UNC
CENTER FOR CLIMATE, ENERGY, ENVIRONMENT AND ECONOMICS

UNIVERSITY of HOUSTON | LAW CENTER
Environment, Energy & Natural Resources Center

Federal parameters on the definition of avoided cost under PURPA and legal methods currently used and acceptable under PURPA application for states to encourage or discourage distributed generation

Victor B. Flatt[*], Seth Yeazal,[**] and Miles Wobbleton[***]

Executive Summary: As of July 1, 2017, neither PURPA, as interpreted, nor other federal law, has significantly restricted state flexibility on PURPA implementation. In particular, states have different models and methods of calculating "avoided cost" for "qualifying facilities" in their application of PURPA. These differing approaches can be grouped in several broad categories.

This flexibility, in turn, shows that PURPA terms, combined with other policies, can be defined in ways that both assist and/or hinder continued deployment of distributed energy resources ("DER"). Nevertheless, it seems possible that some state laws on compensation for distributed generation could be pre-empted under PURPA's definition of "avoided cost," depending on the approach to interpretation.

A. PURPA and Federal Energy Regulatory Commission implementation

The Public Utility Regulatory Policy Act (PURPA)[1] was originally implemented in 1978 for three main reasons: (a) to encourage conservation of energy supplied by utilities; (b) to encourage the optimization and efficiency of utilities' use of facilities and resources; and (c) to encourage equitable rates to consumers.[2] Congress charged the Federal Energy Regulatory Commission (FERC) with implementing and enforcing this Act, while specifically reserving all other matters to the states.[3]

PURPA mandated that the Federal Power Commission, the predecessor of the FERC, promulgate rules to require electric utilities to purchase electric energy from qualifying

---

[*] Dwight Olds Professor and Law, and Director, University of Houston Environment Energy and Natural Resources Center (EENR))
[**] University of North Carolina Center for Climate, Energy, Environment, and Economics (CE3), UNC JD'19
[***] University of North Carolina Center for Climate, Energy, Environment and Economics (CE3), UNC JD'18
[1] 16 U.S.C. § 2601 et seq.
[2] *F.E.R.C. v. Mississippi*, 456 U.S. 742, 746 (1982); *Pa. Elec. Co. v. Pa. Pub. Util. Comm'n*, 677 A.2d 831, 832 (Pa. 1996) (holding that PURPA is meant to "compel regulated electric utilities to purchase needed power from such sources instead of building additional capacity or acquiring power from other regulated utilities").
[3] 16 U.S.C. § 824(a).

cogeneration facilities and qualifying small power production facilities.[4] In promulgating such rules, PURPA requires FERC to insure that the rates are "just and reasonable to the electric consumers of the electric utility and in the public interest" and do "not discriminate against qualifying co-generators or qualifying small power producers."[5] Moreover, "[n]o such rule . . . shall provide for a rate which exceeds the incremental cost to the electric utility of alternative electric energy."[6]

In 1992, PURPA was amended to create a category of "exempt wholesale generators," which could enter the wholesale electricity markets without complying with the "small generator" requirements that had been mandatory under PURPA.[7] In 2005, Congress enacted the Energy Policy Act (EPAct), which amended and narrowed PURPA's mandatory purchase obligations for certain QFs.[8] As announced in FERC Order 688, utilities in restructured markets are still required to purchase electricity from QFs smaller than 20 MW, while the older 80 MW

[4] 16 U.S.C. § 824a-3(a)(2) (2012). A "'cogeneration facility' means a facility which produces electric energy, and steam or forms of useful energy (such as heat) which are used for industrial, commercial, heating, or cooling purposes." *Id.* § 796(18)(A)(i)-(ii). A "'qualifying cogeneration facility' means a cogeneration facility that the Commission determines, by rule, meets such requirements (including requirements respecting minimum size, fuel use, and fuel efficiency) as the Commission may, by rule, prescribe." *Id.* § 796(18)(B). On the other hand, a "'small power production facility' means a facility which is an eligible solar, wind, waste, or geothermal facility," or a facility that produces electric energy "solely by the use, as a primary energy source, of biomass, waste, renewable resources, geothermal resources or any combination thereof; and has a power production capacity which, together with any other facilities located at the same site (as determined by the Commission), is not greater than 80 megawatts." *Id.* § 796(17)(A)(i)-(ii). For that definition, "'primary energy source' means the fuel or fuels used for the generation of electric energy," except, "as determined under rules prescribed by the Commission, in consultation with the Secretary of Energy," the "minimum amounts of fuel required for ignition, startup, testing, flame stabilization, and control uses, and the minimum amounts of fuel required to alleviate or prevent unanticipated equipment outages, and emergencies, directly affecting the public health, safety, or welfare, which would result from electric power outages." *Id.* § 796(17)(B)(i)-(ii). A "'qualifying small power production facility' means a small power production facility that the Commission determines, by rule, meets such requirements (including requirements respecting fuel use, fuel efficiency, and reliability) as the Commission may, by rule, prescribe." *Id.* § 796(17)(C).

[5] *Id.* § 824a-3(b)(1)-(2). A "'qualifying cogenerator' means the owner or operator of a qualifying cogeneration facility." *Id.* § 796(18)(C). A "'qualifying small power producer' means the owner or operator of a qualifying small power production facility." *Id.* § 796(17)(C).

[6] *Id.* § 824a-3(b)(2). "For purposes of this section, the term 'incremental cost of alternative electric energy' means, with respect to electric energy purchased from a qualifying cogenerator or qualifying small power producer, the cost to the electric utility of the electric energy which, but for the purchase from such cogenerator or small power producer, such utility would generate or purchase from another source." *Id.* § 824a-3(d).

[7] Richard D. Cudahy, *PURPA: The Intersection of Competition and Regulatory Policy*, 16 Energy L. J. 419, 421 (1995).

[8] Energy Policy Act, Pub. L. No. 109-58, § 1253, 119 Stat. 594 (2005) (amending PURPA § 824a-3 to impose mandatory purchase obligations upon utilities for only those QFs without "nondiscriminatory access" to electricity markets).

limit was still applicable to traditional vertically integrated markets.[9] Any QF that produces more than 20 MW of electricity in restructured markets is assumed to have nondiscriminatory access to competitive electricity markets; therefore, utilities are no longer under an obligation to purchase from QFs of this size.[10]

1. Avoided Cost requirement

Consistent with its statutory mandate, FERC rules for the rates for purchases from qualifying cogeneration facilities and qualifying small power production facilities under PURPA prohibit electric utilities from paying more than the "avoided cost" for such purchases.[11] A rate for purchases satisfies the rules if the "rate equals the avoided costs determined after consideration" of these factors[12]:

> (1) The data provided pursuant to § 292.302(b), (c), or (d), including State review of any such data;
>
> (2) The availability of capacity or energy from a qualifying facility during the system daily and seasonal peak periods, including:
>
> (i) The ability of the utility to dispatch the qualifying facility;
>
> (ii) The expected or demonstrated reliability of the qualifying facility;
>
> (iii) The terms of any contract or other legally enforceable obligation, including the duration of the obligation, termination notice requirement and sanctions for non-compliance;
>
> (iv) The extent to which scheduled outages of the qualifying facility can be usefully coordinated with scheduled outages of the utility's facilities;
>
> (v) The usefulness of energy and capacity supplied from a qualifying facility during system emergencies, including its ability to separate its load from its generation;

[9] New PURPA Section 210(m) Regulations Applicable to Small Power Production and Cogeneration Facilities (18 C.F.R. pt. 292 (Issued October 20, 2006)).
[10] *Id.*
[11] 18 C.F.R. § 292.304(a)(2) (2016). "Avoided costs" are defined as "the incremental costs to an electric utility of electric energy or capacity or both which, but for the purchase from the qualifying facility or qualifying facilities, such utility would generate itself or purchase from another source." *Id.* § 292.101(b)(6). "Qualifying facility" is defined in 18 C.F.R. § 292.202-292.205.
[12] *Id.* § 292.304(b)(2).

(vi) The individual and aggregate value of energy and capacity from qualifying facilities on the electric utility's system; and

(vii) The smaller capacity increments and the shorter lead times available with additions of capacity from qualifying facilities; and

(3) The relationship of the availability of energy or capacity from the qualifying facility as derived in paragraph (e)(2) of this section, to the ability of the electric utility to avoid costs, including the deferral of capacity additions and the reduction of fossil fuel use; and

(4) The costs or savings resulting from variations in line losses from those that would have existed in the absence of purchases from a qualifying facility, if the purchasing electric utility generated an equivalent amount of energy itself or purchased an equivalent amount of electric energy or capacity.[13]

State law, in turn, has further clarified and refined the definition of avoided cost within that state's jurisdiction and the purpose of calculating an avoided cost.[14] "A rate for purchases (other than from new capacity) may be less than the avoided cost if the State regulatory authority (with respect to any electric utility over which it has ratemaking authority) or the nonregulated electric utility determines that a lower rate is consistent" with 18 C.F.R. § 292.304(a) and is "sufficient to encourage cogeneration and small power production."[15] And, "[i]n the case in which the rates for purchases are based upon estimates of avoided costs over the specific term of the contract or other legally enforceable obligation," the "rates for such purchases do not violate this subpart if the rates for such purchases differ from avoided costs at the time of delivery."[16]

FERC rules require standard rates for purchases depending upon qualifying facility size: "There *shall* be put into effect (with respect to each electric utility) standard rates for purchases from qualifying facilities with a design capacity of 100 kilowatts or less."[17] However, for "rates

[13] *Id.* § 292.304(e)(1)-(4) ("In determining avoided costs, the following factors shall, to the extent practicable, be taken into account."). Electric utilities must provide the data and information that they used for determining avoided costs to their state regulatory authority. *Id.* § 292.302.
[14] C.f. *Plymouth Rock Energy Assoc. v. Dep't of Pub. Util.*, 648 N.E.2d 752, 754 (Mass. 1995) (defining avoided costs as "the cost to the electric utility of the electric energy which, but for the purchase from QF, such utility would generate or purchase from another source"). *See also S. Cal. Edison Co. v. Pub. Util. Comm'n*, 124 Cal. Rptr. 2d 281, 291 (Cal. App., 2nd Dist., Div. 7, 2002) (The purpose of requiring that QFs are paid no more than the utilities' "avoided costs" is to ensure that "consumers are not forced to subsidize" QFs.).
[15] *Id.* § 292.304(b)(2). "New capacity" means "any purchase from capacity of a qualifying facility, construction of which was commenced on or after November 9, 1978." *Id.* § 292.304(b)(1). Accordingly, "[r]ates for purchases from new capacity shall be in accordance with paragraph (b)(2) of this section, regardless of whether the electric utility making such purchases is simultaneously making sales to the qualifying facility." *Id.* § 292.304(b)(4).
[16] *Id.* § 292.304(b)(5).
[17] *Id.* § 292.304(c)(1) (emphasis added).

for purchases from qualifying facilities with a design capacity of more than 100 kilowatts," there "*may* be put into effect standard [rates]."[18] Such standard rates for purchases must be consistent with the other rules of the section and "[m]ay differentiate among qualifying facilities using various technologies on the basis of the supply characteristics of the different technologies."[19]

Another FERC rule defining avoided cost allows qualifying facilities the option to either "provide energy as the qualifying facility determines such energy to be available for such purchases, in which case the rates for such purchases shall be based on the purchasing utility's avoided costs calculated at the time of delivery," or "provide energy or capacity pursuant to a legally enforceable obligation for the delivery of energy or capacity over a specified term, in which case the rates for such purchases shall, at the option of the qualifying facility exercised prior to the beginning of the specified term, be based on either" the avoided costs calculated "at the time of delivery" or "at the time the obligation is incurred."[20]

The practical effect of this determination may have a large impact on the compensation if, for example, fuel prices are particularly volatile, the purchasing utility has recently incurred a large amount of debt, or there has been a recent change in tax policy. Additionally, a QF will generally prefer operating under a "legally enforceable obligation," not only for predictability in compensation, but also because QFs would like to be compensated for a utility's avoided capacity costs, not just its avoided energy costs.[21] If a QF is in a "legally enforceable obligation" with the purchasing utility, they have now helped that utility avoid future capacity buildout and will be compensated in kind.

According to current FERC interpretation, avoided costs may also reflect verifiable avoided environmental compliance costs.[22] States may also require that certain power (such as renewable energy or renewable carve-outs) be purchased by utilities without implicating the avoided cost calculation under PURPA. Avoided costs do not include the value of renewable energy credits (RECs); absent a contractual provision to the effect, states decide whether qualifying facilities or utilities own RECs.[23] Simply put, RECs exist outside of PURPA and the

[18] *Id.* § 292.304(c)(2) (emphasis added).
[19] *Id.* § 292.304(c)(2)(i)-(ii).
[20] *Id.* § 292.304(d)(1)-(2).
[21] *See Pa. Elec. Co.*, 677 A.2d at 834 ("The plain import of this regulation is that . . . capacity is to be supplied only pursuant to a legally enforceable obligation.").
[22] *S. Cal. Edison v. F.E.R.C.*, 133 FERC ¶ 61,059 (2010).
[23] *Am. Ref-Fuel Co.*, 105 FERC ¶ 61,004 (2003).

ownership and transfer of RECs is a matter of state law.[24] The second circuit has recently reiterated the flexibility of states to make such specific requirements.[25]

FERC requires that each electric utility provide "avoided cost" data to its state PUC, which shall include avoided energy costs, plans for the addition of future capacity, and the estimated capacity costs.[26] FERC does allow a state to substitute its "avoided cost" data requirements for its own, as long as public notice has been served and there has been an opportunity for public comment.[27]

In addition to the factors included in the required data, PUCs shall, "to the extent practicable," take into account the following:

> (a) ability to dispatch; (b) reliability; (c) terms of PPA contract between the utility and QF; (d) how much scheduled outages of a QF may help grid; (e) usefulness of QF during system emergencies; (f) individual and aggregate value of energy and capacity provided by the QF; (g) smaller capacity increments and shorter lead times available with additions of capacity from QFs; (h) deferral of capacity additions and the reduction of fossil fuel use; and (i) the costs or savings in line losses.[28]

Finally, under its regulations, FERC allows state regulatory authorities and unregulated utilities to apply for waivers from using the full avoided cost, and qualifying facilities and utilities may negotiate a long-term contract setting a price lower than a full-avoided-cost rate.[29]

2. Qualifying Facilities – flexibility of "legally enforceable obligation" under state law

A QF can recover compensation for avoided capacity costs only if it sells power to a utility pursuant to a "legally enforceable obligation."[30] Recovering compensation for a utility's avoided capacity costs is often key to a QFs viability and is of great financial interest to both parties.[31] Additionally, as mentioned earlier, when a "legally enforceable obligation" is incurred will determine at what time the inputs are calculated for "avoided costs."[32] Finally, a state who

---

[24] *Id.*
[25] *Allco Fin Ltd. v. Robert J. Klee. et al*., 16-2946(L) (2nd Cir. June 28, 2017).
[26] 18 C.F.R. § 292.302(b).
[27] *Id.* § 292.302(d).
[28] *Id.* § 292.304(e).
[29] *Am. Paper Inst. v. Am. Elec. Power Serv. Corp*., 461 U.S. 402 (1983).
[30] 18 C.F.R. § 292.304(d).
[31] *See Pa. Elec. Co. v. Pa. Pub. Util. Comm'n*, 677 A.2d 831 (Pa. 1996); *Rosebud Enter., Inc. v. Idaho Pub. Util. Comm'n*, 951 P.2d 521 (Idaho 1997).
[32] 18 C.F.R. § 292.302(d).

has an interest in securing a reliable and predictable supply of electricity would prefer that QFs operate under a "legally enforceable obligation" rather than an "as available" agreement.[33]

Pursuant to the flexibility granted in § 292.304(d), states make the final determination of when and whether a "legally enforceable obligation" (instead of an "as available" PPA) is present. *W. Penn Power Co.*, 71 F.E.R.C. ¶ 61,153 at 61,495 (1995) ("It is up to the States, not this Commission, to determine the specific parameters of individual QF power purchase agreements, including the date at which a legally enforceable obligation is incurred under State law."). States determine whether a contract between a utility and a QF is even required in order to prompt a "legally enforceable obligation" and at what time this obligation actually incurred. *Pa. Elec. Co*, 677 A.2d at 834 (holding, for example, that if a utility denies to a agree to a PPA with a QF, and that QF then files a petition to the PUC for approval—assuming the petition is approved—a "legally enforceable obligation" is created at the time of the filing, rather than when some contract is finalized).

A PUC with a distinct interest in grid reliability may even enforce a strict requirement that only a QF generating "firm power," a.k.a. a QF that has the ability to guarantee power availability on a scheduled basis, shall enter into a "legally enforceable obligation."[34] One critical feature to this strict "firm power" requirement is the effective exclusion of renewables, due to their variability.[35] This is especially true considering how key capacity compensation is to capital-intensive renewables.[36] Another approach to accomplishing the goal of grid reliability is to determine appropriateness of approval for a "legally enforceable obligation" based on a multi-factored test measuring power project's viability.[37]

B. Enforcement

---

[33] *See Exelon Wind 1, L.L.C. v. Nelson*, 766 F.3d. 380, 401 (5th Cir. 2014).
[34] *Id.* at 385.
[35] Though there are current experiments which couple intermittent solar and wind with hydro or gas power to provide "firm" power.
[36] Janine L. Migden, *State Policies on Water-to-Energy Facilities,* 126 No. 6, Public Utilities Fortnightly 26, 30 (1990).
[37] *Pub. Serv. Comm'n of Okla. v. State ex. rel. Okla. Corp. Comm'n*, 115 P.3d 861, 873 (Okla. 2005) (requiring that a QF entering a "legally enforceable obligation" be "viable," which has also been exercised by other jurisdictions); *S. River Power Partners, L.P. v. Pa. Pub. Util. Comm'n*, 696 A.2d 926, 931 (Pa. Commw. Ct. 1997) (holding that QF viability can be measured by factors such as net worth, partnership agreements, association with past power production project, credit-worthiness, and others).

In order to compel the implementation of its regulations, FERC has the authority to undertake enforcement actions against states.[38] FERC can step in to curb direct violations of PURPA; however, states command authority over questions of fact in its implementation.[39] FERC has a very limited required role: to (1) promulgate and (2) periodically revise regulations to encourage cogeneration.[40] Once FERC issued its regulations, through 18 C.F.R. pt. 292, FERC met its mandated requirements under PURPA, assuming it periodically revises these regulations.[41] If FERC does not choose to initiate its own enforcement action against a PUC for lack of compliance, a private person may petition FERC to initiate such an enforcement action.[42] If this private person is denied approval of the FERC petition, that party may then itself sue the PUC in federal court.[43]

Though wide flexibility is considered the norm with state PURPA implementation, as a federal law, disputes over legal terms are generally reviewed *de novo*.[44] However, pure decisions of methodology and other policy decisions are given broad deference.[45] For questions of policy and fact, if a PUC can show "substantial evidence" for a decision, courts will refrain from disturbing it.[46] As long as PUCs comply with all federal legal requirements, courts will review decisions on an "arbitrary and capricious" standard of review.[47] Courts rationalize this standard "grant[ing] the very broadest powers" because rate-setting policy is a highly technical area of law entitled to deference.[48]

---

[38] *Tenn. Power Co.*, 77 F.E.R.C. ¶ 61,125 at 61,483 (1996) (citing 16 U.S.C. § 824a-3(h)(2)).
[39] *Windway Tech. Inc. v. Midland Power Coop.*, 696 N.W.2d 303, 308 (Iowa 2005) ("FERC would leave to the states . . . challenges to the utility's application of implementing regulations, i.e., fact-specific questions.").
[40] *Conn. Valley Elec. Co., Inc. v. F.E.R.C.*, 208 F.3d 1037, 1043 (D.C. Cir. 2000).
[41] *N.Y. St. Elec. & Gas Corp. v. Saranac Power Partners L.P.*, 117 F. Supp. 2d. 211, 234 (N.D.N.Y. 2000) ("FERC fulfilled its obligations under PURPA when it promulgated rules . . . [and] . . . fulfills its continuing obligations under PURPA by revising the rules from time to time as necessary.").
[42] *Conn. Valley*, 208 F.3d at 1043 (citing 16 U.S.C. § 824a-3(h)(2)).
[43] *Id.*
[44] *Sw. Bell Tel. Co. v. Apple*, 309 F.3d 713, 717 (10th Cir. 2002) (declaring that the 10th Circuit and "most other federal courts . . . apply a de novo standard when reviewing state commissions' interpretation of . . . decisions [that] turn on determinations of federal law").
[45] *Consumers Power Co. v. Pub. Serv. Comm'n*, 472 N.W.2d 151, 182 (Mich. Ct. App. 1991) (holding that PUCs' determinations like future capacity, planning horizon, and reserve margin should only disturbed if the policy is "arbitrary, capricious or an abuse of discretion"); *see U.S. W. Commc'n, Inc. v. Hix*, 986 F. Supp. 13, 19 (D. Colo. 1997) ("If the PUC's action is found to be in compliance with federal law and regulations, then the PUC will be given deference, through applications of the arbitrary and capricious standard, as to all other issues.").
[46] *Consumers Power*, 472 N.W.2d at 189.
[47] *Sw. Bell*, 309 F.3d at 717.
[48] *Stevens & Thompson Paper Co., Inc. v. Niagara Mohawk Power Corp.*, 802 N.E.2d 686, 690 (N.Y. 2003).

C. Current State Parameters on "avoided cost"[49]

"Avoided cost" determinations are considered factual and policy questions and thus states have been granted wide deference in the determination.[50] Though nothing in PURPA or FERC's regulations explicitly require that PUCs calculate "avoided costs", such a requirement is essentially mandatory on a state's energy regulatory body as an actual calculation is a necessary and proper power in implementing PURPA. Without this, "QFs would be at the mercy of utilities' estimations of their future capacity needs and the costs of satisfying those needs."[51]

Working within the federal guidelines of PURPA, states have employed a number of different methodologies for calculating proper compensation for power purchased from QFs. States' approaches to calculating "avoided costs" fall under the following categories:

> (a) Proxy Method – using a certain type of generation facility (i.e., combined cycle or coal generating unit) as a proxy for comparison to measure fixed and variable costs avoided from power purchase; (b) Peaker Unit Method – same methodology as Proxy Method but using a Peaker plant, like a combustion turbine, to compare; (c) Differential Revenue Requirement – calculated as the difference between system revenue without the QF and with the QF; (d) Competitive Bidding – Open bidding process where highest bid is regarded as avoided cost; (e) Integrated Resource Planning Based Methodology – Combined with one of the above methodologies, utilities base generation mix goals on an IRP; (f) Market-Based Pricing – QFs with access to competitive markets (non-discriminatory access is assumed if > 20MW) receive wholesale market rates[52]

The Differential Revenue Requirement (DRR) method is opaque and complex but directly measures the effect on a utility's Revenue Requirement.[53] This is in contrast to the methods using a (a) proxy unit as the basis of calculation (Proxy Unit and Peaker Unit methodologies) which bases a QFs compensation on the avoided costs of not building a chosen type of

---

[49] We simply set out general parameters used by multiple states. In Part 2, we will provide how these apply in representative states.

[50] *S. Cal. Edison Co., San Diego Gas & Elec. Co.*, 70 F.E.R.C. ¶ 61,215, at 61,675 (1995) (holding that states are afforded a wide latitude in implementing PURPA because of the "important role which Congress intended to give the states" and "to avoid unnecessary interference with state efforts to maximize the development of QFs").

[51] *Consumers Power*, 472 N.W.2d at 178 (holding that PUCs may adjust a utility's avoided capacity cost calculations on a case-by-case basis).

[52] Carolyn Elefant, *Avoided Cost Ratemaking Methodologies under the Public Utility Regulatory Policies Act (PURPA)*, LOCE PLLC, 12, (Mar. 22, 2017), https://www.michigan.gov/documents/mpsc/LOCEPURPAPPT2182014_507858_7.pdf.

[53] *Id.* at 13.

generation unit, or (b) a market based mechanism (Market Based Pricing and Competitive Bidding methodologies) which uses wholesale price or an open bidding process for calculations, respectively.[54]

Though outside of the PURPA framework (to the extent it relates to offsets of power transfers), the FERC has made clear that states may choose to use "net metering" to compensate distributed energy connected to the grid without running afoul of PURPA or the "avoided cost" requirement.[55] Indeed, the Energy Policy Act of 2005 requires all utilities to offer net metering "on request."[56] PUCs can even confer this right to recover compensation for power at the "net metering" rate based on the type of energy that is being sold.[57]

An important caveat is that when power produced exceeds the power consumed, those rates paid shall not exceed "avoided costs."[58] While FERC historically has deferred to states in setting up these net metering policies, PURPA preempts a state's ability to set rates from qualified facilities by requiring that rates can only be "avoided cost."[59] Thus, it is possible that a state's net metering or other policies could go "too far" and violate the "avoided cost" requirement under PURPA. There have been multiple complaints of such violations before state PUCs, and some states have been "creative" in defining positive net metering flows as avoided cost.[60]

D. Impact of "avoided cost" calculation, state definitions of legally enforceable obligation, and other factors on deployment of DER and renewable energy generally[61]

---

[54] *Id.* at 12.
[55] *MidAmerican Energy Co.*, 94 F.E.R.C. ¶ 61,340, at 62,262 (2001) (declaring that "net billing arrangements . . . would be appropriate in some situations, and left the decision . . . to state regulatory authorities").
[56] Steven Ferrey, *Virtual "Nets" and Law: Power Navigates the Supremacy Clause*, 24 Geo. Int'l Envtl. L. Rev. 267, 271 (2013).
[57] Migden, *supra* note 36, at 27 (stating that Connecticut and Illinois both allow "net metering" recovery specifically for Waste-to-Energy electricity generation).
[58] Steven Ferrey, *The New Climate Metric: The Sustainable Corporation and Energy*, 46 Wake Forest L. Rev. 383, 400 (2011). It should be noted that though FERC has been clear that legacy companies cannot be required to pay rates back to positive net metering generators, states use many creative ways of giving value to surplus "credits," such as allowing transfers (Massachusetts) or assistance to lower income consumers.
[59] *Id.*
[60] *Id.*
[61] "Net metering," since it gives power providers retail rates on power sent back to the grid in peak times from smaller DER sources, is considered the most generous compensation method to incent small distributed generation. Net metering was historically the most common method of compensation for small DER. Net metering has been available in a majority of states since 2001 and was further incented by provisions of the Energy Policy Act of 2005 (including tax benefits and encouragement of state policies to utilize net metering). However, it is the continuing debate over net metering and whether it accurately reflects costs and benefits to the electric grid and consumers that have prompted the current debate and discussions over legal requirements related to electric power production.

QF construction and production is closely related to the general retail power price charged within a state. Generally, the higher the retail price, the higher the avoided cost and thus the higher payouts to QFs. Nevertheless, decisions a state makes to implement various combinations of the above approaches to defining avoided cost and qualifying facilities, combined with a state's tax treatment of renewable energy and presence of a renewable energy portfolio, will greatly impact how much and what types of QFs are encouraged.

For example, a Proxy Unit calculation for avoided costs will depend heavily on the type of generation facility.[62] When a Peaker Unit method is used, both market-based approaches generally undercompensate QFs.[63]

An approach like the Peaker Plant method, a proxy unit for which variable costs are high and capital costs are low,[64] may have a disparate impact against capital-intensive QFs, like wind and solar producing QFs.[65] Market-based approaches, like Competitive Bidding process, similarly undercompensates and usually is a profitable venture only for sophisticated QF applicants.[66] A more effective approach for encouraging QFs, especially capital-intensive projects like renewables, would look similar to North Carolina's approach. By creating an ambitious IRP (a Renewable Portfolio Standard) and using a DRR method for "avoided costs" calculations, North Carolina is one of the leaders in renewable purchases.

Other factors can be combined with these methods for calculating avoided cost to encourage renewable energy development. Two factors include both strong net metering and interconnection policies. "States in all contexts experienced more robust markets with the implementation of interconnection and net metering. Although these policies alone are not usually sufficient to spur solar markets, they are foundational for distributed generation market growth." [67] Renewable Portfolio Standards are also often cited as among the most effective

---

States that want to promote and incentivize renewables can allow "net metering" recovery for PPAs as they allow for a higher return on a more capital-intensive investment. *See* Darrell Blakeway & Carol Brotman White, *Tapping the Power of Wind: FERC Initiatives to Facilitate Transmission of Wind Power*, 26 Energy L.J. 393, 405 (2005).

[62] Elefant, *supra* note 52, at 13 (stating that using peaker plants as a proxy may undercompensate QFs in comparison to using a baseload generating facility as a proxy for avoided costs).

[63] *Id.*

[64] Thomas F. Stacy & George S. Taylor, Institute for Energy Research, *The Levelized Cost of Electricity from Existing Generation Resources* 10 (2015).

[65] Migden, *supra* note 36, at 30.

[66] Elefant, *supra* note 52, 13.

[67] D. Steward & E. Doris, National Renewable Energy Laboratory, *The Effect of State Policy Suites on the Development of Solar Markets* (Nov. 2014), http://www.nrel.gov/docs/fy15osti/62506.pdf

policies a state can enact to help usher the continued emergence of renewable energy.[68] This however may be changing as the majority of future renewable development will not be within states that have an RPS. [69]

Some states pursue an even more direct route to incentivize renewable growth: California provides a "carbon adder" that utilities must use when they compare the costs of responses to Requests for Proposals (RFPs). [70]

Approaches to Avoided Cost Under PURPA – Implicit DER Valuation

Highest DER value: Net Metering (though dependent on retail electricity rates)

High DER Value: Differentiated Revenue Requirement *

High DER Value: Wholesale market rate *

Lower DER Value: Peaker Method *

Low DER Value: Proxy method *

*All of these can be influenced by set prices on carbon or environmental harms and amenities. Generally, direct consideration of either of these values favors renewable DER, but it can vary tremendously among the states (subject only to an arbitrary and capricious standard)

[68] Mark D. Safty, *Renewable Power Purchase Agreements*, 5 RMMLF-INST 10, 10-11 (2013).
[69] Colin Smith, Green Tech Media, *What Drives Utility Solar Growth in a Post-ITC-Extension World?* (Mar. 24, 2016), https://www.greentechmedia.com/articles/read/What-Drives-Utility-Solar-Growth-in-a-Post-ITC-Extension-World.
[70] Blakeway & White, *supra* note 61, at 406.

Suggested Readings and References:

National Association of Regulatory Utility Commissioners, *Distributed Energy Resources Rate Design and Compensation* (2017), at https://www.naruc.org/rate-design/.

What Drives Utility Scale Solar Growth in a Post ITC World, Green Tech Media, at https://www.greentechmedia.com/articles/read/What-Drives-Utility-Solar-Growth-in-a-Post-ITC-Extension-World.

Davies, Lincoln L., *Making Sense of the Rapidly Evolving Legal Landscape of Solar Energy Support Regimes* (December 31, 2016). KLRI Journal of Law & Legislation, vol. 6, no. 2, pp. 81-142 (2016); University of Utah College of Law Research Paper No. 195. Available at SSRN: https://ssrn.com/abstract=2893731.

50 States of Solar, Q4 Report and Executive Summary, North Carolina Clean Energy Technology Center, at https://nccleantech.ncsu.edu/wp-content/uploads/Q42016_ExecSummary_v.3.pdf.

Richard L. Revesz and Burcin Unel, *Managing the Future of the Electricity Grid: Distributed Generation and Net Metering*, 41 Harvard Environmental Law Review 43, 46 (2017).

Steven Ferrey, *Virtual "Nets" and Law: Power Navigates the Supremacy Clause*, 24 Geo. Int'l Envtl. L. Rev. 267, 271 (2013).

Quantifying the Locational Values of DER, ICF, April 3, 2017, at https://www.icf.com/perspectives/webinars/2017/quantifying-the-locational-value-of-ders.

Tim Woolf, et al., Benefit-Cost Analysis for Distributed Energy Resources, Synapse Energy, Sept. 22, 2014, available at http://www.synapse-energy.com/sites/default/files/Final%20Report.pdf.