Arizona Public Service: Qualified Solar Installer (QSI) Trained Solar Installer (TSI)

March 2011
Agenda

Qualified Solar Installer (QSI) Program
1. Identification of Training Need
2. Program Design
   A. Stakeholder input
   B. Structure and Overview
3. 2010 Outcome
   A. Partners

Trained Solar Installer (TSI) Program
1. Identification of Additional Training Needs
2. TSI Program Design
   A. Structure and Overview
   B. Partners
3. Value
Arizona Public Service

- Largest utility in Arizona
- Serves about ½ of Arizona’s population
- 5th largest service territory in the US
- Peak demand over 7,000 MWs
- Normal growth rate is 3-5% per year
- Energy demand will almost double in 20 yrs
- Owns and operates about 5,000 miles of transmission lines

APS Retail Service Territory

Phoenix
Rise In New Market Entrants

Beginning in Q4 2009, installer market grew as installation demand grew.
### QSI Program Objectives

**Stakeholder input**

<table>
<thead>
<tr>
<th>Component</th>
<th>Objectives</th>
<th>Benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Customer</strong></td>
<td>Identify Companies who: (a) Holds applicable AROC license (b) have high customer satisfaction ratings (c) have technical expertise (d) Formal dispute resolution process</td>
<td></td>
</tr>
<tr>
<td><strong>Installer</strong></td>
<td>(a) Maintain industry integrity (b) Referral opportunities (c) Co-op marketing opportunity (d) Distinguish in marketplace</td>
<td></td>
</tr>
<tr>
<td><strong>APS</strong></td>
<td>(a) Increase certainty of REC delivery and compliance (b) Regulatory assurance (c) Leverage customer investment in marketing money in support of customer (d) Distinguish in marketplace</td>
<td></td>
</tr>
</tbody>
</table>

Stakeholder participation identified the market gaps and areas of added Value to our Customers.
# QSI Program Design

## Structure and Overview

<table>
<thead>
<tr>
<th>PV Track</th>
<th>Workshop 1</th>
<th>PV Technical Theory (1 day); PV Sizing and Design (1 day)</th>
<th>2 days</th>
<th>$200</th>
</tr>
</thead>
<tbody>
<tr>
<td>Workshop 2</td>
<td>Installation &amp; Roof Issues (1 day); Maintenance &amp; Troubleshooting (1 day)</td>
<td>2 days</td>
<td>$200</td>
<td></td>
</tr>
<tr>
<td>Workshop 3</td>
<td>APS PV Interconnection and Inspection (1 day); [APS Rebate &amp; Administrative Process, APS Sales &amp; Ethics (1 day)]</td>
<td>2 day</td>
<td>$200</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td><strong>$600</strong></td>
</tr>
</tbody>
</table>

| SHW Track | Workshop 1 | SHW Theory, Systems & SRCC Operating Guidelines (1 day); SHW Components, Installation, Commissioning & Troubleshooting (1 day) | 2 days | $200 |
| Workshop 2 | APS SHW Inspection and AHJ Requirements (.5 day) | .5 day | $100 |
| Workshop 3 | APS Rebate & Administrative Process, APS Sales & Ethics (1 day) | 1 days | $100 |
|           |            |                                                          |        | **$400** |
# QSI Program Design

## Structure and Overview

### PV Company

<table>
<thead>
<tr>
<th>No. of Full Time Employees</th>
<th>0 to 25</th>
<th>25 to 50</th>
<th>51+</th>
</tr>
</thead>
<tbody>
<tr>
<td>Required Training by Section</td>
<td>Technical</td>
<td>2 workshops</td>
<td>4 workshops</td>
</tr>
<tr>
<td></td>
<td>Professional &amp; Administrative</td>
<td>1 workshop</td>
<td>1 workshop</td>
</tr>
</tbody>
</table>

### SWH Company

<table>
<thead>
<tr>
<th>No. of Full Time Employees</th>
<th>0 to 10</th>
<th>11 to 25</th>
<th>26+</th>
</tr>
</thead>
<tbody>
<tr>
<td>Required Training by Section</td>
<td>Technical</td>
<td>2 workshops</td>
<td>3 workshops</td>
</tr>
<tr>
<td></td>
<td>Professional &amp; Administrative</td>
<td>1 workshop</td>
<td>1 workshop</td>
</tr>
</tbody>
</table>
QSI Program Design

Structure and Overview

Add’l Program Benefits

• Annual accreditation

• Eligibility for up to $15,000 in co-op marketing funding
  • Opportunity for Radio Advertising

• Referral and arbitration process through Arizona Solar Council (ELA)
  • APS subsidy of 25% of membership costs

• Promotion by APS

• Future tie to incentive funds

• NABCEP
QSI Program Design

2011 Program Enhancements

Goal is to promote technical competency through increased certification in AZ
1. **Educational Requirement**: Test-out qualifier
2. **Higher Education Drive**: Coupon to sit for PV Installer Exam
3. **Additional Testing Sites in AZ**: test offered 3x/yr

Goal is to create access for all installation companies
1. **Reduced Accreditation Costs**: Classes reduced by >50%
2. **Scholarship Program**: One scholarship for basis accreditation costs for a PV and SWH installer

The 2011 Program enhancements are designed to bring greater focus to supplemental National certifications and extend training opportunities to companies that might be economically conservative. This ultimately provides a greater volume of higher quality installations in our service territory.
The QSI program has been heavily used by APS Customers, as demonstrated by Referrals and Website hits, and is delivering on identified program benefits.
The Industry helped identify their needs for training in the QSI program. APS plays a key role in coordinating the Industry’s training needs (i.e., Job Placement needs) with the Gov’t agencies that are providing training. We act as the link between the Individuals and Job Placement.

### QSI Program Design

**Partners**

<table>
<thead>
<tr>
<th>Technical/Training</th>
<th>Administration</th>
<th>Community</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chuck Marken</td>
<td>Registrar of Contractors</td>
<td>Commerce Authority</td>
</tr>
<tr>
<td>APS Interconnection</td>
<td></td>
<td>Installer Industry</td>
</tr>
</tbody>
</table>

**Dialogue with community stakeholders identified...**

**Workforce and Industry Gaps Remained Outstanding**
TSI Training Needs

$$\text{ARRA Funds awarded in 2009 For “Green Job Training”}$$

Lack of training programs to support funding req’ts (assoc spend deadlines)

GAP: There is a demand but inadequate supply

Role for APS Identified

Public/Private Partnership

Arizona OIC
Phoenix Workforce Connection
Maricopa Workforce Connection
SESP

Gateway CC
Pima CC
eRenewables

Displaced, unemployed workforce
Individuals seeking to enter Solar Installation field
new hires for Solar Installation companies

Several agencies (primarily Community Colleges) provide solar training in a classroom setting. However, those training programs lack a focus on the actual Workforce Placement which is a fundamental component of the ARRA projects. Further, Community College programs rarely have a lab component which is identified as a necessity by the Solar Industry.
Our 8 day training looks at all components necessary to sit for the NABCEP Entry Level Exam, which has been identified as the benchmark for successful training program. Further, we’ve enhanced the benefits associated with the TSI accreditation to facilitate job placement—specifically, the QSI credits that can be inherited by a Solar Installation company.
**TSI Program Design**

*Partners*

**Technical/Training**
- Solar Energy International (SEI)
- Certified Energy Managers (CEM)

**Administration**
- Electric League of Arizona

**Community**
- SESP
- Commerce Authority
- Phoenix Workforce*
- NACOG
- Registrar of Contractors
- AZ OIC
- Maricopa Workforce
- Maricopa Workforce
- Installer Industry

**Internal APS**
- Community Development
- Human Resources
- Company workforce initiatives

* Sole Source contract awarded
Fortifying Partnerships

The TSI program demonstrates APS’s investment in building an industry that provides high quality installations and regulatory assurance. Further, it allows APS to engage with the Community and deliver on unmet needs that are necessary to sustain the industry and raise the bar for education/installations in Arizona’s.