Testimony of

Todd G. Glass

Wilson Sonsini Goodrich & Rosati, P.C.

on behalf of the

SOLAR ENERGY INDUSTRIES ASSOCIATION

Before The

United States House of Representatives

Committee on Energy and Commerce

Subcommittee on Energy

Hearing entitled "Powering America:

Reevaluating PURPA's Objectives and its Effects on Today's Consumers"

September 6, 2017

600 14th Street NW, Suite 400
Washington, DC 20005
Phone: 202-682-0556
www.SEIA.org

Mr. Chairman, Ranking Member Rush, and Members of the Subcommittee:

On behalf of Solar Energy Industries Association (SEIA)[1], thank you for the opportunity to testify on the Public Utility Regulatory Policies Act of 1978 (PURPA),[2] its original objectives, and its relevance to consumers today. SEIA represents all organizations that promote, manufacture, install and support the development of solar energy and works with its 1,000 member companies to champion the use of clean, affordable solar power in America by expanding markets, removing market barriers, strengthening the industry and educating the public on the benefits of solar energy. SEIA is the national trade association for the solar industry in the United States and, in 2016, 1 out of every 50 new jobs added in the U.S. in 2016 came from solar and nearly $23 billion was invested in U.S. solar installations. Since 2013, U.S. solar industry employment has grown by at least 20% every year. More than 26,000 jobs are expected to be added in 2017 and over the next five years, the solar industry will invest more than $86 billion in the U.S. economy. To continue on this path of growth, it is essential that PURPA be maintained as backstop federal authority.

I have worked across the United States for more than twenty years in support of independent power producers in their efforts to compete with utilities to offer the lowest-price power to consumers within states across the country. Since 2005, I have led one of preeminent independent power project development and finance practices focused on solar power development, including utility scale and residential installations. I also teach Energy Project Development and Finance at University of California, Berkeley School of Law. Based on my experiences and knowledge gained in all of these roles, I can unequivocally state that PURPA

[1] This testimony represents the position of SEIA as an organization, but do not necessarily reflect the views of any particular member with respect to any issue. In this testimony, I present the views of the solar industry, as represented by SEIA, not those of Wilson Sonsini Goodrich & Rosati, P.C. or any of its individual clients.
[2] 16 U.S.C. § 824a-3 (2017).

and its protections are fundamental to the ability of independent power, including the solar industry, to compete and thrive throughout the United States.

PURPA first enabled non-utilities to own and operate certain cogeneration and small renewable power generation facilities by requiring utilities to interconnect, transmit power, and offer to purchase the output of such plants at the utility's avoided cost. PURPA thereby created the first competition in the electric power industry and enabled a substantial influx of non-utility generators. PURPA is an essential piece of federal legislation that backstops competition by ensuring that competition from independent generators will continue to put downward pressure on energy prices, while simultaneously supporting the important statutory goals of fuel diversity and national security.[3] If the goal of this Subcommittee is to continue to rely on independent competitors to enter the electric market and place additional downward pressure on cost-of-service rates, PURPA's mandatory purchase standard should be strengthened, not weakened.

I. PURPA REMAINS ESSENTIAL TO INDEPENDENT GENERATION AND COMPETITION

In the context of the energy challenges facing the United States in the 1970s, Congress recognized that utility-driven resource procurements were insufficient to meet national energy security objectives, as the utilities had not achieved sufficient diversity with respect to fuel type, size, and ownership. There existed no market for independent or competitive generation that would lead to lower prices for consumers. During the early years of PURPA, significant progress for independent generation was made through the installation and development of cogeneration plants across the country. In the past decade, newer technology-based generation, like solar, has achieved cost parity with utility-owned generation sources. As technology and

[3] The Energy Policy Act of 1992 provisions that opened up a utility's transmission system to independent generators. *See* Energy Policy Act of 1992, Pub. L. No. 102-486 § 711, 106 Stat. 2776, 2905 (1992).

scale of solar continues to develop, the price for solar generation continues to decrease and with these price decreases, independent power producers place additional pressure on a utility to reduce the price to serve consumers. Independent power producers are finally emerging as true competitors to monopoly-regulated utilities, but still require PURPA's backstop protections to ensure that competition can continue to thrive in the electric generating industry.

A. Historical Perspective

In 1973, prior to the passage of PURPA, the Supreme Court ruled on a competitor's antitrust dispute seeking a remedy for a utility's refusal to sell power at wholesale to competitors and refusal to provide transmission service to competitors.[4] The Supreme Court found that such practices violated the antitrust laws because the utility did not provide a competitor with access to a facility essential to engaging in business.[5] Four years later, Wheelabrator-Frye Corporation, another company desiring to compete, was denied the opportunity to sell power to a utility.[6] Wheelabrator's frustration and Senator John Durkin's willingness to take up the competitive cause led to PURPA's passage.[7] Durkin was supported by manufacturers that were interested in installing their own generation as a means to "avoid the high costs of utilities' over-budget reactors."[8] These issues, paired with the nation-wide energy crisis, led Congress to pass PURPA

[4] *See Otter Tail Power Co. v. United States*, 410 U.S. 366 (1973); *see also Small Power Production and Cogeneration Facilities; Regulations Implementing Section 210 of the Public Utility Regulatory Policies Act of 1978*, Order No. 69, FERC Stats. & Regs. ¶ 30,128 at 30,868 (1980) ("Order No. 69") (explaining that prior to the enactment of PURPA, FERC recognized that a cogenerator or small power producer seeking to establish interconnected operation with a utility faced three major obstacles. "First, a utility was not generally required to purchase the electric output, at an appropriate rate. Secondly, some utilities charged discriminatorily high rates of back-up service to cogenerators and small power producers. Thirdly, a cogenerator or small power producer which provided electricity to a utility's grid ran the risk of being considered an electric utility and thus being subject to State and Federal regulation as an electric utility. Section 201 and 210 of PURPA are designed to remove these obstacles.").

[5] *Otter Tail Power Co.*, 410 U.S. at 367.

[6] *See* Richard Munson, *From Edison to Enron: The Business of Power and What it Means for the Future of Electricity* 103-06 (2005).

[7] *Id.*

[8] *Id.* at 107.

to encourage: "(1) conservation of energy supplied by electric utilities; (2) the optimization of the efficiency of use of facilities and resources by electric utilities; and (3) equitable rates to electric consumers."[9] Congress wanted to diversify the supply of electric generation resources away from those resources developed, built and owned by vertically-integrated monopoly electric utilities with frequent cost overruns that were passed on to ratepayers, and encourage competition from small power producers and cogenerators. The legislative history of PURPA makes clear that PURPA was intended to increase competition from independent power producers by reducing both fuel price risk and the cost of power.[10] In May 1983, the Supreme Court unanimously upheld PURPA's provisions and FERC's determination that the "the nation as a whole would benefit from the decreased reliance on scarce fossil fuels and the more efficient use of energy."[11]

B. Continuing Need to Protect Competition for Independent Generation

Now that renewable technologies are emerging as cost-competitive alternatives to traditional generation sources, PURPA is more important than ever to ensure that independent generators remain able to compete with monopoly utilities. Even under workable competition, some of PURPA's goals may be lost if left solely to the marketplace.[12] As they seek to compete independent developers are facing a return of the same tactics by the utilities and the state commissions as they experienced almost forty years ago when the idea of independent

[9] 16 U.S.C. § 2611.
[10] *See, e.g.*, Public Utility Regulatory Policies Act, Joint Explanatory Statement of the Committee of Conference at 98, Report No. 95-1750 (Oct. 10, 1978) (explaining that "the conferees use the phrase 'not to discriminate against [QFs]' because they were concerned that the electric utility's obligations to purchase and sell under this provision might be circumvented by the charging of unjust and non-cost based rates for power solely to discourage cogeneration or small power production.").
[11] *Am. Paper Inst. v. Am. Elec. Power Serv. Corp.*, 461 U.S. 402, 407 (1983) (quoting 45 Fed. Reg. 12222 (1980)).
[12] *See, e.g.*, Hon. Richard D. Cudahy, *PURPA: The Intersection of Competition and Regulatory Policy*, 16.2 FELJ 419, 420 (1995), *available at*: http://felj.org/sites/default/files/elj/Energy%20Journals/Vol16_No2_1995_PURPA.pdf.

generation was presented as a potential competitive solution to utility dominance.[13] These anticompetitive practices are largely directed at preventing solar generators from obtaining a fixed-price, long-term contract with the incumbent utility, even when such contracts are proposed based on the price a utility would pay for the incremental cost of electric energy or capacity that, but for the purchase from the qualifying facility (QF), such utility would generate itself or purchase from another source ("avoided cost").[14]

Some now argue that PURPA is an anachronism, that independent power generation has matured to the point that PURPA is now obsolete, that the country's generation resources are sufficiently diverse, markets for wholesale energy and capacity sufficiently impose price discipline on utilities, and that we can trust the utilities to make the right decisions. These arguments are false. PURPA's fundamental purpose of ensuring that independent small power producers and cogenerators can compete with incumbent utilities – which are still natural monopolies that do not have an economic incentive to lower costs and benefit consumers – remains as necessary today as it was in 1978.

II. THE U.S. SOLAR INDUSTRY CAN COMPETE AS AN ABUNDANT, RENEWABLE, DOMESTIC ENERGY RESOURCE

The solar industry is one of the most recent success stories of the independent power industry created by PURPA. *See* **Attachment 1**. Solar employment expanded last year 17 times faster than the total U.S. economy; the Solar Foundation estimates that there are projected to be more than 280,000 solar industry jobs in the U.S. solar workforce in 2017:

---

[13] *See, e.g., City of Frankfort*, 12 FERC ¶ 61,004, 61,010 (1980) (explaining that the Federal Power Act prevents monopoly transmission providers from engaging in anticompetitive conduct and erecting unreasonable barriers to entry*); see also Regional Transmission Organizations, Order No. 2000*, 89 FERC ¶ 61,285 (1999) (explaining how utilities that control monopoly transmission facilities and also have power marketing interests have poor incentive to compete); Cudahy, supra, at 423-425 (detailing the call to reform arguments employed prior to EPAct 1992, which are a mirror of the claims raised by PURPA opponents at the technical conference).

[14] FERC's implementing regulations at 18 C.F.R. § 292.304(e)(3) set forth the avoided cost concept, as explained in Order No. 69, 45 Fed. Reg. 12214, 12227.

Figure 1

Solar Energy Sector Employment, 2010–2017 (Projected)

Sector	2010	2011	2012	2013	2014	2015	2016	2017 (Projected)
Installation	43,934	52,503	57,177	69,658	97,031	119,931	137,133	154,175
Manufacturing	24,916	24,064	29,742	29,851	32,490	30,282	38,121	40,434
Sales & Distribution	11,744	17,722	16,005	19,771	20,185	24,377	32,147	39,387
Project Development	n/a	n/a	7,988	12,169	15,112	22,452	34,400	34,227
Other	12,908	5,948	8,105	11,248	8,989	11,816	18,274	18,111
Total	93,502	100,237	119,017	142,697	173,807	208,859	260,077	286,335

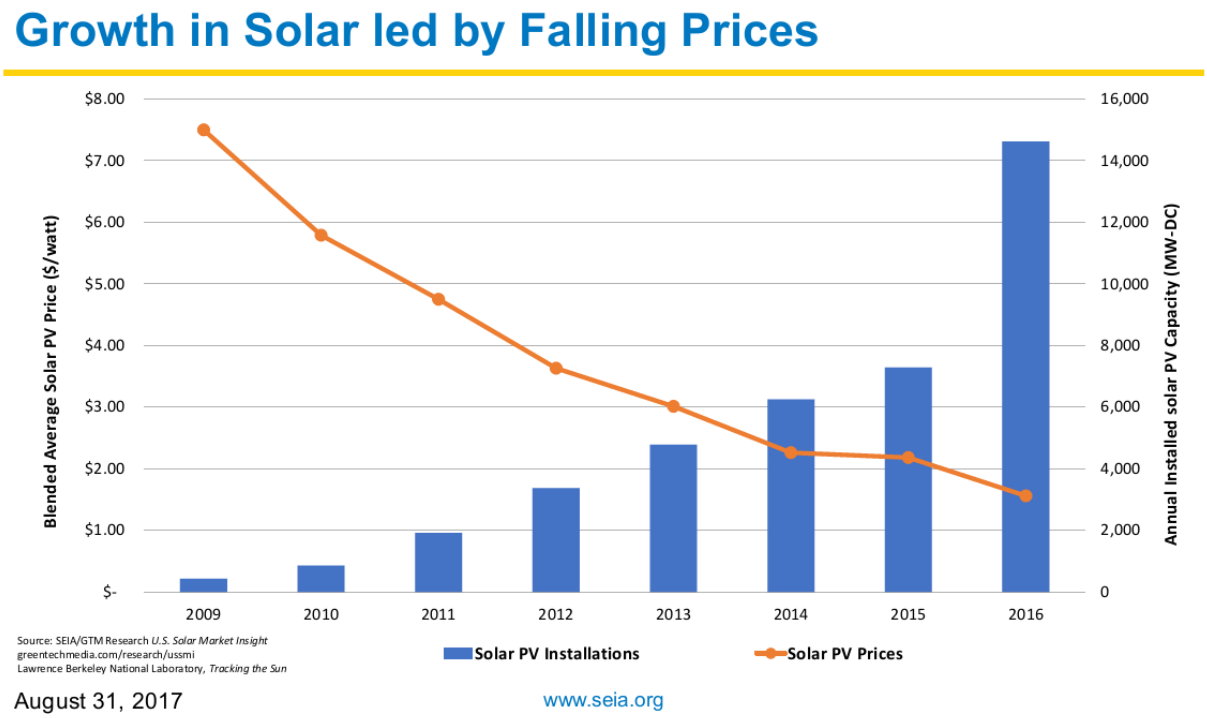
SEIA strongly believes that Congress's continued support for and enforcement of PURPA is a necessary component of maintaining the impressive growth of this domestic industry.

Through competition, SEIA's members are driving down the price of solar power for all customers to levels that can compete favorably with all forms of electric power generation. SEIA calls attention to the often-repeated assertion that PURPA compels utilities to purchase "high cost" or "overpriced" energy. This is false; by definition, the avoided cost pricing of PURPA contracts can be no higher than the cost the utility would otherwise pay for the next increment of generation that it must procure to satisfy its obligations to serve load.[15] This misconception dates from a prior era, before current technological innovations and efficiencies of scale drove down solar power prices such that the market price for solar is now competitive with other forms of new generation.[16]

[15] 18 CFR 292.101(b)(6).

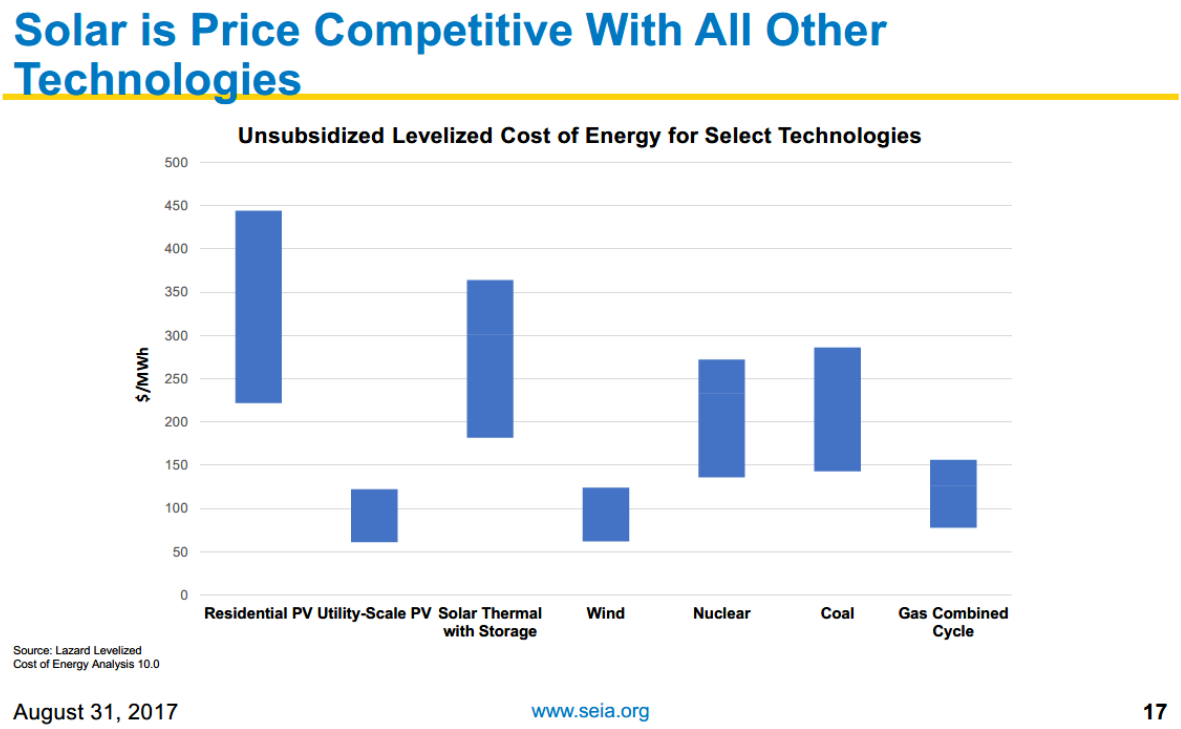
[16] This falsehood might also have gained traction due to improper conflation between renewable projects seeking (1) PURPA-grounded, avoided cost-based contracts and (2) contracts pursuant to state legislative policy-driven renewable portfolio standards (the latter of which were not tied to avoided cost-based prices). In fact, few – if any – states include an economic value for environmental benefits in the computation of Avoided Cost.

Figure 2



Indeed, the plummeting installed cost of solar systems has created an environment where solar-based energy generation is cost competitive with fossil fuel-based avoided cost calculations.

Figure 3



III. PURPA ENCOURAGES FUEL DIVERSITY AND PROMOTES NATIONAL SECURITY

PURPA was enacted in 1978 in response to the OPEC oil crisis, during which there were dramatic and severe shortages of oil and natural gas that drove electric power prices higher, as these limited fuel sources fueled the majority of the power generation plants in the nation. The dominant goal of PURPA was to reduce reliance on foreign imported fuels by increasing the country's energy self-sufficiency and fuel diversity.[17]

Through competition put in place by the Natural Gas Policy Act of 1978, the production of natural gas has largely transitioned into a domestic industry. Through resulting competition and technological advancement, natural gas has become an abundant and inexpensive source of

[17] *See, e.g., FERC v. Mississippi*, 456 U.S. 742, 756-7 (1982); H.R. Rep. No. 95-1750 at 9 (1978) (Conf. Rep.).

domestic fuel and is currently the dominant generation fuel source in the U.S.[18] Yet, the fuel diversity among utilities remains lacking and a system that is overly reliant on one fuel source is not as secure when unexpected constraints, such as a natural disaster, can have devastating impacts on the fuel delivery infrastructure.

PURPA's goal of promoting fuel diversity is still relevant today. Last year, the North American Electric Reliability Corporation (NERC) released a special assessment of gas-electric interdependencies, which included an investigation of the potential reliability risks to the Nation's bulk power system due to increased reliance on natural gas.[19] NERC found that areas with increasing penetration of natural gas-fired generation are increasingly vulnerable to gas supply disruptions and threaten bulk power system reliability and recommended that "fuel availability and deliverability should be specifically considered and integrated into resource adequacy and other planning assessments."[20] These concerns were reinforced by NERC's long-term reliability assessment released in December 2016.[21] While consumers are currently benefitting from low natural gas prices, such a result could change rapidly if there is an unexpected increase in the price of natural gas due to supply or demand conditions.

In 2016, just under nine percent (9%) of all electricity generated in the U.S. came from fuel-less renewable energy, comprised of six percent (6%) wind power, two percent (2%) biomass power, and about one percent (1%) from each of solar and geothermal power.[22] While

---

[18] *See, e.g., Staff Report to the Secretary on Electricity Markets and Reliability* at https://energy.gov/downloads/download-staff-report-secretary-electricity-markets-and-reliability.
[19] U.S. Department of Energy, Transforming the Nation's Electricity System: The second Installment of the QER (January 2017), https://www.energy.gov/sites/prod/files/2017/02/f34/Chapter%20IV--Ensuring%20Electricity%20System%20Reliability%2C%20Security%2C%20and%20Resilience.pdf
[20] NERC, Short-Term Special Assessment Operational Risk Assessment with High Penetration of Natural Gas-Fired Generation at 12 (May 2016).
[21] *See* NERC, 2016 Long-Term Reliability Assessment (December 2016).
[22] U.S. Energy Information Administration, Electricity Explained: Electricity in the United States (May 10, 2017), https://www.eia.gov/energyexplained/index.cfm?page=electricity_in_the_united_states.

the diversity of the electric generation in the U.S. is greater than it was in 1978, this level of diversity is not a goal achieved.

IV. NEW GENERATION RESOURCES WILL NOT BE CONSTRUCTED IF THE PURPA FOUNDATION IS ERODED

As the Supreme Court has found, the "basic purpose of section 210 of PURPA is to provide a market for the electricity generated by small power producers and cogenerators"[23] as "utilities were reluctant to purchase power from, and to sell power to, the nontraditional facilities."[24] These small independent projects bring substantial benefits to the grid and to consumers in all markets, as such projects can often be sited closer to load than traditional central station generators, lowering costs to ratepayers due to the efficient use of utility transmission and distribution assets and reduced construction, operations and maintenance costs. These benefits will be lost if PURPA and its mandates are weakened. The majority of independent power projects, particularly those for fuel-less projects with large capital outlays in construction, rely on third-party financing. Just as utilities can benefit from a twenty year depreciation schedule to finance the construction of their owned power plants, independent producers rely on the capital markets to provide long-term capital to support construction and development of generation projects. The PURPA backstop supports financing for almost every one of these projects, even projects that do not have a sales arrangement under the PURPA construct. In addition, PURPA provides key exemptions from specified regulations that would hinder the ability of a project to obtain financing. PURPA's mandatory purchase obligation is a vital backstop that financing parties require as a necessary condition of their investments.

[23] *Am. Paper Inst. v. Am. Elec. Power Serv. Corp*., 461 U.S. 402, 410 (1983) (quoting 45 Fed. Reg. 12221 (1980)).
[24] *FERC v. Mississippi*, 456 U.S. at 750.

A. Competition in the Generation of Electricity Benefits the Public

At the most basic level, an investor-owned utility is incentivised by the current regulated rate structure to build or buy generation assets so that such costs can be capitalized and a return for the equity shareholders will be generated. The more electric generation plant capitalized or purchased from an unregulated affiliate generates greater profit for the common shareholders of the parent company. Recent utility integrated resource plans demonstrate the continuing preference to meet load growth with utility-owned resources:

- **Idaho Power**'s 2017 IRP evaluates a 20-year planning period from 2017 to 2036, during which they forecast load to grow 0.9% per year for average energy demand and 1.4% per year for peak-hour demand. The IRP states that "additional company-owned resources will be needed to meet these increased demands."[25]

- **Duke**'s 2016 IRP for South Carolina[26] projects peak-hour demand to grow 1.2% for the summer months and 1.3% for winter months over a 15-year period, with the annual growth rate for energy consumption at 1.1%.[27] The IRP states that Duke must continue to develop utility-owned facilities as well as develop two new natural gas plants and pursue more utility-owned solar.[28]

- **PacifiCorp**, a Berkshire Hathaway subsidiary, projected an increase in system coincident peak load at a compounded average annual growth rate of 0.85% over a 20-year planning period in its 2017 IRP.[29] PacifiCorp expects system-wide average load growth of 0.91% per year over the same period on an energy basis. PacifiCorp largely relies on utility-owned resources for its future generation needs.[30]

In many respects, the situation described in *Otter Tail Power* remains a concern today as small independent developers face challenges in negotiating and contracting with the monopoly utilities. While such a result could be based on small power producers still face a highly

---

[25] Idaho Power 2017 Integrated Resource Plan (June 2017) https://www.idahopower.com/pdfs/AboutUs/PlanningForFuture/irp/IRP.pdf.
I
[26] Duke Energy Carolinas, South Carolina 2016 Integrated Resource Plan (Biennial Report) (Sept. 1 2016) http://www.energy.sc.gov/files/view/DEC%20IRP%202016%20Corrected%2010-2016%20Clean%20Copy.pdf.
[27] *Id.* at 17, 6.
[28] *Id.* at 7-9.
[29] [29] PacifiCorp, 2017 Integrated Resource Plan Volume 1 (Apr. 4, 2017) https://www.pacificorp.com/content/dam/pacificorp/doc/Energy_Sources/Integrated_Resource_Plan/2017_IRP/2017_IRP_VolumeI_IRP_Final.pdf.
[30] *Id.* (explaining the "preferred portfolio.")

regulated and monopolistic market throughout most of the Southeast, the Intermountain West, and Pacific Northwest, participation in an ISO/RTO market requires assistance of well-established power marketer (a function many independent generators do not have) and sufficient capital to withstand exposure to the volatile nature of energy pricing.

PURPA's critics have argued that today's energy market is more competitive than it was at the time of the law's passage, obviating the need for PURPA's purchase requirement. While generation is somewhat more varied than in the past, the majority of utilities rely on projects owned or utility-affiliate sponsored projects – not independent power projects – to support their incremental system needs. What has changed, however, and explains why investor-owned utilities feel threatened is that the share of electricity sales attributed to investor-owned utilities has fallen from 78% of retail sales[31] in 1978 to approximately 52% of retail sales today.[32]

B. Independent Power Producers Face Anticompetitive Challenges

In passing PURPA, Congress established a regulatory structure that brought financial investors, both debt and equity, into the independent power industry. Without access to capital, construction of new generation resources will grind to a halt. As FERC has noted, "in order to be able to evaluate the financial feasibility of a cogeneration or small power production facility, an investor needs to be able to estimate, with reasonable certainty, the expected return on a potential investment before construction of a facility."[33] Unfortunately, some utilities and state commissions are eroding these foundations in order to stifle PURPA projects.[34]

---

[31] H.R. Rep. No. 95-496 at 125.
[32] U.S. Energy Information Administration, Electricity Explained, https://www.eia.gov/energyexplained/index.cfm?page=electricity_in_the_united_states#tab2 (last visited Sept. 1, 2017)
[33] *See Small Power Production and Cogeneration Facilities; Regulations Implementing Section 210 of the Public Utility Regulatory Policies Act of 1978*, Order No. 69, FERC Stats. & Regs. ¶ 30,128 at 30,868 (1980).
[34] C. Warren, The National Debate Unfolding Over PURPA and Solar Power, Greentech Media (Aug. 28, 2017) https://www.greentechmedia.com/articles/read/national-debate-purpa-solar-power.

At the most basic level, third-party financing requires that an independent developer enter into a sales arrangement from the output of its plant that includes (1) a set price for the sale of the product (energy, capacity, and other services) and (2) a financeable term, similar to a utility depreciation or amortization schedule. In attempting to obtain these two basic elements, independent solar producers across the country have experienced anticompetitive challenges from utility contracting practices, with multiple challenges arising with vertically-integrated utilities operating in multiple states outside of an ISO/RTO market. These tactics, while varied, tend to focus on the following issues:

- *Abuse of the Competitive Solicitation:* Some utilities refuse to negotiate with independent power producers and instead mandate that the competitors participate in a future competitive solicitation.[35] Such competitive solicitations may only be available once in a multi-year period or may be drafted to disadvantage independent power producers.

- *Unfair Contracting Practices:* FERC's regulations provide for sales from independent power producers pursuant to contracts or legally enforceable obligations, but utilities who refuse to come to reasonable terms in contracts (i.e., require provisions that hinder third-party financing) will not acknowledge a legally-enforceable obligation without actual, or at least threatened, litigation.[36]

- *Gaming Avoided Cost Calculations*: While not a focus of this panel, we note that some utilities (1) do not provide avoided cost rates that represent the full array of costs avoided by purchasing from the generator and (2) delay negotiations so that developers are pushed into the next avoided cost determination period, often resulting in a lower rate than the generator could have obtained had its right to elect "avoided costs calculated at the time the obligation is incurred" been respected.

- *Discriminatory Interconnection Processes*: Utilities can engage in discriminatory

[35] *See*, *e.g.*, Ga. Comp. R. & Regs. R 513-3-4-.04(3) (restricting QFs above 30 MW from selling energy except through participation in an RFP). *See also Hydrodynamics Inc., et al.*, 146 FERC ¶ 61,193 (March 20, 2014) (finding a 50 MW installed capacity limitation and a requirement that QFs above 10 MW obtain contracts through competitive solicitation processes inconsistent with PURPA).

[36] SEIA members have also encountered instances where they have engaged in contested arbitration to obtain a reasonable, financeable PPA and, a few months later, asked for further draft PPAs based on the finally-agreed form, only to be told that the utility's form had changed and presented with a totally new (and completely unfinanceable) PPA. *See generally* State of North Carolina Utilities Commission, Docket No. E-22, Sub 530, *In the Matter of Fresh Air Energy XIX, LLC, et al. against Virginia Electric & Power Co., d/b/a Dominion Power North Carolina*.

practices because they control the interconnection process.[37] Developers need assurances that the state commissions will not allow a utility to use the interconnection process as a way to prioritize its own generation projects over those proposed by independent developers.

Defending their PURPA rights against these practices is a major challenge for small independent developers that, unlike utilities, do not recover the cost of such legal efforts from the ratepayers. Spending time, money, and other resources contesting unfair utility contracting practices is inefficient for all parties involved and reduces the resources that can be spent on development of needed projects. Many state commissions similarly do not have the resources to timely address such complaints and, in the absence of quick resolution, developers are often forced to abandon otherwise worthwhile projects that face a lengthy delay and elect to pursue lesser projects that can proceed more rapidly. Without PURPA, these independent developers can only expect such practices to intensify and the independent developers will be without any recourse for such unfair practices.[38]

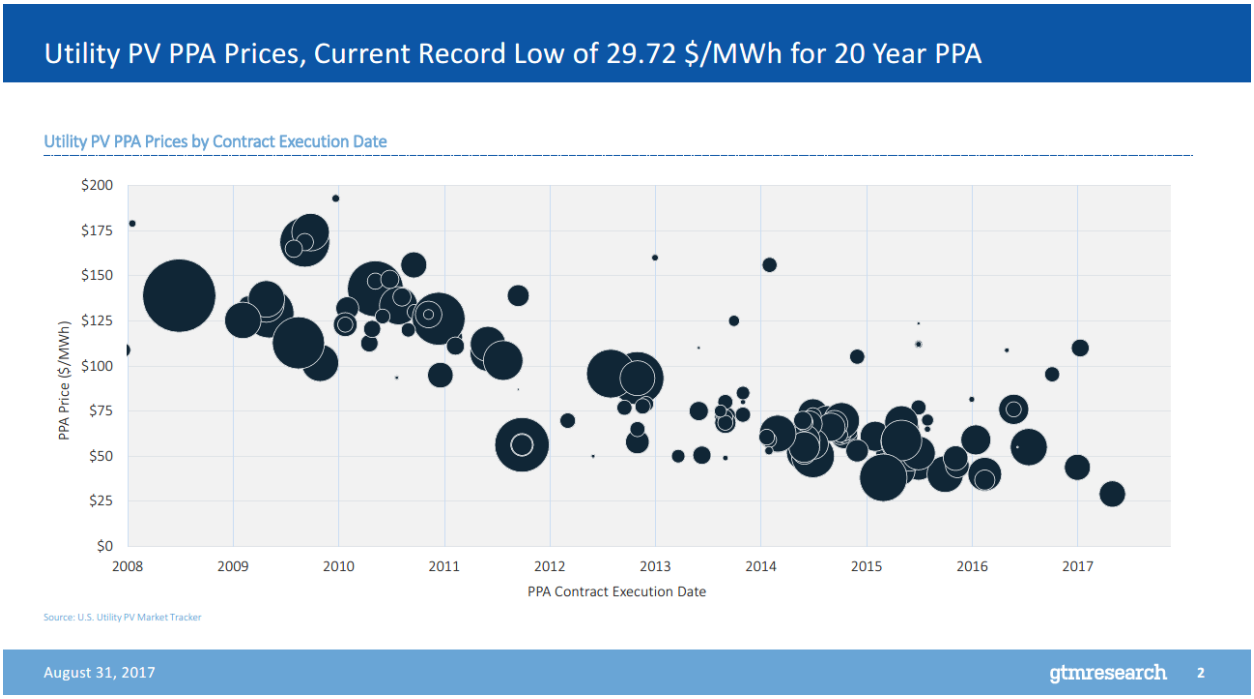
V. INDEPENDENT GENERATION PROJECTS PLACE DOWNWARD COMPETITIVE PRESSURE ON ENERGY PRICES

As explained above, the cost of solar energy production has been coming down rapidly to the point that it is competitive with other forms of electric generation and could allow utilitiesto displace other higher-priced generation or rely on solar to support new load growth.

[37] Two examples in particular: (1) SEIA members have entered into PPAs with PacifiCorp in Oregon (Pacific Power) and, during subsequent interconnection processes, been told that their projects are in a "load pocket" and that the projects would be subject to third party transmission charges in order to effect the sale of power to the utility, notwithstanding the QF is directly interconnected with the utility and in its service territory; and (2) PacifiCorp in Utah, Wyoming and Idaho (Rocky Mountain Power) has a separate interconnection procedure for QF projects, which requires developers to determined very early on in the development cycle if they are going to pursue a QF contract or participate in an RFP in order to seek the PPA required to build a given project.

[38] To the extent non-PURPA independent power projects face similar challenges, Congress should consider whether it can expand protections to independent power producers, not repeal the few protections offered by PURPA.

Figure 4



Ultimately, customers are better off if utilities rely more on the low-priced solar power: less fuel cost and price volatility, greater diversity of resources, and lower cost of energy.

A. Solar Development is not Overwhelming the Grid

Some critics claim that mandatory purchase obligations under PURPA are creating an untenable amount of unwanted solar generation on electric utility systems. In reality, solar constitutes a relatively small portion of the electric power consumed in the United States. For the twelve-month period May 2017, despite substantial growth in the industry, solar only totaled more than 10% of the total energy generation in one state in the United States: California. In only five other states did the solar account for more than 5% of the total electric power grid. In the ten top states for PURPA solar project development, as shown below in Figure 5, solar constituted only 4.75% of the electricity generated in Utah to negligible amounts in Wyoming and South Carolina.

Figure 5

% of Electricity from Solar (June 2016 – May 2017)

State	Solar Penetration %	State	Solar Penetration %
California	14.02%	Virginia	0.19%
Nevada	9.06%	Tennessee	0.19%
Vermont*	8.49%	Pennsylvania	0.17%
Hawaii	8.18%	Ohio	0.16%
Massachusetts	6.12%	Washington	0.08%
Arizona	5.43%	Rhode Island	0.06%
Utah*	4.75%	Illinois	0.05%
New Jersey	3.83%	Kentucky	0.05%
North Carolina*	3.57%	Iowa	0.04%
New Mexico	3.29%	Montana*	0.04%
Maryland	2.75%	Arkansas	0.03%
Colorado*	2.25%	Alabama	0.03%
Delaware	1.99%	Oklahoma	0.02%
Idaho*	1.39%	South Carolina*	0.02%
New York	0.89%	Alaska	0.02%
Connecticut	0.57%	Kansas	0.01%
Oregon*	0.47%	West Virginia	0.01%
Minnesota	0.45%	Wyoming*	0.01%
New Hampshire	0.39%	Mississippi	0.00%
Texas	0.39%	South Dakota	0.00%
Florida	0.36%	North Dakota	0.00%
Indiana*	0.33%	Georgia	N/A
Maine	0.29%	Michigan	N/A
Missouri	0.24%	Nebraska	N/A
Louisiana	0.20%	Wisconsin	N/A

"*" denotes top 10 states for PURPA solar development
"N/A" denotes insufficient data from solar plant operators and state officials
Source: Energy Information Administration Forms EIA-923, EIA-861, *and* EIA-861-M

National solar penetration rate during the time period was only 1.59%. SEIA estimates that solar comprised only 0.1% of total electric generation in 2010 and will grow to 3.5% by 2020. Claims

that solar projects are the cause of any current economic challenges at investor-owned utilities are simply not supported by these facts.

B. PURPA Projects Are Only a Small Portion of All Solar Being Procured by Utilities

The statistics provided above include all solar power generated in the United States For the twelve-month period May 2017, ranging from electric energy produced by 300+ MW utility scale solar plants procured by utilities through state-driven environmental procurements (not PURPA), to 300 kW solar projects installed on commercial buildings through a corporate procurement PPA, to 3kW solar systems installed on residential homes. When investigating whether PURPA projects are causing a bow wave of unmanageable, unwanted energy, it is important to note that PURPA projects comprised only about twenty percent of all solar capacity installed during that time. As **Figure 6** shows, total solar energy procurement from small power producers pursuant to PURPA's competition mandate accounted for less than both state-RPS procurement and voluntary procurement in 2016.

Figure 6

% Share of Annual U.S. Utility PV Capacity Additions by Procurement Driver

Procurement Driver	2010	2011	2012	2013	2014	2015	2016
Renewable Portfolio Standard (RPS)	75%	90%	89%	84%	86%	57%	52%
PURPA	7%	1%	6%	9%	10%	23%	16%
Voluntary Procurement	18%	9%	5%	8%	5%	14%	23%
Retail Procurement	0%	0%	0%	0%	0%	6%	10%
Annual U.S. Utility PV Installations (MWdc)	**267**	**784**	**1,803**	**2,855**	**3,922**	**4,266**	**10,760**

Source: Utility PV Market Tracker, GTM Research
Data exported from Utility PV Market Tracker on July 20, 2017

For the sake of informing the Subcommittee as to the total amount of solar power capacity actually being developed as PURPA in the top 10 states for PURPA procurement, SEIA requested, and GTM Research provided, the following summary of the pipeline of solar PURPA projects that are currently operating or are under contract:

Figure 7

Utility PV PURPA Development by State

Rank (Contracted + Operating)	Power Offtaker	Contracted Pipeline (MWdc)	Projects Operating (MWdc)	Contracted + Operating (MWdc)
1	North Carolina	2229	2545	4774
2	South Carolina	1579	91	1671
3	Oregon	1136	128	1264
4	Colorado	1104	0	1104
5	Utah	90	729	819
6	Idaho	35	378	414
7	Montana	314	20	334
8	Indiana	103	41	144
9	Wyoming	123	0	123
10	Vermont	38	3	41

Source: U.S. Utility PV Market Tracker

August 31, 2017 gtmresearch 3

C. A Properly Administered Avoided Cost Calculation Protects Ratepayers and Provides Competitive Discipline

It is important to distinguish, particularly in a market where regulated monopolies can serve as gatekeepers against new market entrants, the impact of a price ceiling and a price floor. Section 210(b) of PURPA and the implementing regulations provide that (1) the purchase price rates must be just and reasonable to the electric consumers of the electric utility and in the public interest; and must not discriminate against cogenerators or small power producers, and (2) the avoided cost is calculated as the incremental costs to the utility of electric energy or capacity, or

both, which, but for the purchase from the independent power producer, the utility would generate itself or purchase from another source.[39] PURPA does not require and does not permit states to require payments above avoided cost; avoided cost serves as the price floor in a regulated market. In *American Paper Inst. v. American Elec. Power Serv. Corp*.,[40] the U.S. Supreme Court reviewed FERC's avoided cost rules in the context of PURPA and Congressional intent, and found that that FERC's rule was within its authority and found flexibility in the full-avoided cost rule. As the Court noted, waiver of the rule is possible, utilities and independent power producers can negotiate a contract price less than the avoided cost, and a properly computed avoided cost will eventually trend to zero if the utility has met all of its generation needs.[41]

Subject to their respective state commission approval, utilities themselves perform the calculations and put forth the proposals on avoided costs. Rules in states vary, but generally the utility itself controls the timing and frequency of updates to the avoided cost calculations. If a utility has satisfied its load serving obligation, (1) a waiver can be sought from FERC to eliminate the PURPA purchase obligation under either PURPA Section 210(m) or FERC Regulations 18 C.F.R. § 292.402; (2) the utility can to reduce the avoided cost calculation, thus attracting only new projects that find the new purchase price to be economically efficient; or (3) propose to base the avoided cost on a short-term marginal market (*e.g.*, an ISO/RTO market price), so long as such rate constitutes the true avoided cost. PURPA provides the state regulatory authorities with the jurisdiction to calculate the avoided cost rate, and while there are a variety of rate-making methodologies to complete such a computation, each state commission

[39] 16 U.S.C. § 824a–3(b); 18 C.F.R. § 292.101(b)(6).
[40] 461 U.S. 402 (1983).
[41] *Id.* at 416.

will evaluate whether the utility intends to procure long-run or short-run generation assets, whether the fuel mix is sufficient to meet the state's needs, and how to price any externalities. If independent power producers, including solar producers, can produce power for a price lower than the avoided cost, consumers benefit. If PURPA or non-PURPA generation sources are less expensive than the avoided cost, then the utility has the means by which to reduce the avoided cost.

Avoided cost not only allows for fair competition by cogeneration and small power producers, but it ultimately benefits consumers by forcing a utility to examine the cheapest forms of electric generation and bring such information into the public process of state commission approval. Customers are the beneficiaries when utilities buy the lowest cost power available, and given the speed of technological development, solar will likely continue to trend to the least expensive source of power available.

VI. CONCLUSION

SEIA appreciates the opportunity to testify on the continued need of PURPA to support independent generation in this country, and its role in providing downward pressure on prices for electricity, ultimately benefiting consumers. The belief that PURPA facilitates purchases of uneconomic generation is false, and the truth of the economics illuminates the continuing tension between PURPA's independent power model and the cost-of-service based utility business models. I submit that the Subcommittee should focus its review of PURPA on ensuring that competition and innovation can continue and that incumbent utilities are not impeding these breakthroughs with anticompetitive conduct.