits and Impacts of the Arizona Environmental Portfolio Standard” June 30, 2003

The construction of solar projects through 2002 contributed

\$28.2 million of Arizona output goods and services,

\$8.6 million of Arizona earnings,

and

274 person years

to the economy of Arizona

# Utility Values for Certification

- Meeting state mandates
- Customer confidence
- Operational Values

# Meeting State Mandates

## Arizona EPS

YEAR	PORTFOLIO PERCENTAGE	
2001	.2%	\$60 million 5.9 MW, DC <b>10K MWh/yr</b> 9,392 tons CO2 21.7 tons SO2 20.8 tons NOx
<b>2002</b>	<b>.4%</b>	
2003	.6%	
2004	.8%	
2005	1.0%	
2006	1.05%	
2007-2012	1.1%	

# Reliable systems prevent added policy expense of monitoring

## **R14-2-1618(D)**

Load-Serving Entities selling electricity under the provisions of this Article shall provide reports on sales and portfolio power as required in this Article, clearly demonstrating the output of portfolio resources, the installation date of portfolio resources, and the transmission of energy from those portfolio resources to Arizona consumers. The Commission may conduct necessary monitoring to ensure the accuracy of these data. Reports shall be made according to the Reporting Schedule in R14-2-1613(B).

# Customer Confidence

- Arizona systems are costing \$5-5.50/W, reflecting a 12¢-13.7¢/KWh premium
- Customers of TEP are paying about \$4/W
- Even if a service call is minimum, a \$150 service call is a 4% premium
- Could be a 25% premium

# Reliable PV systems assure return on investment

Energy Service  
Provider Value Set

S

- Energy \_\_\_\_\_
- Demand/Capacity \_\_\_\_\_
- Distribution \_\_\_\_\_
- Transmission \_\_\_\_\_
- Generation \_\_\_\_\_
- Environment \_\_\_\_\_
- Building integration
- Building material \_\_\_\_\_
- Load management \_\_\_\_\_
- Reliability \_\_\_\_\_
- Economic development \_\_\_\_\_
- Uncertainty/Risk
- Fuel diversity risk \_\_\_\_\_
- Electric price risk \_\_\_\_\_

Government  
Value Set

S

Consumer  
Owner Value Set

S > Price

