

## COSTS AND BENEFITS OF PRACTITIONER CERTIFICATION OR LICENSURE FOR THE SOLAR INDUSTRY\*

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### ABSTRACT

This paper presents a summary of the costs and benefits of different regulatory options available to the solar industry, including the prevalent status quo of no regulation, or licensure, certification, or state adoption of nationally-developed standards in the future. The evidence leads to the conclusion that voluntary national certification for practitioners represents the most beneficial option for the solar industry. Of the various regulatory options, only certification maintains freedom of choice for both consumers and practitioners and has the potential to provide the same quality-of-installation benefits as state-by-state licensure without imposing the restrictions and higher costs inherent in mandatory licensure. Certification provides consumers with a means by which to judge the skills and qualifications of solar practitioners, giving consumers increased confidence in the solar industry and rewarding practitioners for meeting high standards of training and practice.

### WHY DOES REGULATION HAPPEN?

For industries or professions where there is the potential for serious harm or property damage if the profession is improperly practiced, regulation is a way to assign responsibility, encourage quality, and protect consumers. Regulation can protect the public directly by raising professional standards of practice or by preventing unqualified professionals from practicing. In addition, regulation protects the public by providing consumers with a means to judge the preparation and skills of practitioners. Many mature professions develop voluntary certifications; nearly one thousand occupations are currently regulated in some way in the U.S.[1]

### Definitions

Although the terms "certification," "licensure," and "regulation" are often used interchangeably, they will be assigned specific meanings in the context of this paper.

Regulation: refers to a system of control over the practice of a given profession. Both licensure and voluntary certification represent forms of regulation.

Licensure: refers to a mandatory system of standards, usually controlled by state government, to which a

practitioner must conform in order to practice a given profession. In the U.S., an estimated eight hundred occupations are licensed in at least one state.[2]

Certification: refers to a voluntary system of standards, usually set by key stakeholders, that practitioners can choose to meet in order to demonstrate accomplishment or ability in their profession. Becoming certified may involve meeting similar standards to licensure and can confer the right to use certain titles or credentials, but lack of certification will not prevent a professional from working in their field.

### SIGNIFICANCE OF RESEARCH

Just as the industry recognizes the importance of quality hardware, so it should embrace the idea of practitioner standards. The research summarized in this paper compares the costs and benefits of various regulatory options, indicating that no regulation is, in fact, an undesirable option. A single national voluntary certification program will provide the maximum benefits to the industry, practitioners, consumers, and the states.

Because a number of states are considering or have already begun implementing solar licensing requirements for practitioners, the solar industry has a narrow window of opportunity to influence development of the installer requirements that will define how people will work in the industry for many years to come. The solar industry must act quickly in order to take advantage of the benefits of a voluntary certification program.

### REGULATORY OPTIONS: COSTS AND BENEFITS

Four main options exist for the regulation of a given profession: first, no regulation; second, state-by-state mandatory licensure (referred to as licensure in this paper); third, voluntary national certification (referred to as certification in this paper); and fourth, state implementation of nationally developed standards.

### No Regulation

The "no regulation" option is most viable when the practice of a given profession is not likely to harm consumers even in its most dangerous and unethical extremes. Because improper solar installation could potentially harm the

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consumer, the "no regulation" option might have serious consequences for the solar industry. The option for no regulation has actually come to a close in Oregon, Florida and other states that have already finalized legislation requiring the licensure or training of solar installers.

Table 1 lists the costs and benefits of a non-regulatory environment. The principal benefit of "no regulation" is that the maximum freedom of choice is preserved for both consumers and practitioners.[3] The costs of an unregulated system for the solar industry are largely related to safety, performance and reliability: negative public opinion flourishes when installers do unsafe or inefficient work. The unpredictability of installation safety and reliability often leads to higher long term costs and makes it more difficult to access funding sources.

Table 1. Costs and Benefits of No Regulation

	COSTS	BENEFITS
<b>Manufac-turers</b>	System failures = reduced demand, reduced long-term market	No extra \$ outlay for training or testing
<b>Practi-tioners</b>	System failures = reduced demand System failures = liability	
<b>States</b>	System uncertainty = states will not fund solar projects	No extra \$ outlay for practitioner training /testing program
<b>Consu-mers</b>	Installed system uncertainty = safety and reliability risks & difficulty obtaining financing and insurance	Wide range of practitioner skills & prices available = wide consumer choice

**State Regulation: Licensure**

Licensure protects practitioners and the public by requiring that all practitioners in a given profession meet the same set of minimum standards. However, by raising the standards that all practitioners have to meet, licensure may deny some practitioners entry to the field until they meet those standards. This may restrict the supply of practitioners in a given field and can result in higher installation fees. One economic study found that median earnings of licensed occupations were fifty percent greater than median earnings of unlicensed occupations.[4]

While practitioners may appreciate higher income, higher prices are generally adverse from the consumer perspective. In addition, restricting practitioner entry into the field results in restricted consumer choice.[5] The higher costs and restricted choice have also been shown to sometimes drive consumers to forego the work (decreasing demand for the profession) or to do their own work. One study of licensure for electricians associated stricter electrician entry requirements with a general rise in accidental electrocutions, presumably because consumers

were doing the work themselves rather than paying the higher cost for a licensed electrician.[6]

In addition to these costs, licensure results in a variety of other consequences. First, licensure is hard to "undo" because licensed practitioners will resist the additional competition that would result from deregulation.[7] Second, when licensure is carried out at the state level, as is generally the case, each state usually develops its own divergent standards and requirements, preventing practitioners from moving from one state to another.[8] Third, divergent state requirements also complicate training efforts, potentially increasing costs for training providers and practitioners alike.

Liability concerns are also an important issue for licensing boards to consider. Practitioners who feel that they are being unfairly prevented from working in their profession may sue under anti-monopoly laws. Consumers who receive sub-standard services from state-licensed practitioners may sue the state licensing board for failure to live up to its mandate. Licensure programs that cannot defend the validity of their standards and examinations risk being overturned in costly lawsuits, as happened with paramedic licensure programs throughout the U.S. in the 1980s and 1990s. Although states had originally spent an estimated \$183 million in federal money to develop individual licensure programs for paramedics during the 1970s, they could not support the validity of their programs when faced with lawsuits. Forty-six states have been forced to forego their state paramedic licensure programs in favor of the nationally developed standards and requirements of the National Registry of Emergency Medical Technicians (NREMT) program, which has proved valid.[9]

Licensure is generally justified as a means of protecting the public from unsafe practices. However, evidence indicates that licensure does not uniformly succeed in promoting quality outcomes. A study in 1981 showed that in each of seven licensed professions observed, the restrictions on the profession were ultimately detrimental to consumers in all cases.[10] In another study on the costs and benefits of licensure, the Bureau of Economics stated: "While a few studies indicate that higher quality levels may result from such licensing restrictions, a majority of the work to date finds quality to be unaffected by licensing or business practice restrictions associated with licensing. In some cases quality actually decreases." [11]

Table 2 lists the costs and benefits of state-by-state licensure. The most important costs result from the nature of this form of regulation, including decreased practitioner mobility, restricted practitioner and consumer choice, and restricted entry to the field leading to higher costs for consumers and decreased demand. These costs are balanced by the possibility of higher quality work, which can also improve public perception of the industry and lead to an enhanced market demand.

Table 2: Costs and Benefits of State-by-State Licensure

	COSTS	BENEFITS
<b>Manufac-turers</b>	High costs for training to meet disparate require-ments of individual states  Possible practitioner shortage	Exclusion of unethical or unqualified practitioners who give industry a bad name = improved public image and enhanced market
<b>Practitioners</b>	Increased \$ and time to meet training and experience requirements  Decreased mobility; restrict-ed entry into the field	
<b>States</b>	\$ for program development and standards verification  Liability for public safety & exclusionary standards	Revenue opportunity
<b>Consu-mers</b>	Higher practitioner fees -- Possible practitioner shortage  Restricted practitioner choice	Tenuous evidence of higher quality services

**Voluntary National Certification**

Voluntary national certification provides the benefits of licensure while avoiding some of the key costs. A study of the appraisal profession in the U.S. found that while costs for training and experience commitments went up for both licensure and voluntary certification, voluntary certification resulted in increased geographic mobility because a national program allowed appraisers to use their credential in many states. In addition, appraiser certification resulted in a benefit to consumers by giving them better information with which to choose a qualified appraiser while maintaining their freedom to choose between certified and non-certified practitioners. The study concluded that mandatory licensure was a less attractive option for appraisers than voluntary certification. [12]

Other studies indicate that voluntary certification is less likely than mandatory licensure to curtail the rate of innovation in the field or to restrict competition.[13] In addition, voluntary certification does not incur the entry restrictions and resultant higher costs of licensure.

The value of voluntary national certification has been further demonstrated in studies on existing certification programs. In a study conducted by the National Board for Professional Teaching Standards, Certified Teachers outperformed their peers on all thirteen key dimensions of teaching expertise, with significant distinction on eleven of the dimensions.[14] A study of companies with Microsoft® certified Information Services (IS) staff found an average cost savings of \$2,500.00 per certified server per year.[15] Another study of Microsoft® Office User Specialist (MOUS) certification found that 85% of supervisors felt that MOUS-certified employees were more productive than their non-certified counterparts.[16]

In summary, as shown in Table 3, voluntary national practitioner certification would impart the benefits of installer regulation without the key costs of restricted entry and restricted consumer choice that come with mandatory licensure. In addition, a uniform national program standardizes training requirements and can therefore decrease training costs while preserving practitioner mobility and choice. Research indicates that certification is more likely to be a predictor of quality for practitioners than licensure. Research does not establish a clear correlation between licensure and quality.

Table 3: National Voluntary Certification

	COSTS	BENEFITS	
<b>Manufac-turers</b>	Possible increased \$ for training (opt) for captive installers	Standardized training can reduce costs	Liability for public safety borne by the 3 <sup>rd</sup> -party certifying agency
<b>Practitioners</b>	Increased \$ and time for training and experience (optional)	Exclusion of unethical or un-qualified practitioners who give industry a bad name = improved public image & enhanced market  Potential for higher income  Preserved geographic mobility  Higher standards rewarded	
<b>States</b>	Little or None	Higher standards of practice encouraged and rewarded	
<b>Consu-mers</b>	None	Potential for higher quality services  Consumer choice conserved: high quality services option available  A consumer education tool available	

**State Adoption of National Standards**

If a voluntary national certification program is not instituted for the solar industry, states will continue to move forward with state-level mandatory licensure, resulting in a multiplicity of disparate requirements, which will curtail practitioner mobility and complicate the training and education process. Instead of instituting individually developed state licenses, it is possible for states to coordinate solar practitioner licensing efforts by adopting a nationally developed certification program. In the case of the nursing profession, for example, an effort began in the 1950s to create common national standards to replace confusing, disparate state regulations. The national standards are now overseen by the Council of State Boards of Nursing and have been accepted by virtually every U.S. state.[17]

As shown in Table 4, the resulting costs and benefits of state adoption of a nationally developed standard represent a compromise between state-by-state licensure and national voluntary certification. Geographic mobility for practitioners is preserved, and training costs are stabilized. But the costs of licensure, including restricted entry into the field, are still present.

Table 4: State Adoption of National Standards

	COSTS	BENEFITS	
Manufacturers	Possible training cost increase	Improved public perception of the solar industry = enhanced market	Liability for public safety borne by the 3 <sup>rd</sup> party certifying agency
	Potential practitioner shortage	Exclusion of unethical or unqualified practitioners who give industry a bad name = better public image	
Practitioners	Increased \$ & time for training	Higher income and higher professional recognition	
	Restricted entry to the field	Maintains geographic mobility	
States	\$ for program development & verification	Revenue opportunity Shared liability for public safety	
Consumers	Higher cost for installations & restricted choice	Potential for lower life-cycle costs & higher system performance rates Potential for higher quality services	

### CONCLUSION AND RECOMMENDATIONS

The best regulatory choice for solar installers is voluntary national certification because it has the potential to provide the same quality-of-installation benefits as licensure without imposing inherent restrictions and higher costs.

Only certification can provide practitioner standards along with freedom of choice for both consumers and practitioners, unimpeded innovation, unrestricted competition, and free entry of practitioners into the field. In addition, certification will provide consumers with a means by which to judge the skills and qualification of solar practitioners, giving consumers increased confidence in the industry and potentially enhancing the market.

As individual states move forward with licensure programs for solar practitioners, this study indicates that states would do well to adopt, as closely as practical, national standards. State implementation of a national program with industry consensus represents the second best regulatory option for the solar industry.

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