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# Commercial PV Property Appraiser Survey: Summary of Results

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## Background and Motivation

As solar penetration increases, the likelihood that solar will be present in a real estate transaction also increases. Real estate appraisers need tools and an understanding of methods for valuing solar, and insight into how to interpret market impacts related to solar. In 2014, SNL developed a survey to better understand stakeholder attitudes to solar (Klise, 2014). The survey included both residential and commercial real estate appraisers and provided some early insights into the complexity they encounter when valuing solar. But, because the survey was not focused on commercial properties specifically, only limited information could be gleaned about those assignments. Moreover, since then, many more appraisers have gained experience as the numbers of commercial solar installations have grown.

As a follow-up, a survey was developed specifically directed at appraisers who have had experience appraising solar energy systems on commercial properties to develop a better understanding of current practices and where knowledge gaps remain.

This summary serves to offer high-level results of a survey of commercial property appraisers. The survey was conducted by the Appraisal Institute (AI) in collaboration with the Lawrence Berkeley National (LBNL) Laboratory and Sandia National Laboratories (SNL). For a quick summary of the findings, jump to the Conclusions on page 3. The full set of questions and responses follow this summary.

## Research Objectives and Methods

The survey instrument was jointly developed by SNL, LBNL and AI within Survey Monkey. It was conducted in April and May 2018 and was sent to individuals who hold the MAI designation of the Appraisal Institute and Candidates for General Designations, who had taken at least one of the courses in the AI Valuation of Sustainable Buildings Professional Development Program. The initial invitation was set to 799 individuals, then later, after a low response rate, to 266 additional individuals, totaling 1,065. The former were sent two reminders and the latter, one. Reminders were sent roughly 7 days after the initial invitation or the previous reminder.

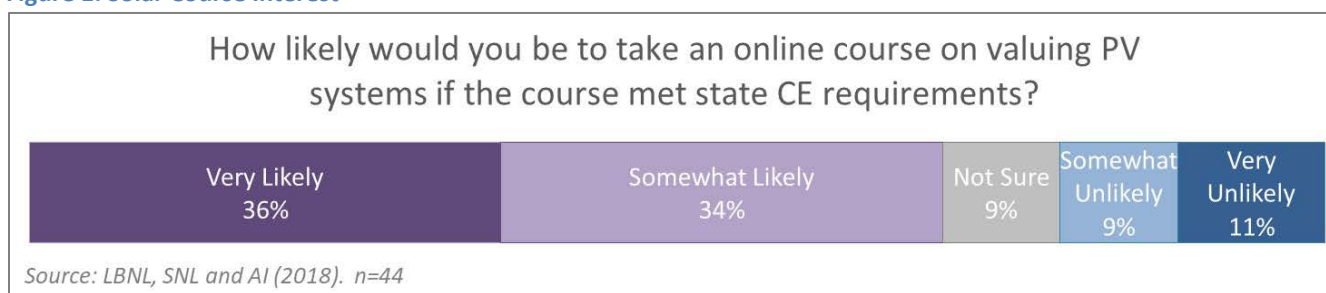
A total of 44 responses were collected, representing a 4.1% response rate. AI normally sees response rates between 2 and 8% so this was considered normal, especially given that many possible respondents likely chose to not respond because they did not have any experience appraising buildings with solar systems. Respondents were spread across the U.S. including New England, Mid and South Atlantic, North and South Central, Mountain and Pacific regions.

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## Research Findings

Of the 44 respondents, all but 3 (7%) have taken some sort of photovoltaics (PV) appraisal course, although for 61% of respondents, that course was > 12 months ago. 31 appraisers (>70%) indicated that they would take advantage of an online course if it were offered and met state continuing education (CE) requirements (see Figure 1). Such interest validates the U.S. Department of Energy’s (DOE) efforts to create and offer such a course. All but 9 respondents indicated that they pursued some other form of self-study, including journal articles, local installation classes, internet research, and phone calls/e-mails to experts. 43% have used a tool such as the DOE-funded and AI-endorsed PV Value® or Ei Value® for an assignment.

Figure 1: Solar Course Interest



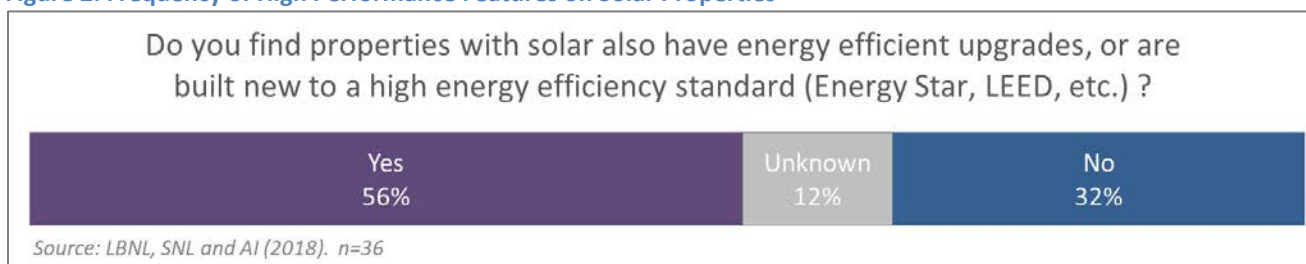
The majority of respondents (93%) have appraised at least one commercial property with an installed PV system; the remainder of the results presented below are limited to these respondents. The survey found that 57% of appraisers said finding information about a PV system, such as its size, age, ownership or energy output, was somewhat or very easy, but 41% said doing so was somewhat or very difficult, indicating a potential need to have data on these systems more readily available.

84% of appraisers surveyed said the income approach typically has the most weight in developing an opinion of value for a commercial property with a photovoltaic system. Another 14% said the cost approach, and the rest (2%) said the sales comparison approach. Not surprisingly, 95% of the respondents have used the income approach to develop an opinion of value of a solar system, while 65% have used the cost approach, and 30% have used the sales comparison approach (*numbers derived from Question 9*). The most-used income approach methods were discounted cash flow and direct capitalization, both around 60% (respondents were allowed to choose more than one method). There is much variation in how appraisers treat PV equipment from an end-of-life perspective. Many responses listed N/A and/or indicated some uncertainty. Similarly, there is a wide variance in what basis point spread an appraiser uses/would use and what source they use to determine such (see Q27 survey responses).

The majority of systems (76%) evaluated were owned by the building/property owner. Roughly one third of the respondents said they always evaluate the photovoltaic system’s maintenance records when developing an opinion of value, while the other two-thirds were split among those that sometimes and never do so. Of those who do, the majority replied that maintenance records have little to no influence on the degree to which the PV system is valued. Instead, respondents replied that market demand, underperformance, and rooftop penetration were the main drivers of reduction in PV system value. Three-fourths of respondents said the presence of a photovoltaic system had no impact on the time it took for a property sale to close. Traditional financing was the ownership structure with the greatest perceived positive impact on PV system value (49%), while leasing/PPA was deemed the next most positive (25%).

Over one-half of the appraisers (56%) say they have found that properties with solar panels also have energy-efficient upgrades or are built to a high-energy-efficiency standard, such as Energy Star or LEED (see Figure 2). Another 32% said they did not, and the other 12% of those surveyed responded “unknown” or “not applicable.” 62% of the respondents “always” or “sometimes” factored in the value of any renewable energy credit (REC) income. Since the availability and type of REC varies across the US, it is difficult to draw too many conclusions from this survey response, since an apples-to-apples comparison between REC programs is difficult.

**Figure 2: Frequency of High Performance Features on Solar Properties**



## Conclusions

Solar photovoltaic systems can be a valuable asset when attached to a property. Therefore, providing market participants with information and tools to credibly assess the value that PV adds to property is important. To that end, LBNL, SNL and AI conducted a survey of commercial appraisers to assess methods of valuing commercial properties with existing PV systems, current trends, and factors that help or hurt market adoption.

The survey elicited 44 responses. Although an overwhelming majority of the respondents had conducted appraisals of properties with solar, how such systems are valued varied widely. Less than half of the respondents reported utilizing AI-endorsed tools such as PV Value ® or Ei Value ® for assignments, which may indicate a lack of awareness that such tools exist. A number of appraisers have taken the AI Residential & Commercial Valuation of Solar course and/or pursued a number of self-study avenues to increase their knowledge of PV systems. A majority indicated that they would be interested in taking an online course if it was offered. Overall, preliminary results point to a need for standardization of valuation metrics and a method of disseminating (e.g. classes) and utilizing (e.g. assessment tools) such metrics in order for appraisers to consistently evaluate and increase demand of properties with PV systems.

## References

Klise, G.T., 2014, Market Valuation Perspectives for Photovoltaic Systems, SAND2014-16948, Sandia National Laboratories, Albuquerque, NM.

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