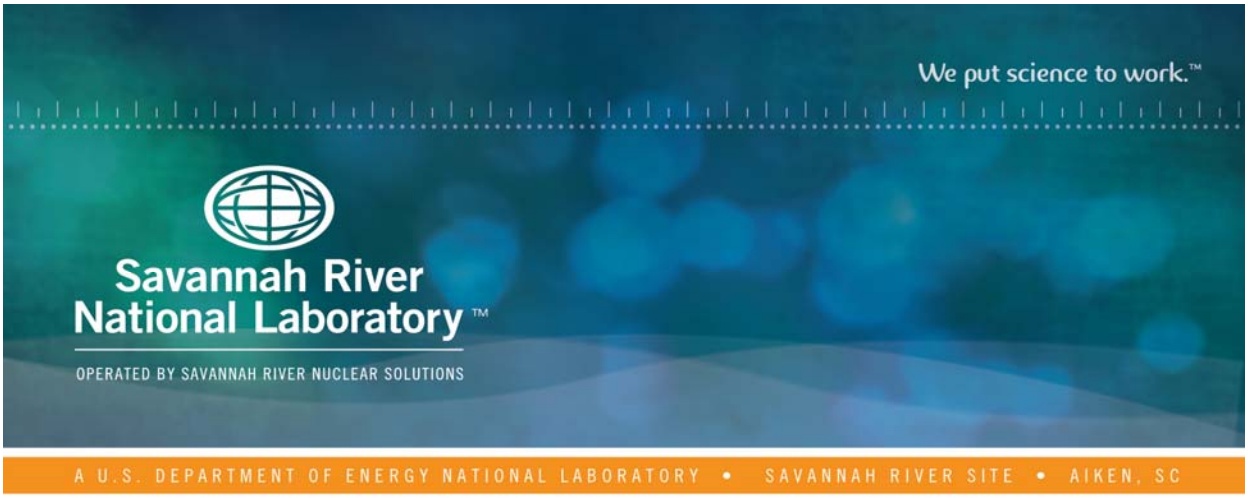

2016 Alabama PV Soft Cost and Workforce Development

Elise B. Fox

Thomas B. Edwards

December 2016

SRNL-STI-2016-00717, Revision 0

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Savannah River National Laboratory™
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EXECUTIVE SUMMARY

The Southeastern US has the largest potential for growth in the solar industry. However, currently they languish behind the rest of the US. There are several bright spots including the large number of utility scale installations in North Carolina and the recent successes in South Carolina under Act 236. In order to better understand the impacts of state legislation on the growth of the solar industry in the SE US, the Savannah River National Laboratory has undertaken a study to look at the growth in each state in order to develop recommendations to help reduce the cost of solar and to spur the industry. This is the second report in the series. The first focused on developing cost metrics for South Carolina under Act 236. This report focuses on Alabama, the 49th ranked state for solar business, which has very similar population and median income to South Carolina.

For this survey, the ten known in-state installers were contacted. Responses were received from seven, representing 70% of the installers, a majority of which provide both residential and commercial installations. Interestingly, none of the respondents serve the utility scale sector. Overall, costs for Alabama are on track with the rest of the country with a reported average cost of $3.29/W-DC for residential systems and $2.44/W-DC for commercial systems. 60% of this cost is attributed to hardware only. Of the remaining costs, installation contributed to the largest percentage of soft costs followed by overhead, marketing and sales, and permitting, respectively. This also closely mirrors results seen in South Carolina.

Job growth in the industry is expected to proceed well. An expected 34-42 additional full time equivalent jobs were expected to be added in Alabama within the six month window following the survey period. During the three years following the survey, this number was expected to double with 89-97 additional jobs being added to the market. In both cases, a vast majority of these jobs were for installation professionals and electricians.

Despite the cost of solar, the industry continues to struggle in Alabama, largely due to the absence of any statewide net metering legislation. By current best estimates, there are over 60 residential installations statewide; however, this number is difficult to track due to the lack of a State authority keeping a consolidated list of grid connected distributed power systems. In South Carolina, the Energy Office tracks and reports grid connected distributed power systems by all Cooperatives and utilities. In Alabama, the Energy Office does not fulfill this role and data must be collected directly from each utility and cooperative, which makes collection and analysis difficult. Having a central state agency track this information would be extremely useful towards developing state policy recommendations, particularly if net metering were enabled within the state.

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AC	Alternating current
AL	Alabama
DC	direct current
IOU	Investor Owned Utility
kW	kilowatt
MW	megawatt
PV	photovoltaic
SE	Southeast
SRNL	Savannah River National Laboratory
SRNS	Savannah River Nuclear Solutions
SC	South Carolina
SuNLaMP	SunShot National Laboratory Multiyear Partnership

1.0 Introduction

Solar energy has had significant growth over the past five years in both the residential and utility sectors. Early 2016 was celebrated as the time of the one millionth distributed solar installation and a 54% decrease in cost for distributed (photovoltaic) PV systems [1]. This equates to a reduction from approximately $7/W in 2010 to a $4/W in 2015 for residential consumers. However, this growth has not been uniform across the US. California and the Southwestern US continue to dominate in new utility and distributed installations and NV Energy reported a record low price of 4¢/kWh at a new 100MW facility in Boulder City [2]. Despite having very good solar irradiance, the Southeastern US has lagged behind in solar penetration and now represents the greatest area for potential growth and future markets.

Three of the four states in the US that do not have legislation enabling net metering reside in the Southeast (SE): Tennessee, Alabama, and Mississippi [3]. South Dakota is the fourth state. Remarkably, the SE is also the home of some of the highest profile legislation enabling the expansion of solar in recent years. In the summer of 2014, South Carolina Governor Nikki Haley signed into law Act 236 which requires the state's investor-owned utilities (IOU) to have 2% of their peak power production generated by harnessing energy from the sun at the end of 2021. Growth of the solar industry in the state is being carefully tracked to help determine the effects this legislation has, not only on cost, but also access [4]. Alabama and South Carolina have very similar populations and median incomes. Several key differences include that South Carolina has Act 236, net metering legislation, and a state tax credit for residential PV systems, while Alabama does not. In order to help track the growth of the solar industry in the SE and make recommendations to further reduce the cost of solar power for its consumers, it is important to understand the market and what policies best enable it. This makes the study of states with relative low solar penetration just as important as states with high penetration.

2.0 Experimental Procedure

2.1 Data Collection

The results of the seven Alabama companies captured in this survey equate to responses from 70% of the known in-state installation companies. A recent survey by The Solar Foundation™,[f] reported that there are 34 solar companies operating in Alabama (AL) [5], which is calculated from the Solar Energy Industries Association's National Solar Database [6]. However, this number represents all sectors of the industry, including manufacturing and research and development. Working with Energy Alabama, the ten known in-state installation companies were contacted to complete this survey. Responses were received from seven, which indicates a 70% response rate. The analyses presented in this report were conducted using JMP Pro Version 11.2.1 [7].

2.2 Quality Assurance

Requirements for performing reviews of technical reports and the extent of review are established in SRNL Manual E7 2.60. SRNL documents the extent and type of review using the SRNL Technical Report Design Checklist contained in WSRC-IM-2002-00011, Rev. 2.

3.0 Results and Discussion

The fifteen-question survey was broken down into three parts focusing on: 1) establishing current costs of solar, 2) determining additional workforce needs and suggested training for those positions, and 3) determining the focus and experience of the respondents. Detailed analysis of the survey is presented and

[f] The Solar Foundation™ is an independent 501(c) (3) nonprofit with a stated mission: "to increase understanding of solar energy through strategic research and education that transform markets."

discussed below. Where possible, data are broken down by individual sectors: residential, commercial, and utility.

3.1 Solar Sector Served by Respondents

Respondents were asked to indicate all segments of the solar business sector that they serve. The results are presented in graphical form in Figure 3-1, with the total percent and number of installers in parenthesis. Over 71% of survey respondents primarily serve both the residential and commercial sectors. One installer serves only residential customers, while a second serves only commercial customers. Interestingly, no respondents serve the utility sector. This suggests that local installers, given their limited experience in the utility sector of solar, may have little involvement in the recently proposed 500MW of renewable generation proposed by Alabama Power [8] or the 80 MW TVA facility at River Bend [9].

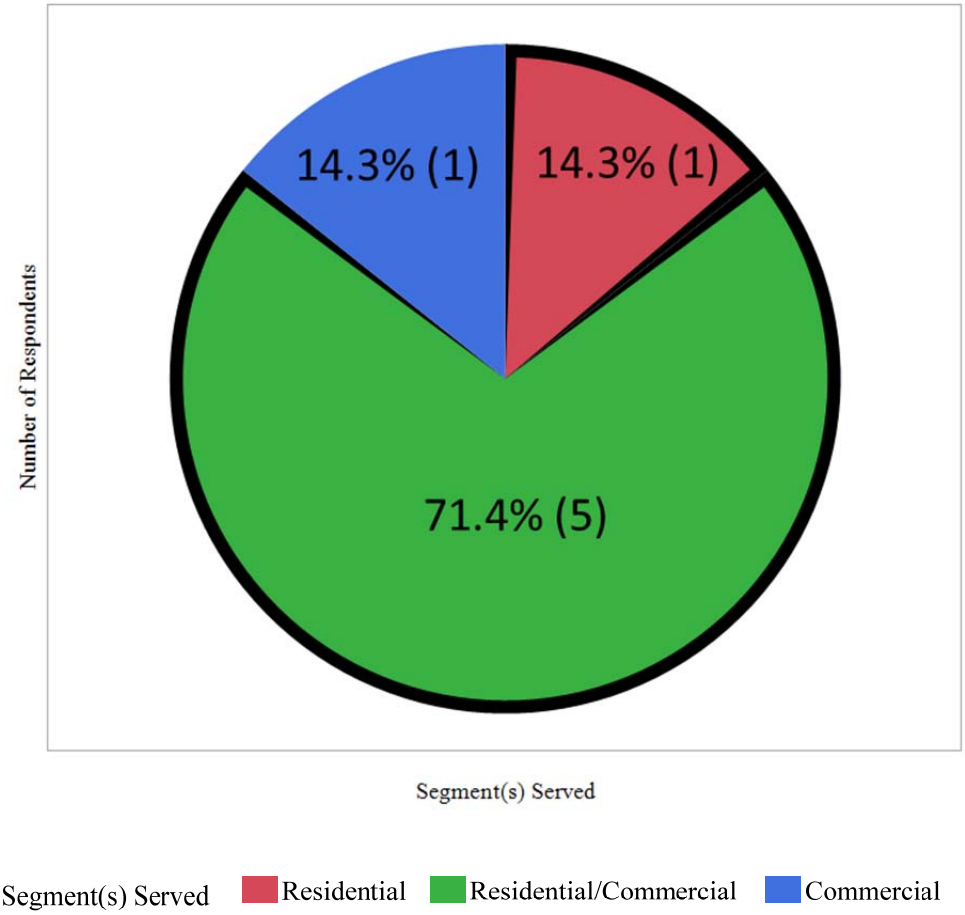


Figure 3-1. Solar PV Segments Served by Respondents. Those that serve the residential sector are outlined in black.

3.2 Typical Size of Installation by Type

The survey respondents were asked about the typical size of their installations (residential and commercial) in Alabama. The installation size was provided in kilowatts of direct current (kW-DC), and in some cases, a range of sizes was provided by a respondent. Figure 3-2 provides a graphical display (including box plots[1]) of the installation sizes (low-end and high-end estimates) for both residential and commercial installations. Excluding the one potential outlier for the high-end estimates of the residential installations in Figure 3-2, the remaining reported residential installations in AL were all less than or equal to 8 kW-DC with an average size of ~6 kW-DC. The average size of the reported commercial installation in AL was 47 to 56 kW-DC. The residential system size is slightly lower than the average of 9.45 kW-DC reported for SC residential consumers in 2015, while the average commercial installation in SC was much larger at 168 kW-DC[2].

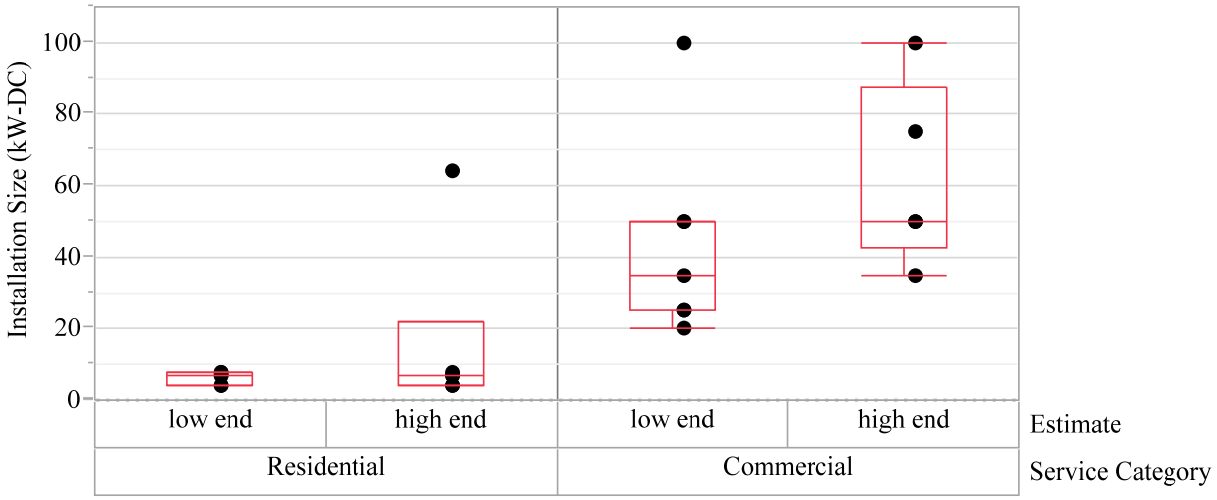


Figure 3-2. Average PV Installation Size (kW-DC), by sector served.

3.3 Average Cost ($/W-DC) by Type of Installation

Respondents were asked to provide information on the total cost in dollars per watt of direct current ($/W-DC) by installation type. These data in $/W-DC for the total cost by solar segment served are plotted in Figure 3-3 and Figure 3-4. Residential installs were found to average $3.29/W-DC with a range of $2.60 – $5.00/W-DC. This is lower than the reported cost of $4.30/W for residential-system installs by year-end 2014 reported by Barbose, et al. [10], but within the recently reported range by Green Tech Media [11]. This is also lower than the 2015 cost for SC, but with a wider range between responses [4]. Commercial systems in AL had a reported average cost of $2.44/W with a range between $2.20 – $2.85/W. This corresponds well with the $2.25 - $3.50 range reported by SEPA [12] and was lower than the 2015 SC reported high and low average range of $2.65 – $2.70/W with a range of responses between $1.85 – $3.50/W [4]. This suggests that in Alabama the commercial sector is more competitive than the residential sector and that potential commercial customers are more likely to have a more knowledge on

[1] A box plot is a descriptive display used for continuous data. The lower edge of the box is the 25th percentile, the upper edge the 75th percentile, and the horizontal line within the box the 50th percentile. Any points that fall beyond the lines extended from the box (i.e., points not connected to the box) of the box plot may be considered as potential outliers for the data set.
[2] Calculated from the average high and average low values reported in SC for 2015.

photovoltaics options and on what to expect during an installation than potential residential customers in that state.

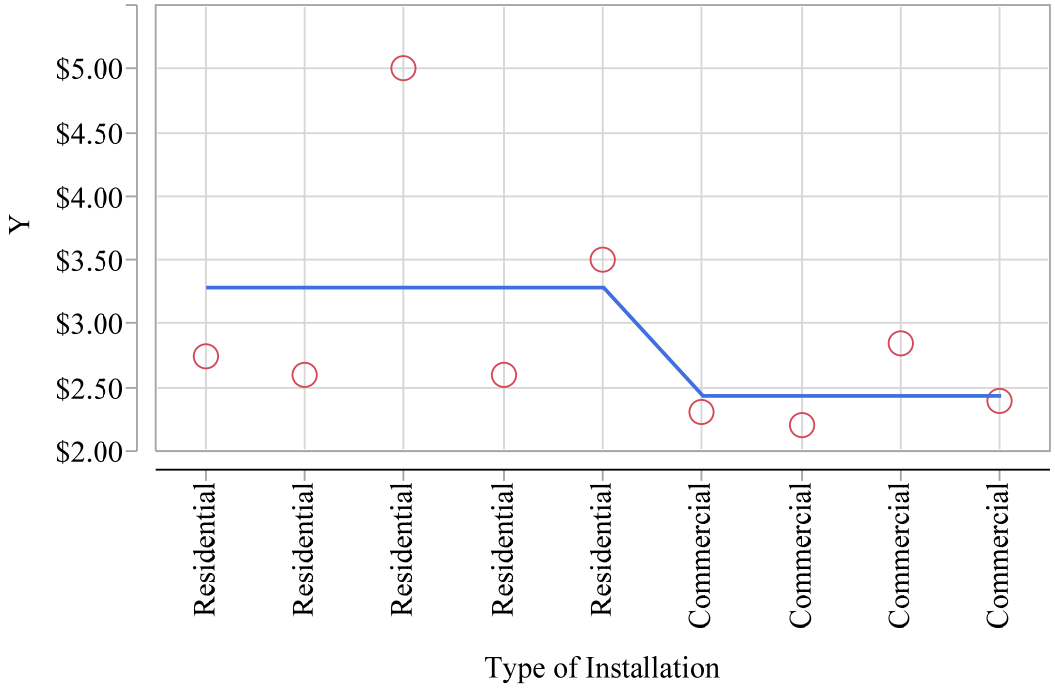


Figure 3-3. Cost of PV Installations in $/W-DC, by Respondent.

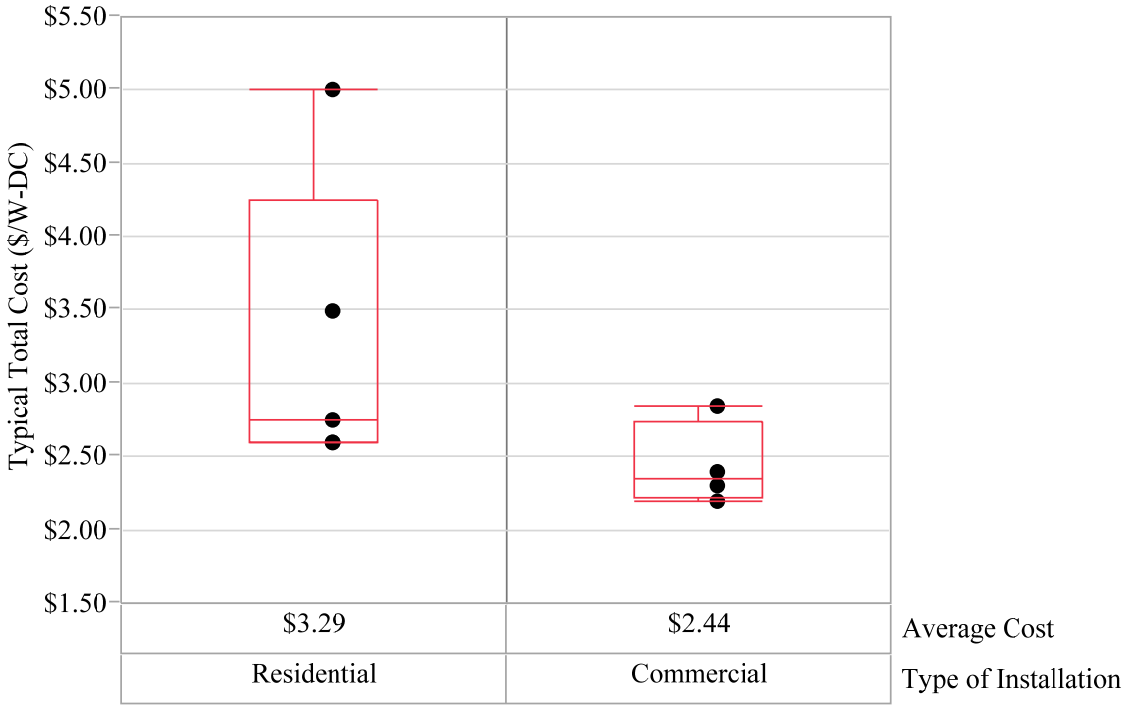


Figure 3-4. Variability Plot for Total Cost Data in $/W-DC.

3.4 Average Hard and Soft Cost ($/W-DC) by Type of Installation

Respondents were asked to provide the percent of the total cost attributable to hardware by installation type. The resulting estimated costs of hardware as a percentage of the total costs are provided in Figure 3-6. Using these percentages, the total costs were further broken down into hardware and soft costs, and these values are provided in Figure 3-5. Hardware costs for AL residential installations average $2.03/ W-DC equaling on average ~62% of the total costs, while commercial installations average $1.46/ W-DC equaling on average ~60% of the total costs. This closely mirrors the percentages of hardware costs of 62% for residential and 62.5% for commercial reported for SC [4].

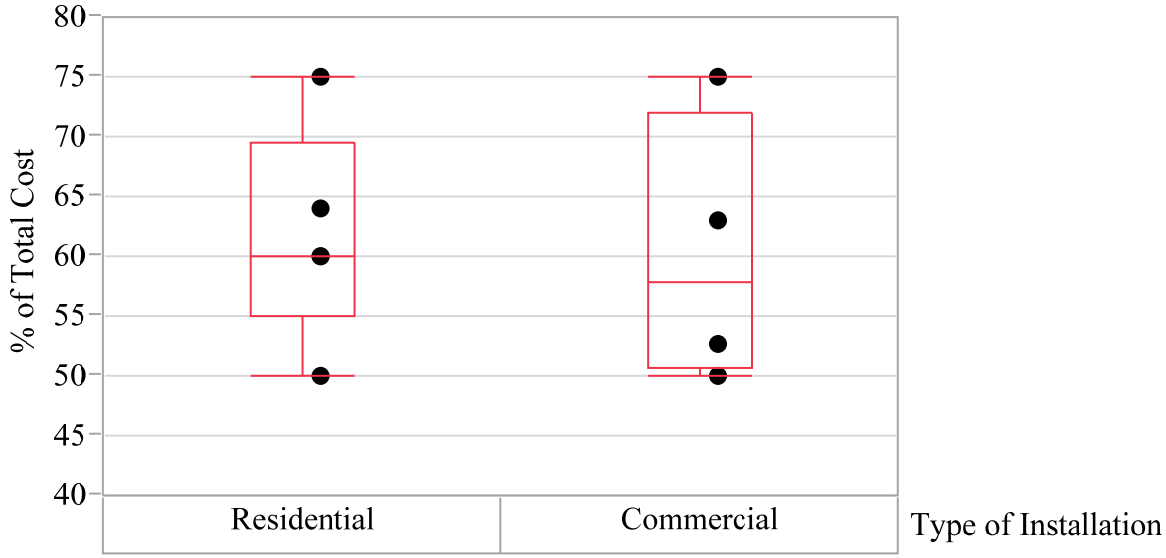


Figure 3-5. Reported Percent of Total Cost Attributed to Hardware Only, by Respondent.

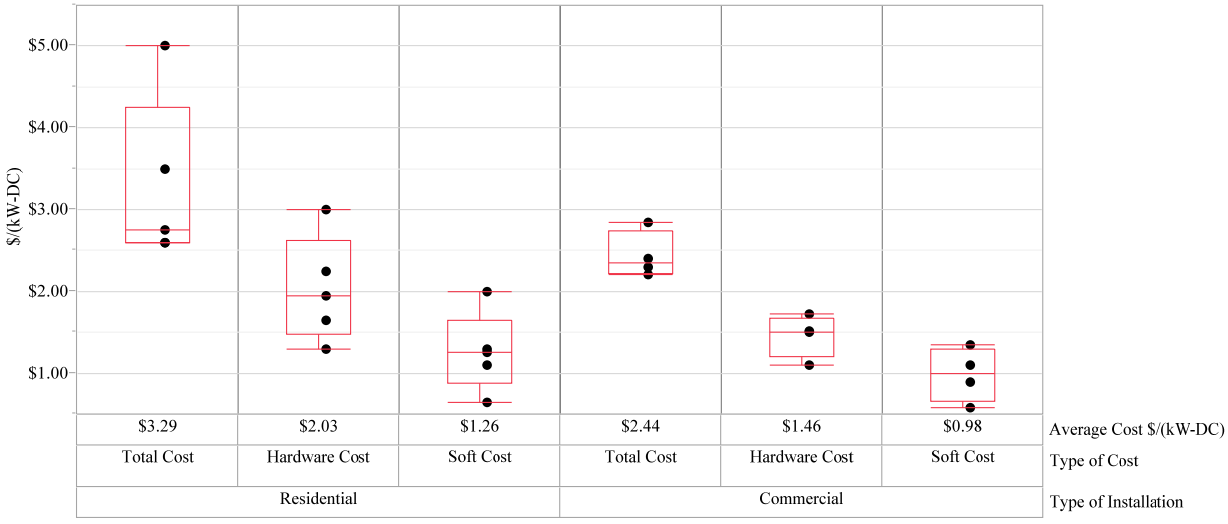


Figure 3-6. Breakdown analysis of total costs into hard and soft, per sector.

3.5 Average Soft Cost ($/W-DC) by Category by Type of Installation

In order to better determine the largest contributor to soft costs, respondents were asked to provide information on the percent of the total cost attributable to several soft-cost categories by installation type. Four categories of soft costs were considered: 1) marketing, lead generation, and sales, 2) permitting and interconnection, including all fees and administrative labor costs, 3) installation, including design, engineering, and construction labor, and 4) profit, overhead, and taxes. The information on soft costs that was provided was applied to both residential and commercial total costs. The results are presented in Figure 3-7 and as average percentages and dollar values in Table 3-1. The largest soft cost is attributed to installation > overhead > marketing > permitting. This is the same trend that was found in SC.

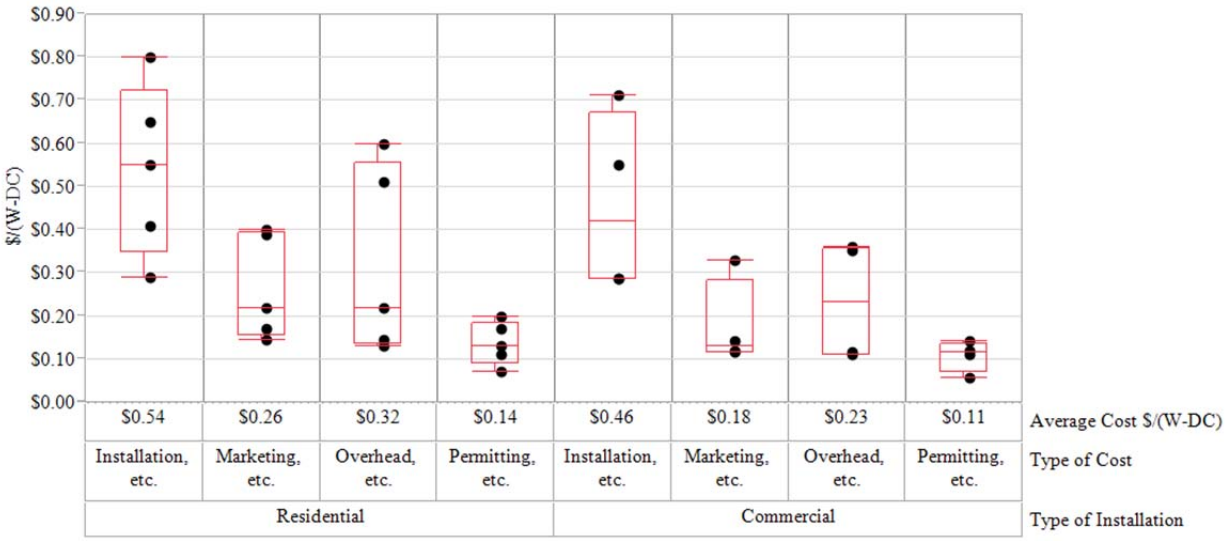


Figure 3-7. Breakdown analysis of soft costs in four categories, per sector.

Table 3-1. Total Cost Separated into Hardware and Soft Costs.

Type of Cost	Residential Mean($/(W-DC))	Commercial Mean($/(W-DC))
Total Cost	$3.29	$2.44
Hardware Cost	$2.03 (62%)	$1.46 (60%)
Installation, etc.	$0.54 (16%)	$0.46 (19%)
Marketing, etc.	$0.26 (8%)	$0.18 (7%)
Overhead, etc.	$0.32 (10%)	$0.23 (9%)
Permitting, etc.	$0.14 (4%)	$0.11 (5%)

3.6 Workforce Needs

Survey recipients were asked to report their short (6 month) and long (3 year) term hiring needs in four job categories: engineering and design, electricians and installers, sales and marketing, and general business. The results are summarized in Table 3-2. AL is currently ranked 50th in the nation for solar jobs

per capita and 45th for total solar jobs by The Solar Foundation [5]. However, job growth in 2016 is expected to exceed 20%. This closely complements the reported six month job needs found in this survey, a low estimate of 34 and a high estimate of 42. A majority (over 70%) of these needs were in the electrician and installer category.

Table 3-2. Total reported short and long-term job needs by job type.

	6 mos		3 yrs	
Type of Job	low	high	low	high
design, engineering	4 (12%)	4 (10%)	11 (12%)	11 (11%)
electrician & installer	24 (71%)	32 (76%)	52 (58%)	60 (62%)
gen. business	2 (6%)	2 (5%)	14 (16%)	14 (14%)
sales & marketing	4 (12%)	4 (10%)	12 (13%)	12 (12%)
total	34	42	89	97

When comparing the average short and long term needs per business (see Figure 3-8), electricians and installers outweigh other business needs. This is also the only job category where it was typical for a respondent to provide a range of values, indicating that this position is more dependent on market conditions than the other job categories. On average, each respondent projects to hire 6 – 8 new full-time employees in the six month period following this survey, which is slightly less than half of the open positions expected over the next three years (see Table 3-3).

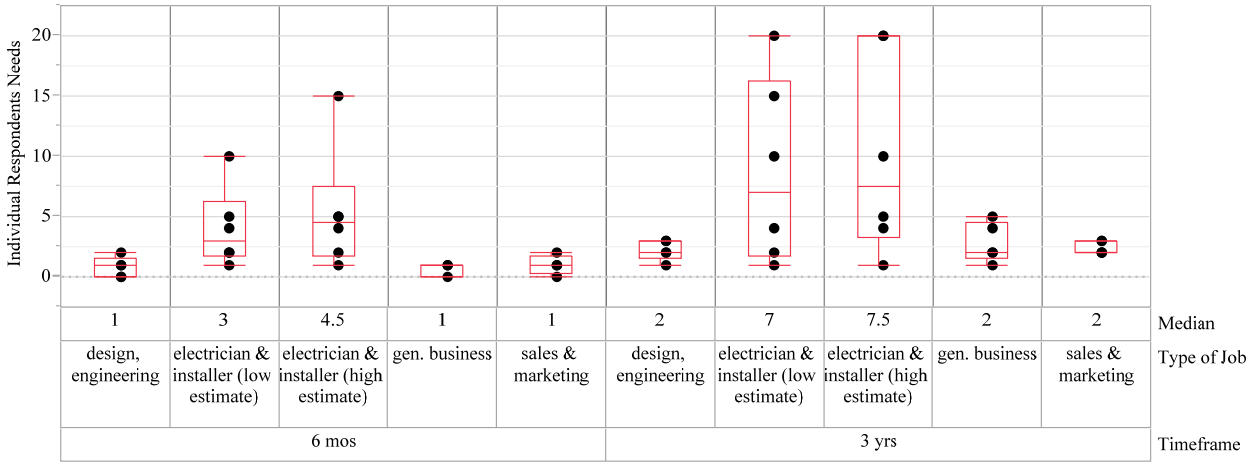


Figure 3-8. Expected short and long term job needs as reported by job type for both residential and commercial needs, per employer.

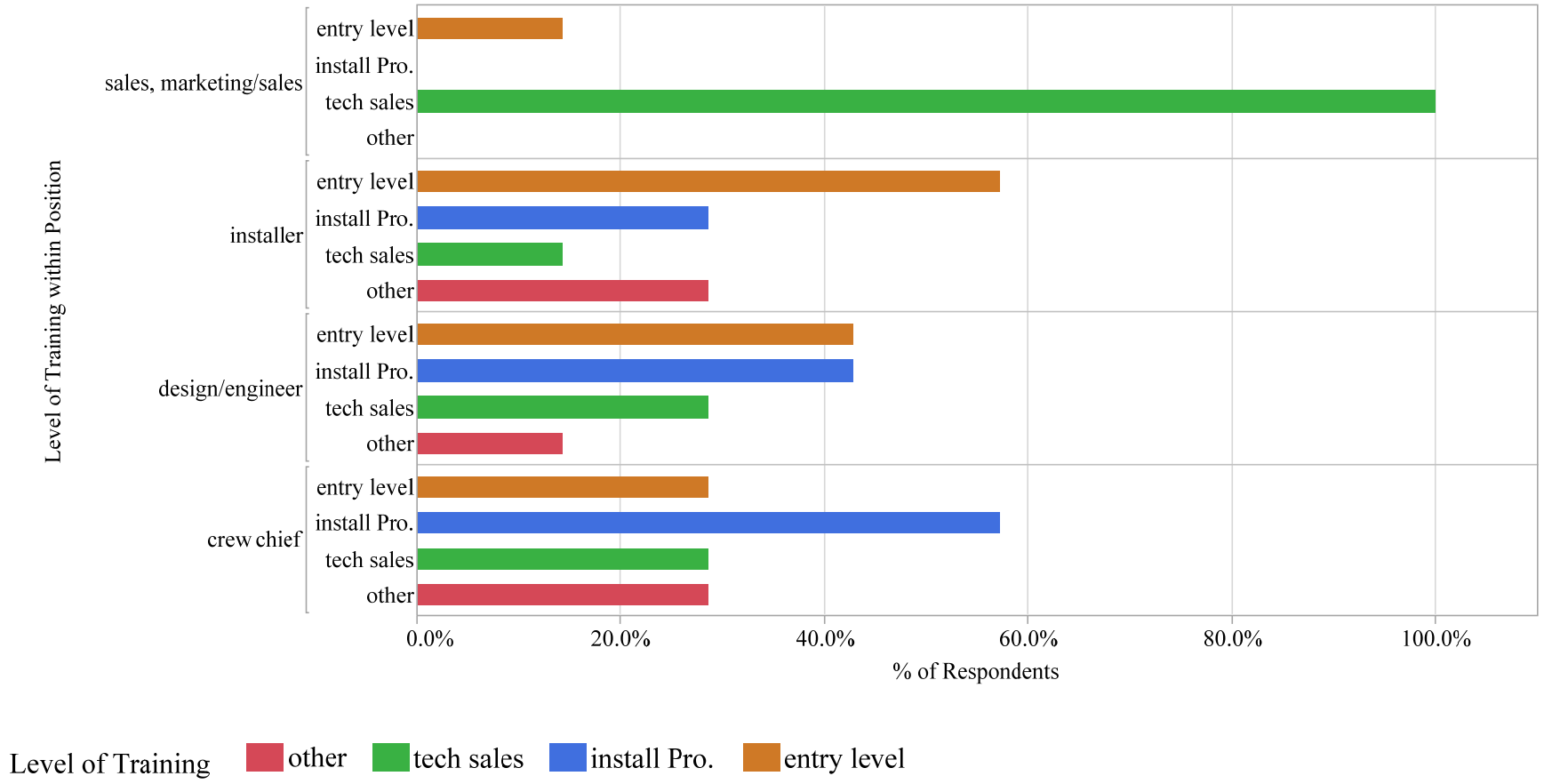
Table 3-3. Average short and long-term job needs by job type, per employer.

	6 mos		3 yrs	
Type of Job	low	high	low	high
design, engineering	0.8	0.8	2.2	2.2
electrician & installer	4.0	5.3	8.7	10.0
gen. business	0.7	0.7	2.8	2.8
sales & marketing	1.0	1.0	2.4	2.4
total	6.5	7.8	16.1	17.4

Workforce Training Needs

When rapid job growth is expected in a non-traditional workforce sector, a shortage of appropriately skilled workers can severely impact business growth. [13, 14] In order to better understand how businesses are meeting these requirements, survey respondents were asked if funding were available to support job training, what type of training they would recommend for four different job categories. The lack of available hands-on training can impede the growth of qualified PV installers. [14] The choices were NABCEP Entry Level, NABCEP Technical Sales, NABCEP PV Professional, and Other. Respondents were allowed to choose more than one option per job type. The following figure provides a plot showing the percent of the 7 respondents recommending each of the training levels within each of the position types. Technical Sales training for sales and marketing was recommended more than any other type of training in any job category. This could indicate a disconnection between immediate business needs and efforts by utilities to ensure a safe, quality installation on grid connected systems. PV Professional training was recommended most for crew chiefs. Entry Level training was recommended highest for installers.

Graphical Representation of Training Needs



3.7 Biggest Opportunity to Reduce Soft Costs

Respondents were asked to describe what they viewed as the biggest opportunity to reduce non-hardware soft costs in Alabama. The responses, copied word for word and in a random order are:

1. More education and SunShot goals
2. If net metering is allowed it will reduce the sales cycle time and installation costs, significantly.
3. Streamline permitting process
4. AL Power charges homeowners who install PV $5/kW/month which makes battery PV systems a requirement. Grid tied don't pay for themselves. The coops pay 3¢/kWh and advise people not to do PV in their monthly magazines.
5. In AL the penalty associated to connecting to the grid is the biggest problem. Also, the removal of the penalty would be the biggest opportunity.
6. More solar friendly policies. Our biggest soft cost is site surveys, designs, and proposals for potential customers who ultimately pass because the economics are not there.

Clearly, one of the largest areas of concern for installers is the lack of net metering enabling legislation. As a result, homeowners and businesses with PV generation are only reimbursed at the avoided cost rate for excess generation and are often charged additional monthly fees to interconnect. For example, Alabama Power charges home owners $5/kW/month. If the average residential installation in AL is 6 kW, the average month charge comes to $30/month. This monthly charge likely negates any generation credits with the utility. Simply removing the monthly fee could help improve the rate of interconnection and adoption of distributed generation significantly.

3.8 Business service territories in Alabama and in the Southeastern US

The survey respondents were asked a number of questions to help better define the business climate and potential growth. Out of the seven respondents, four only work inside the state of Alabama. Three installers (43% of respondents) also work in Tennessee. This is likely due to the Northern portion of the state residing in TVA service territory (see Figure B1 and B2 in Appendix B). Having gained experience working with TVA in Northern Alabama, the next natural progression is to expand business over the Tennessee/Alabama state line into additional TVA service territory. One installer, or 14% of respondents, works in Georgia.

When comparing the service territories of the survey companies in Figure 3-10 it is seen that the consumers in the Central regions have the largest selection of installers. The three major metropolitan areas of Huntsville, Birmingham, and Montgomery are located in the Northeast, Central-East, and Mid-East regions, respectively. Interestingly, the largest number of installers located in the Central-west region which has the lowest population, lowest median income, and highest percent of persons living in poverty, see Table 3-4 (also see Table B1 in Appendix B). The Central-west region is home to the University of Alabama-Tuscaloosa, the main branch of the University. Tuscaloosa is also the fifth largest city in AL. 50% of the region's population lives within Tuscaloosa County, whose median income is 20 – 50% higher than the other counties within that region.

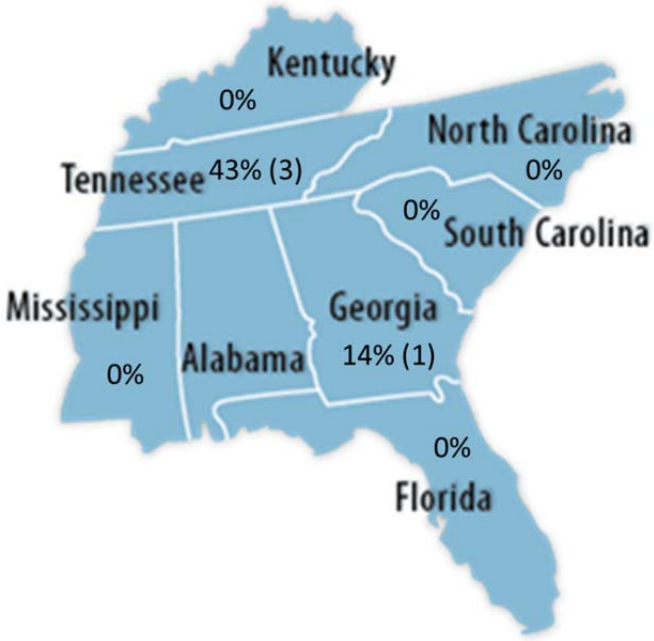


Figure 3-9. Service territories in the Southeastern US of companies surveyed. The number of Alabama installers is represented by percentage of total respondents and total number in parenthesis.

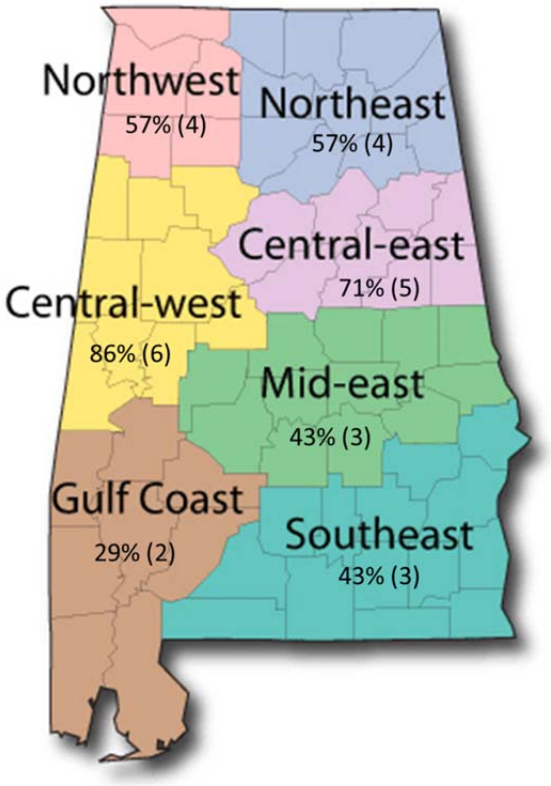


Figure 3-10. Alabama business service territories of respondents.

Table 3-4. Population and average median income by region.

	# of Counties	[1]Population	[1]Average Median Income	[1]Average Percent living in poverty
Northwest	6	268,440	$37,717.67	19.2%
Northeast	10	1,022,585	$42,460.30	18.3%
Central-west	10	385,304	$32,155.00	27.2%
Central-east	8	1,189,824	$43,985.75	17.9%
Mid-east	11	711,068	$38,466.82	23.0%
Gulf Coast	8	708,297	$36,465.38	23.2%
Southeast	14	494,220	$37,649.71	22.9%
State Total	67	4,780,127	$43,511	18.5%

1. Calculated from U.S Census Bureau Data, 2014; median income and % in poverty were determined using a weighted (by population) average

3.9 Business Focus

Respondents were asked to identify their specific business focus in each sector. Figure 3-11 provides the results from the survey. The largest business focus for all responding companies was in installations. These companies will be most directly impacted by a shortage of qualified electricians, construction workers, and installers. Equipment supply and finance have not been given adequate attention, indicating that solar installers either purchase from the few companies in the state or through contracting out of state.

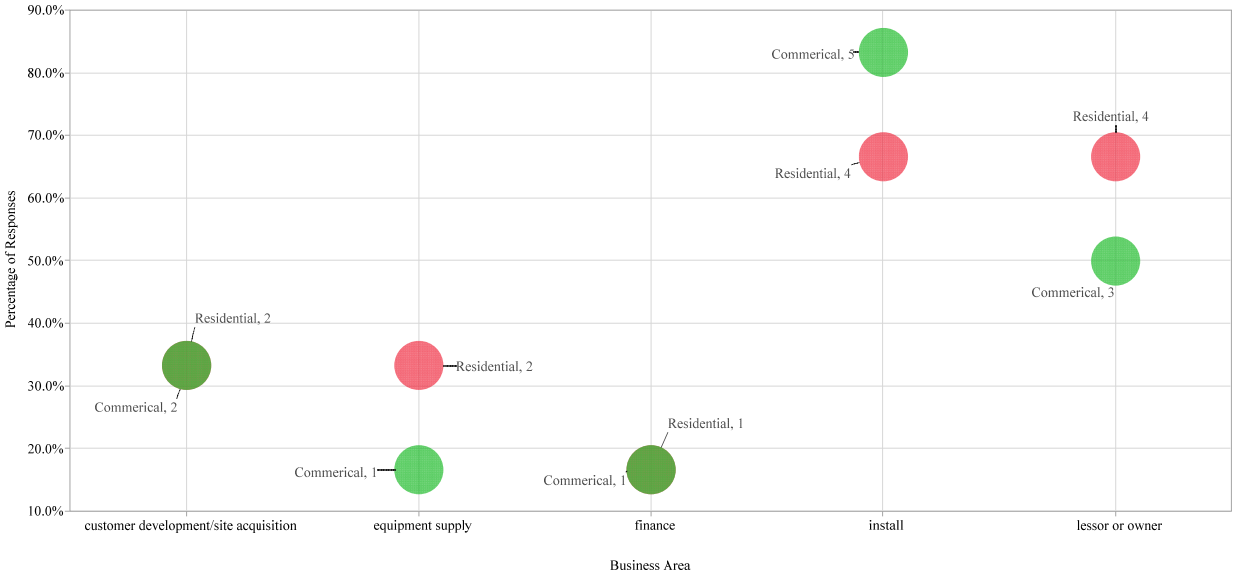


Figure 3-11. Business Focus Areas by Industry Segment Served.

3.10 Installation Experience: Overall Career and within AL

Respondents were asked to provide a measure of their experience in terms of their career total installed kW and their Al installed kW. Their installation histories are provided in Figure 3-12. Installations within the state mirror total career installs for all respondents. When this is further compared with how many states the installers serve, Figure 3-13, it is apparent that the solar industry in AL is young, but consistently growing. Companies that serve Alabama likely are locally started but then expand to neighboring states as they gain experience and understanding of the local utilities policies.

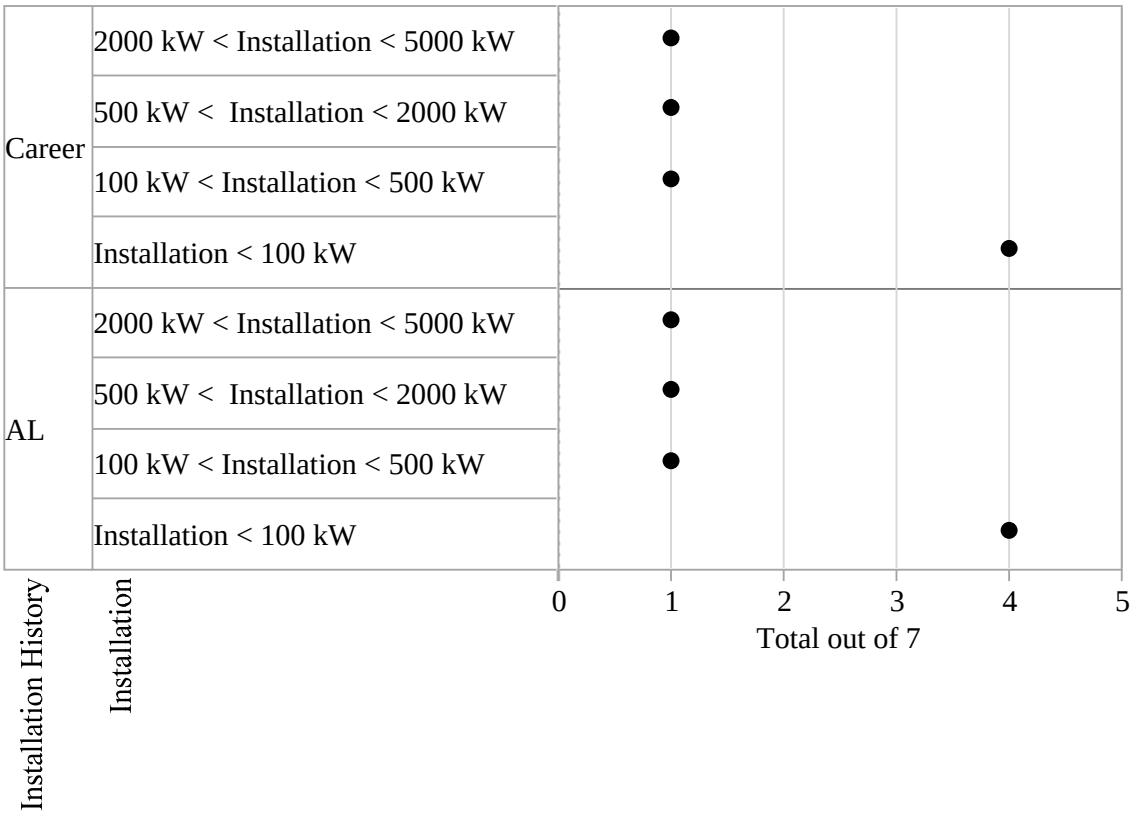


Figure 3-12. Installation history in AL and in career.

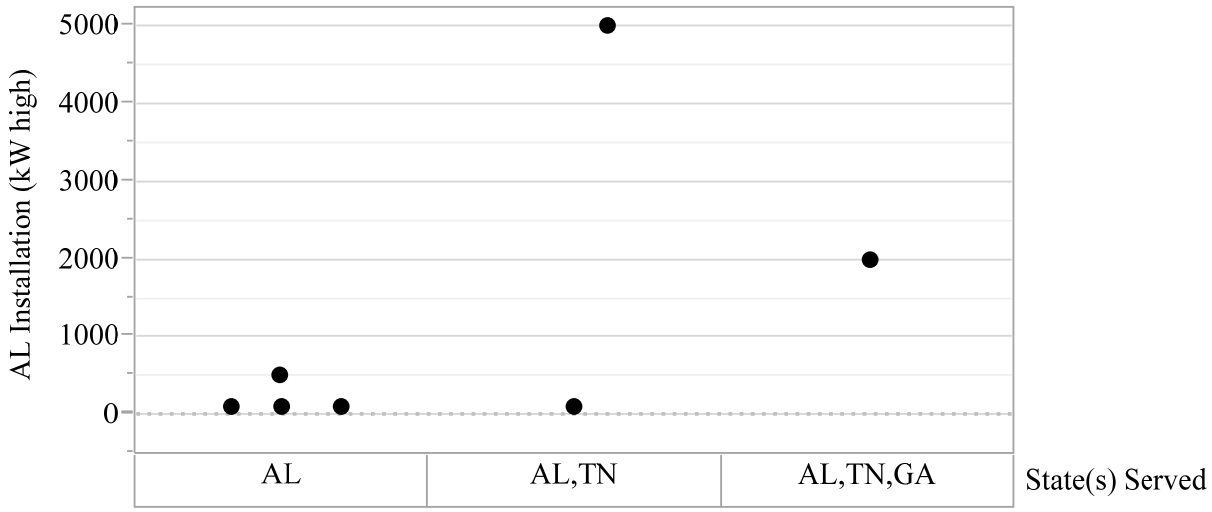


Figure 3-13. Total AL installed based on states served.

4.0 Conclusions

The solar industry in AL is young, but price competitive with an average residential installation cost of $3.29/W-DC. 60% of the total cost is attributed to hardware only. Most of the installers interviewed for this report only install in AL, though a few have branched out to the neighboring states of AL and GA. None of the reporting installers serve the utility sector, which is indicative of the low penetration of solar in the state. Low growth of the industry within the state is likely due to the fact that AL is one of the few remaining states in the US without legislation enabling net metering. Without this, customers are currently reimbursed for excess production at the avoided cost rate, which is approximately 4¢/kWh. At the avoided cost rate and without state tax incentives, the distributed solar systems become cost prohibitive to a majority of residents. Despite the lack of net metering legislation, the AL solar industry continues to slowly grow and keep pace with costs in the rest of the SE. All reporting installers anticipate growth within their business as evident by increasing job needs. Several utility scale installations proposed by both TVA and Alabama Power will help to grow the visibility of the industry and its positive effects on the community.

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Appendix A. Survey

Alabama PV Soft Cost and Workforce Development Survey

Savannah River National Laboratory™
OPERATED BY SAVANNAH RIVER NUCLEAR SOLUTIONS

The Savannah River National Laboratory (SRNL) has received funding from the Department of Energy's SunShot Initiative to help reduce PV soft costs in the Southeastern over the next three years. In order to help develop cost reduction strategies and recommendations, we must first adequately define current estimates, which are unclear for the SE US. Your assistance will help us identify your most pressing needs along with recommended solutions. Please direct questions or concerns about this survey or this project to Elise Fox at SRNL (elise.fox@srnl.doe.gov or 803-507-8560). *All information provided will be kept confidential and is considered business sensitive. Thank you for your assistance with this survey.*

Part I. Estimation of Soft Costs

1. **What segment of the solar PV industry does your company serve? Circle all that apply.**

   Residential Commercial Utility Not Applicable

2. **What is the typical size of type of installation in Alabama now?**

watts-DC	watt-DC	watt-DC
Average Residential	Average Commercial	Average Utility-Scale

3. **What is the typical total installed cost (in dollars per watt-DC) for each segment in Alabama now?**

$ per watt-DC	$ per watt-DC	$ per watt-DC
Residential	Commercial	Utility-Scale

4. **What percent of the typical installed cost is attributable to hardware only, now?**

%	%	%
of Residential installed cost is hardware	of Commercial installed cost is hardware	of Utility-Scale installed cost is hardware

5. **Of the remaining, non-hardware costs, what percent of the cost is:**

%	%	%	%
of non-hardware cost is marketing, lead gen, and/or sales	of non-hardware cost is permitting, inter-connection (incl. fees and admin. labor cost)	of non-hardware cost is installation (incl. design, engineering, and construction labor)	of non-hardware cost is profit, overhead, tax

Part II. Workforce needs, workforce training needs

1. **What are your short term business needs over the next six months? Specifically, how many <u>additional full-time hires</u> do you expect to need in the following areas to meet business expectations <u>over the next six months</u>:**

#	#	#	#
a. Additional sales and marketing FTEs needed in six months	b. Additional electrician and installer FTEs needed in six months	c. Additional general business admin FTEs needed in six months	d. Additional design, engineering FTEs needed in six months

2. **What are your longer term business needs over the next three years? Specifically, how many <u>additional full-time hires</u> do you expect to need in the following areas to meet business expectations <u>in 3 years</u>:**

#	#	#	#
a. Additional sales and marketing FTEs needed in 3 years	b. Additional electrician and installer FTEs needed in 3 years	c. Additional general business admin FTEs needed in 3 years	d. Additional design, engineering FTEs needed in 3 years

3. **If funding were available to support training of the Alabama solar workforce, what type of training would you recommend for the following positions**

	Type of certification or training you would recommend if funding were available to train your employees (check all that apply):			
Employee type	NABCEP entry level	NABCEP PV Technical Sales	NABCEP PV Installation Professional	Other
Sales, marketing				
Designer, engineer				
Crew chief				
Installer				

4. **What do you see as the biggest opportunity to reduce soft costs in Alabama? Please explain.**

Part III. Tell us about your business today

1. **In what Southeastern states have you focused your business so far? Circle all that apply.**

2. **In what regions of Alabama have you focused your business so far? Circle all that apply.**

3. **What is your company's business focus? What segment of the PV market do you concentrate your time on today? Please shade the areas that apply to your current business.**

Business Focus	RESIDENTIAL	COMMERCIAL	UTILITY-SCALE
Long-term PV lessor or owner			
Project finance			
Install, EPC			
Customer development and/or site acquisition			
Equipment supply			
	Segment focus		

4. **How much solar PV capacity have you installed in your career? Circle one.**
   a. Not applicable, I do not install PV
   b. Less than 100 kW
   c. At least 100kW, not more than 500 kW
   d. At least 500kW, not more than 2,000kW
   e. At least 2000kW, not more than 5,000 kW
   f. 5,000 kW or more

5. **How much solar PV capacity have you installed in Alabama? Circle one.**
   a. Not applicable; I do not install PV
   b. Less than 100 kW
   c. At least 100kW, not more than 500 kW
   d. At least 500kW, not more than 2,000kW
   e. At least 2000kW, not more than 5,000 kW
   f. 5,000 kW or more

6. **Please provide your contact information so that we may contact you in the future. Again, all information provided will be kept confidential and is considered business sensitive. Thank you for your assistance with this survey.**

Name _____

Company _____

Title/Role _____

Mobile # _____

Email _____

All information provided will be kept confidential and is considered business sensitive.
Thank you for your assistance with this survey.

Appendix B. Supplemental Information

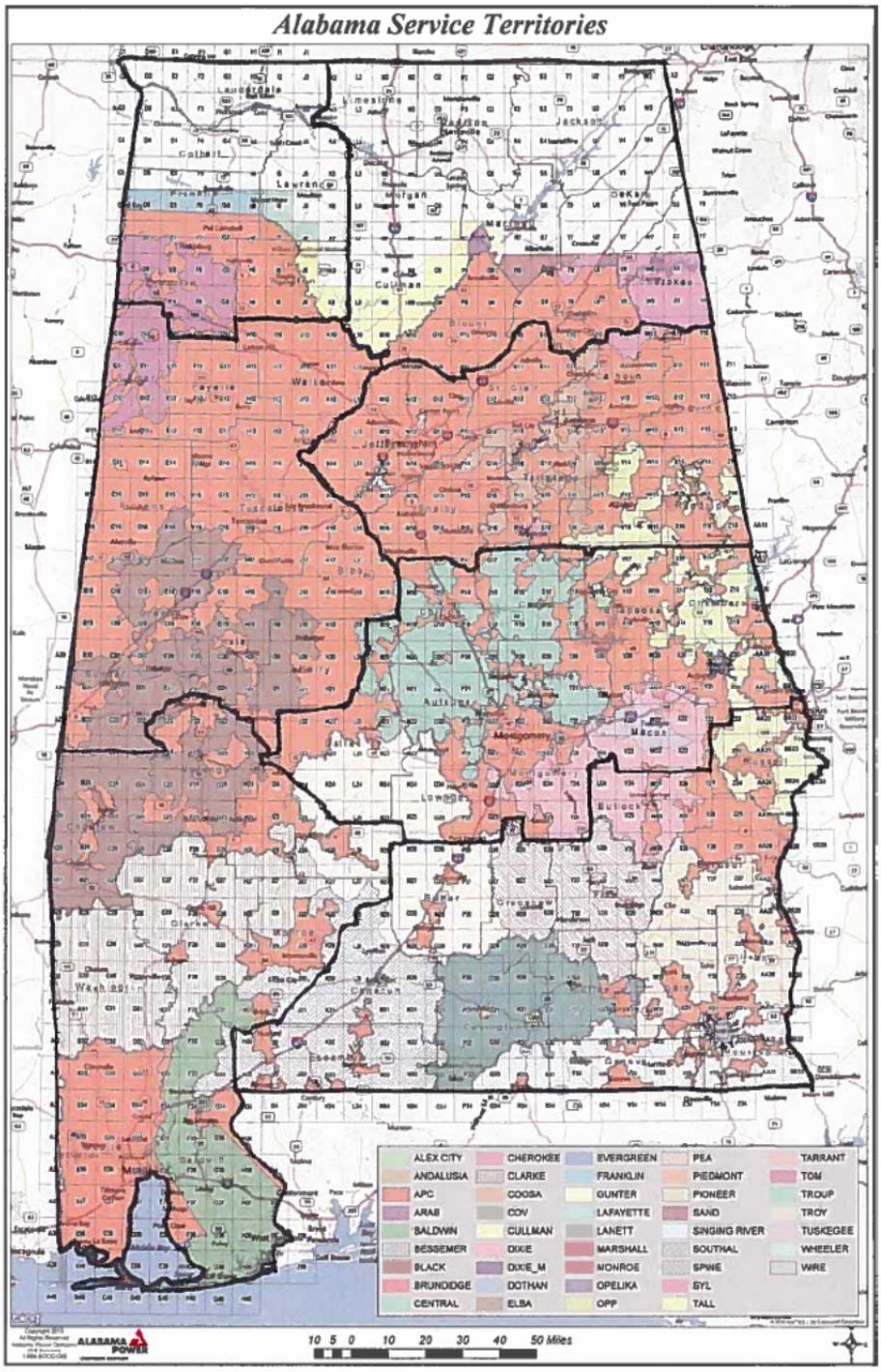

Figure B1. Power provider map with overlay of AL regions. Modified from [15]

Appendix B (continued)

Table B1. Alabama Population Information by County. Data provided by the US Census Bureau

County	Region	2014 population	median income	persons in poverty/%
Calhoun	CE	118572	$ 40,919.00	20.5%
Clay	CE	13932	$ 35,286.00	19.5%
Cleburne	CE	14972	$ 37,008.00	17.0%
Jefferson	CE	658466	$ 45,239.00	19.5%
Randolph	CE	22913	$ 36,498.00	20.4%
St. Clair	CE	83593	$ 51,317.00	14.3%
Shelby	CE	195085	$ 69,723.00	9.6%
Talladega	CE	82291	$ 35,896.00	22.5%
Bibb	CW	22915	$ 37,984.00	18.1%
Fayette	CW	17241	$ 33,144.00	20.6%
Greene	CW	9045	$ 22,170.00	33.2%
Hale	CW	15760	$ 30,839.00	28.1%
Lamar	CW	14564	$ 36,021.00	20.6%
Perry	CW	10591	$ 25,528.00	46.9%
Pickens	CW	19746	$ 29,839.00	25.0%
Sumter	CW	13763	$ 22,865.00	38.1%
Tuscaloosa	CW	194656	$ 46,448.00	18.0%
Walker	CW	67023	$ 36,712.00	23.5%
Baldwin	Gulf Coast	182265	$ 50,183.00	13.0%
Choctaw	Gulf Coast	13859	$ 34,325.00	25.0%
Clarke	Gulf Coast	25833	$ 30,951.00	24.9%
Monroe	Gulf Coast	23070	$ 30,569.00	25.3%
Marengo	Gulf Coast	21027	$ 33,714.00	25.6%
Mobile	Gulf Coast	412992	$ 43,844.00	19.6%
Washington	Gulf Coast	17581	$ 44,731.00	18.5%
Wilcox	Gulf Coast	11670	$ 23,406.00	33.7%
Autauga	ME	54,571	$ 52,475.00	13.1%
Chambers	ME	34215	$ 32,835.00	21.3%
Chilton	ME	43643	$ 41,785.00	18.1%
Coosa	ME	11539	$ 32,340.00	18.8%
Dallas	ME	43820	$ 26,494.00	35.2%
Elmore	ME	79303	$ 54,159.00	14.4%
Lee	ME	140247	$ 43,641.00	25.2%
Lowndes	ME	11299	$ 25,678.00	31.4%
Montgomery	ME	229363	$ 44,830.00	22.5%
Tallapoosa	ME	41616	$ 38,644.00	21.3%
Macon	MR	21452	$ 30,254.00	32.1%
Blount	NE	57322	$ 44,409.00	17.5%
Cherokee	NE	25989	$ 34,983.00	18.6%
Cullman	NE	80406	$ 39,415.00	17.2%
DeKalb	NE	71109	$ 37,977.00	24.0%
Etowah	NE	104430	$ 38,467.00	19.0%
Jackson	NE	53227	$ 36,874.00	22.0%
Limestone	NE	82782	$ 49,461.00	13.6%
Madison	NE	334811	$ 58,203.00	14.2%
Marshall	NE	93019	$ 39,473.00	22.0%
Morgan	NE	119490	$ 45,341.00	15.0%
Colbert	NW	54428	$ 39,914.00	16.7%
Franklin	NW	31704	$ 35,450.00	23.1%
Lauderdale	NW	92709	$ 42,703.00	18.7%
Lawrence	NW	34339	$ 40,356.00	16.6%
Marion	NW	30776	$ 33,819.00	20.2%
Winston	NW	24484	$ 34,064.00	20.1%
Barbour	SE	27457	$ 35,634.00	25.4%
Bullock	SE	10914	$ 34,804.00	35.1%
Butler	SE	20947	$ 31,571.00	25.0%
Coffee	SE	49948	$ 45,558.00	16.8%
Conecuh	SE	13228	$ 24,433.00	30.6%

Appendix B (continued)

County	Region	2014 population	median income	persons in poverty/%
Covington	SE	37765	$ 39,256.00	20.8%
Crenshaw	SE	13906	$ 37,349.00	21.2%
Dale	SE	50251	$ 44,473.00	22.4%
Escambia	SE	38319	$ 44,883.00	15.3%
Geneva	SE	26790	$ 36,268.00	23.9%
Henry	SE	17302	$ 42,926.00	17.3%
Houston	SE	101547	$ 41,077.00	20.1%
Pike	SE	32899	$ 32,798.00	26.4%
Russell	SE	52947	$ 36,066.00	20.9%
Alabama		4780127	$ 43,511.00	18.5%

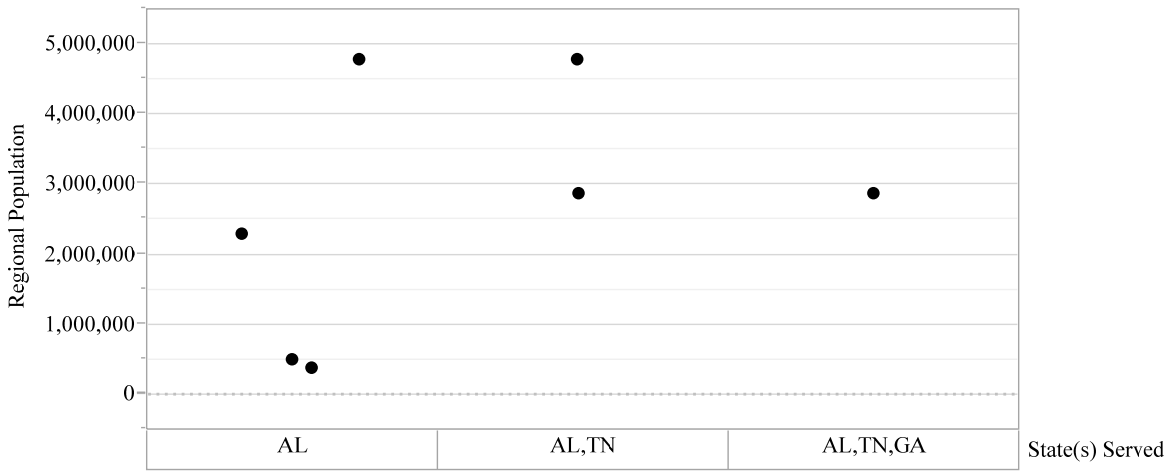

Figure B2. States served versus total population in AL served.