

June 7, 2016

The Honorable Kimberly D. Bose, Secretary  
Federal Energy Regulatory Commission  
888 First Street, N.E.  
Washington, D.C. 20426

*Re:* Comments of Duke Energy Corporation to the Federal Energy Regulatory Commission's Technical Conference Concerning Implementation Issues Under the Public Utility Regulatory Policies Act of 1978 ("PURPA"), Docket No. AD16-16-000

Dear Secretary Bose:

Pursuant to the Commission's Supplemental Notice of Technical Conference in the above-referenced docket, Duke Energy Corporation respectfully submits the following comments.

## **I. Introduction and PURPA Implementation**

Duke Energy Corporation ("Duke Energy") is an energy company that includes regulated utility operating companies and commercial businesses that build, own, and operate renewable generation and transmission projects. The regulated companies consist of six electric utilities that directly serve millions of retail customers, as well as wholesale customers who in turn serve their retail customers in the Southeastern, Midwestern, and Southern United States. Duke Energy Carolinas, LLC ("Duke Carolinas"), Duke Energy Progress, LLC ("Duke Progress"), and Duke Energy Florida, LLC are subject to cost-based regulation and are Balancing Authorities responsible for balancing resources and demand. Duke Energy Indiana, LLC operates in the MISO centrally dispatched organized market, and Duke Energy Ohio, Inc. and Duke Energy Kentucky, Inc. operate in the PJM centrally dispatched organized market.

Duke Energy's utilities lead in and continue to grow deployment levels of PURPA qualifying facilities ("QF"). Indeed, the Duke Progress and Duke Carolinas service territories are the nation's largest PURPA market, "accounting for 60% of U.S. PURPA projects."<sup>1</sup>

Accordingly, Duke Energy has a significant interest in the Commission's reassessment of PURPA and its implementation, taking into account the: (i) changes in electricity markets since 1978; (ii) removal or diminishment of technological, financing, and market barriers to the installation of alternative/renewable QF facilities; and (iii) resulting widespread capability of alternative/renewable QF resources to self-sufficiently compete and operate as independent power producers. Duke Energy respectfully requests the Commission to ground its reassessment in the

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<sup>1</sup> Colin Smith, Analyst, GTM Research, *The Next Wave of U.S. Utility Solar, Procurement Beyond the RPS* (Feb.2016) at 28 (emphasis supplied).

fundamental principles contained in PURPA and its Congressional intent, and to mandate the implementation of PURPA in compliance with these principles.

## II. Congressional Intent and Fundamental Principles of PURPA

§210(b) of PURPA states the Commission’s rules “*shall insure* that, in requiring any electric utility to offer to purchase electric energy from any [QF], the *rates* for such purchase *shall be just and reasonable to the electric consumers . . .*” Further, Section 2 of PURPA states:

Congress finds that the protection of the public health, safety, and welfare, the preservation of national security, and the proper exercise of congressional authority . . . require —

- (1) a program providing for increased conservation of electric energy, increased efficiency in the use of facilities and resources by electric utilities, and equitable retail rates for electric consumers, [and]
- (2) a program to improve ... the reliability of electric service ... .

These foundational principles are also located in the Congressional record concerning PURPA §§201 and 210, and in the Commission’s Order No. 69 implementing PURPA. These principles exclusively must guide the Commission, to ensure that PURPA is implemented so that purchases are: (i) needs-based to promote efficiency and reliability in the use of assets, (ii) at rates that are “just and reasonable to the electric consumers of the electric utility,” and (iii) under terms that require QFs to contribute to parallel reliable operations with the utility through operational dispatch and curtailments obligations, beyond system emergencies. These comments demonstrate the necessity for a “needs-based” implementation, and propose such an approach for consideration.

### a. Conservation of Energy – Not Excess Energy

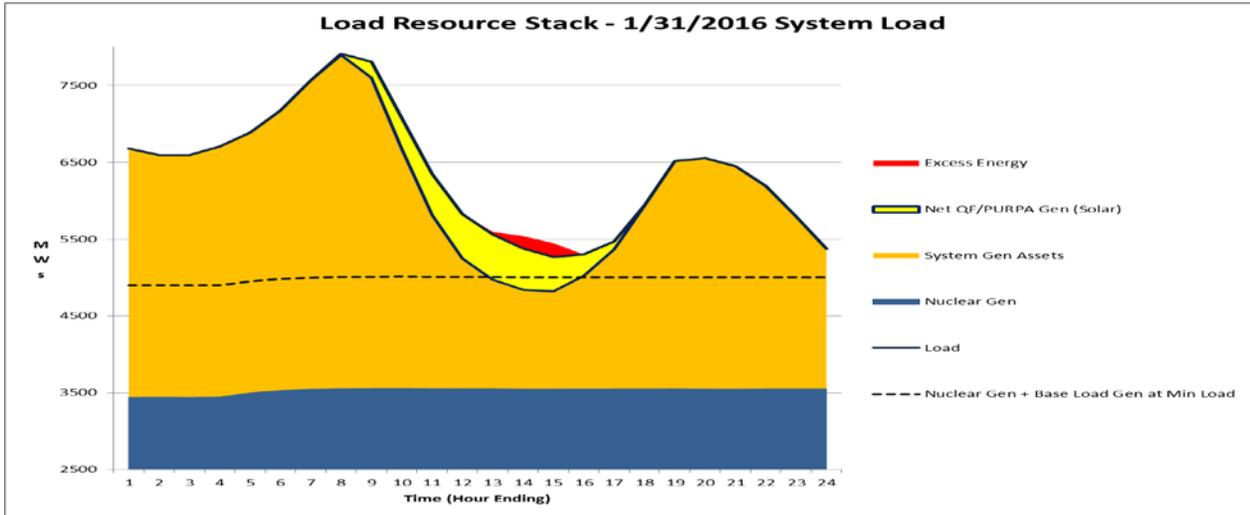
Congress’ first finding and stated purpose of PURPA is “increased conservation of electric energy.” Applying a must-take mandatory purchase obligation, without considering the utility’s actual needs to serve load and operate a balanced system results in excess energy and adverse operational and reliability impacts. Instead, mandating a needs-based approach would be a return to PURPA’s fundamentals. In Order No. 69, the Commission said determining avoided cost rates required taking into account “the relationship of energy or capacity from a qualifying facility to the *purchasing electric utility’s need for such energy or capacity.*”<sup>2</sup> This needs-based requirement has been ignored by reducing PURPA to an unconditional directive to purchase all PURPA energy and capacity offered, regardless of the utility’s needs and adverse cost impacts to customers.

The following charts show that a must-take purchase obligation that ignores system need has adverse reliability consequences. The first chart is an actual day on the Duke Progress system with no commitment of base load coal assets in anticipation of lower loads. It shows that intermittent

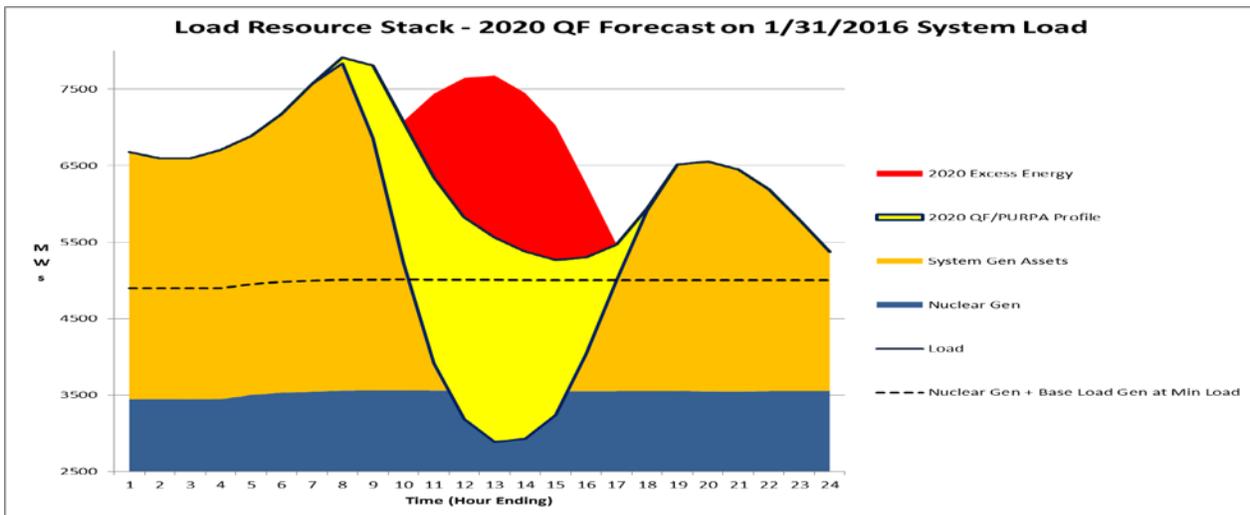
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<sup>2</sup> Order No. 69, 45 Fed. Reg. 12214, 12227 at col. 2 (emphasis supplied), elucidating 18 C.F.R. §292.304(e)(3).

solar QFs provided little support during the morning peak and no support during the late afternoon peak. Yet, in the mid-day, QFs delivered must-take energy in excess of system needs, and created load following and unit cycling reliability challenges. The must-take QF energy drove needed base load units below their minimum load capabilities, resulting in Duke Progress having to cycle down base load units required for evening demand that are not intended for cycling or dump the excess energy contingent on the availability of non-firm transmission and a purchasing counterparty.



By 2020, based on reasonable projections of additional QFs coming online and their energy output that will be injected into the Duke Progress system, the second chart shows the potential consequence of an unconstrained must-take purchase obligation. It shows that QFs injecting must-take levels of energy significantly in excess of system needs, will force the utility either to cut deep into nuclear operations or purchase and pay for excess energy injected into the system and somehow attempt to move it off the system subject to the availability of non-firm transmission. Either alternative creates material challenges to prudent and reliable operations.



Congress intended for PURPA to conserve energy and improve – not impair – system reliability, but those goals cannot be and are not being achieved by a must-take mandatory purchase obligation. The above charts also demonstrate the need for the Commission to now require QFs to contribute to parallel reliable operations with the utility through operational dispatch and curtailment obligations, beyond system emergencies. In Order No. 69 (at 12230), the Commission took the view that the unreliability of QFs could be accounted for through price, and left it to utilities and state commissions to justify the need for standards for system safety and operating requirements. However, given the impact of expanded deployment of QFs on system reliability, it is now time for the Commission to establish reasonable standards applicable to QFs to ensure that all generators contribute to system safety and reliable interconnected operations.

**b. Efficiency in the Use of Facilities – Not Excess Generating Capacity**

Congress’ second finding and stated purpose of PURPA is “increased efficiency in the use of facilities and resources.” Congress did not intend for utilities to accept and pay for unneeded generating capacity, and did not intend an unconditional must-take mandatory purchase obligation to require excess capacity to displace useful operational resources that customers already are paying for. As the Commission explained, PURPA enables and encourages QFs to provide energy or capacity for the purpose of satisfying the purchasing utility’s need commitments:

In order to defer or cancel the construction of new generating units, a utility must obtain a commitment from a qualifying facility that provides contractual or other legally enforceable assurances that capacity from alternative sources will be available sufficiently ahead of the date *on which the utility would otherwise have to commit itself to the construction or purchase of new capacity*. If a qualifying facility provides such assurances, it is entitled to receive rates based on the capacity costs *that the utility can avoid* as a result of its obtaining capacity from the qualifying facility.<sup>3</sup>

As the Commission explained, only after a utility commits itself to meeting an identified need, and “[i]f a qualifying facility provides such assurances [to meet that need], *it is entitled to receive rates based on capacity costs that the utility can avoid* as a result of [] obtaining capacity from the qualifying facility.”<sup>4</sup> The Commission explained, “[t]he *rate for such a purchase should thus be based* on the price at which such power is purchased or can be expected to be purchased based *upon bona fide offers ....*”<sup>5</sup> There is a needs and benefits requirement in this approach, where in exchange for the avoidance of incremental costs that they would have incurred, the utility and its customers are able to cancel or defer new generation, to be supplied by QFs. As the Commission stated, “*If an electric utility has sufficient capacity to meet its demand*, and is not planning to add any new capacity to its system, *then the availability of capacity from qualifying*

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<sup>3</sup> Order No. 69, at 12225, col. 3 (emphasis supplied).

<sup>4</sup> *Id.* (emphasis supplied).

<sup>5</sup> *Id.* at 12226, col. 3 (emphasis supplied).

*facilities will not immediately enable the utility to avoid any capacity costs.”<sup>6</sup>*

From 2010 through 2015, 621 projects and 1246 MWs of QF generation have come online in the Carolinas, the vast majority of which are intermittent solar facilities. These mandatory purchases have resulted in over \$1 billion in costs on customers – to date – and customers will continue to incur costs associated with these QF projects. Across Duke Energy’s service territory in the Carolinas alone, transmission and distribution engineers have and are grappling with over 1,700 projects totaling over 9000 MWs of additional intermittent QF capacity. Engineers have to study all these projects, and they may not all be built. However, at this time there are over 1200 projects in the interconnection process that are viable and/or being built, totaling over 4400 MWs of additional intermittent capacity. These 1200 projects will mandate approximately \$400 million in costs each year or \$6 billion in costs over a 15-year commitment period. The above do not include the QFs in the Carolinas that are interconnected with other systems and municipal/cooperative utilities that are selling or seeking to sell their output to Duke Progress and Duke Carolinas.

As PURPA purchases are mandated regardless of need, they displace existing useful and operating capacity assets that already are in consumer rates. It is, therefore, neither equitable to customers nor in the public interest for customers to be burdened with the costs of new purchases when no needs are being avoided, in addition to also bearing the costs of existing useful assets.

**c. Equitable Rates for Customers**

Congress’ third finding and stated purpose of PURPA is ensuring “equitable retail rates for electric consumers” by the implementation of PURPA. Congress explained:

The conferees intend that the phrase ‘just and reasonable to the electric consumers of the utility’ be interpreted in a manner which looks to protecting the interests of the electric consumer in receiving electric energy at equitable rates.<sup>7</sup>

PURPA requires that rates for QF purchase are required to be “just and reasonable to the electric consumers” – not anyone else. Congress further noted:

[T]he utility would ***not be required to purchase*** electric energy from a [QF] ***at a rate which exceeds the lower of*** the rate described above, namely a rate which is just and reasonable to consumers of the utility, in the public interest, and non-discriminatory or the incremental cost of alternative electric energy [which is the cost of energy that but for the purchase, the utility would generate itself or purchase from another source].<sup>8</sup>

Congress explicitly required that utilities and their customers must never pay a rate that exceeds the

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<sup>6</sup> *Id.* at 12227, col. 2 (emphasis supplied).

<sup>7</sup> *Joint Explanatory Statement of the Committee of Conference*, H.R. Rep. No. 95-1750, 95<sup>th</sup> Cong., 2<sup>nd</sup> Sess. 99, at 88 and 97 (1978), reprinted in 6 U.S.C.C.A.N. 7822, 7831 (1978)), and in Jet Propulsion Laboratories, *The Rules Implementing Sections 201 and 210 of the Public Utility Regulatory Policies Act of 1978: A Regulatory History*, DOE/JPL-1012-48, Sept. 15, 1980, JPL publication 80-64, [hereinafter “*Conference Report*”] at B-4.

<sup>8</sup> *Id.* at B-4 (emphasis supplied).

lower of (a) rates that are just and reasonable to consumers or (b) the utility's incremental costs of needed energy or capacity. The Commission accordingly so provided in Order No. 69.<sup>9</sup> But yet, avoided cost rates do not meet that fundamental test, instead – they are being set at “financeable” levels at the request of QFs – a nebulous test that is explicitly contrary to PURPA.

Mandating purchases from QFs regardless of the utility's needs, and setting those purchase rates in excess of the utility's incremental costs, forces consumers to pay the high rates for the life of the utility commitment to the QF, in addition to costs for integration and spinning reserves that customers also incur. The Commission should implement Congress' intent by ensuring that the protection of electric consumers is not being ignored to the benefit of QF project developers and financiers or by implementing policies not in PURPA, such as treating PURPA as a renewable energy mandate. The Commission must ensure that: (i) purchases under PURPA are exclusively needs-based obligations to serve system demand and (ii) rates for purchases are set at the lower of the incremental cost to the utility or a just and reasonable rate.

The Commission also should provide procedures for utilities to seek relief of any new purchase obligation when the utility has no need and has not committed itself to build or purchase any additional generating capacity to serve system demands.

***d. Improvement of System Reliability and Delivery – Not Impairment***

Congress's fourth finding and stated intent was to “improve ... the reliability of electric service.” Congress said of PURPA Section 210 that:

“The conferees expect that the Commission, in judging whether the electric power supplied by the [QF] will replace future power which the utility would otherwise have to generate itself either through existing capacity or additions to capacity or purchase from other sources, ***will take into account the reliability of power supplied by the [QF] ...***”<sup>10</sup>

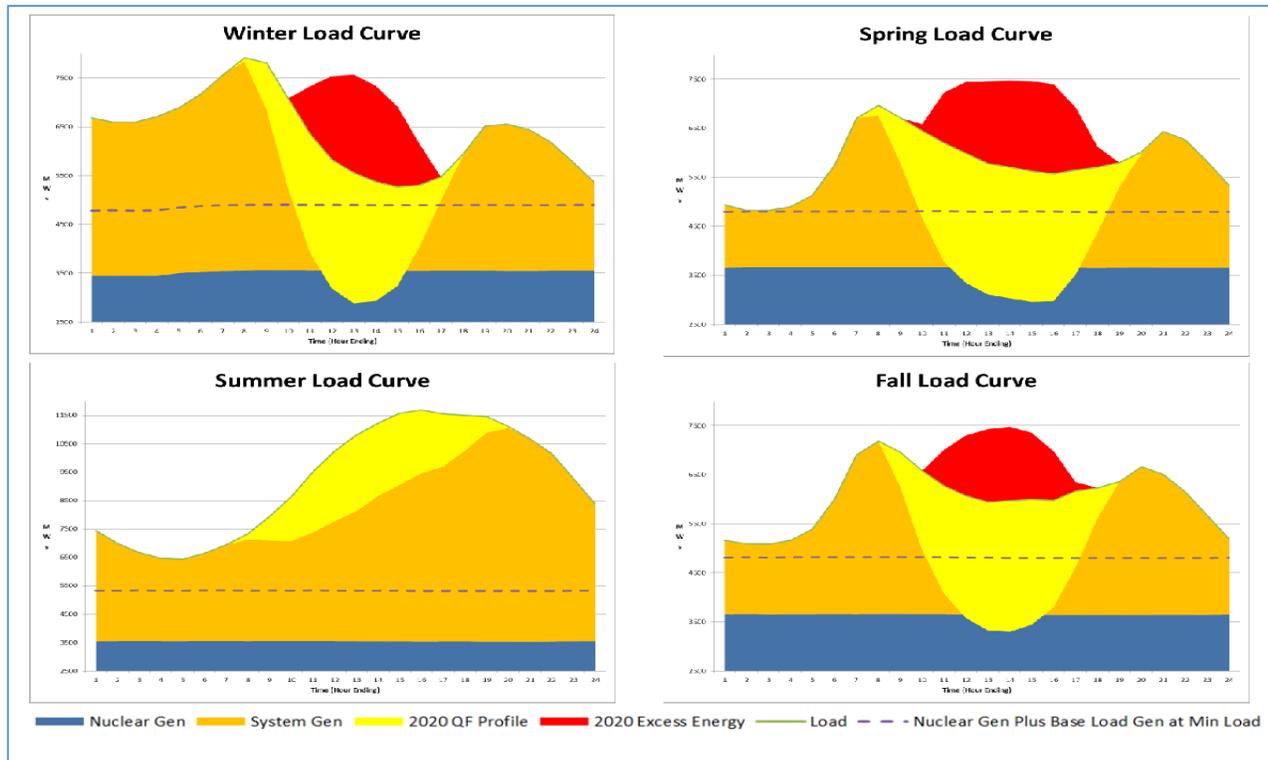
The below load curves show the seasonal reliability impairments expected to be caused by the must-take, non-dispatchable purchases from QFs that are reasonably projected to be viable and injecting into the system in 2020. They show that although QF generation contributes to load during summer months, it creates material reliability impairments during the remainder of the year. During the spring, fall, and winter seasons, due to excess levels of must-take, non-dispatchable QF energy being injected into the system greater than intra-day minimum load requirements, the utility will have to either: (i) cycle off base load and nuclear units on an intra-day basis to balance loads, even though those units are needed to meet evening demand and are not intended to be cycled, or (ii) find ways to dump the excess energy, contingent on non-firm transmission availability and a willing buyer – both presenting material reliability challenges.

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<sup>9</sup> See Order No. 69 at 12221, col. 3.

<sup>10</sup> Conference Report at B-5.

In Order No. 69 the Commission noted the diminished value of such resources, stating “if a utility cannot dispatch a [QF], that facility may be of less value to the utility.”<sup>11</sup> However, a must-take purchase obligation takes away the utility’s ability to incorporate this value proposition in its system operations and generation dispatch stack.



An obligation to purchase in excess of load needs, unconstrained deployment of high levels of must-take QF generation much of which cannot be reliably forecasted, combined with no requirements on QFs to contribute to or support parallel and reliable system operations, encourages imprudent siting and operational practices by QFs, which impair the utility’s ability to balance load to generation and prudently manage operational reliability.

### III. PURPA Requires “Avoided Cost” Rates, not “Financeable” Rates

PURPA rates and terms should not be set to benefit QF developers and their private financiers; they should be set to protect electric customers. Congress did not intend to provide a guaranteed rate of return and recovery protections to QFs and their financiers, to the detriment of consumers. In fact, Congress explicitly intended the opposite:

The conferees recognize that [QFs] are different from electric utilities, *not being guaranteed a rate of return on their activities generally or on the activities vis a vis the sale of power to the utility* and whose risk in proceeding forward in the [QF] enterprise is

<sup>11</sup> Order No. 69 at 12226, col. 2.

not guaranteed to be recoverable.<sup>12</sup>

Congress explicitly stated that QFs are not guaranteed a rate of return. For a QF and potential investors to make decisions, the QF is entitled to know the rate and its expected rate of return on the potential investment. As one court noted, “Congress thought it important to encourage investment in small power producing projects ... and one way to do so was to set firm rates to be paid for power generated by the [QF] over the life of typical financing arrangement. Doing so permits an assessment of the economic viability of such projects at the front end ....”<sup>13</sup> Courts and the Commission have emphasized sanctity of contract<sup>14</sup> and predictability of income, in finding that contracts are to be respected,<sup>15</sup> even if actual system costs declined after the contract was signed.<sup>16</sup>

The rights to know the rate of return and to expect performance of signed contracts are not a right or entitlement to a profitable rate of return. An obligation to assure QFs that their contracts will be respected so they may be financed is not an obligation to provide contracts bearing a profitable rate of return that will meet some investors’ standard. Unfortunately, PURPA is often implemented to assign to utilities this risk, being required to provide purchase commitments with rates, tenors, and terms that enable the QF to make the project attractive to private and tax equity investors, even though it is a risk that Congress did not assign to utilities. The Commission should correct this approach, and should require that rates be determined exclusively as the lower of incremental costs of the avoided energy or capacity for an identified and committed to utility need.

#### **IV. Remove the 20 MW Organized Markets Purchase Waiver Threshold**

For organized markets, *e.g.*, PJM or MISO, a utility is not obligated to purchase from a QF larger than 20 MW with the presumption that the QF has non-discriminatory access to the organized market. PURPA §210(m) does not contain this 20 MW threshold. The Commission included this threshold in its implementing regulations at §292.309-310, and can remove it. Utilities should have no obligation to purchase from any QF in organized markets. All generators have barrier-free access to the organized market and direct access to end-use customers in those markets. The utility purchase obligation harms the market by defeating its underlying economic structure.

All generators seeking to interconnect have equal access to the organized market’s interconnection procedures. For example, PJM even has expedited interconnection procedures for generators smaller than 20 MWs, and other such conveniences can be created. Instead of navigating through each utility’s interconnection requirements, all QFs would utilize a single standardized procedure in the entire regional organized market. Eliminating the 20 MW threshold will remove an interconnection preference that benefits QF generators at the cost of customers. In organized

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<sup>12</sup> Conference Report at B-4 (emphasis supplied).

<sup>13</sup> *Greenwood v. N.H. PUC*, 2007 U.S. Dist. LEXIS 52524 at 9-10 (D.N.H. 2007). See also *Applied Energy Services v. Oklahoma Corporation Commission*, 31 F.E.R.C. P 61,313 at 61709 (1985).

<sup>14</sup> *New York State Elec. & Gas Corp.*, 71 F.E.R.C. P 61,027 at 61115 (1995).

<sup>15</sup> *Id.* at 61118.

<sup>16</sup> *Brazos Electric v. FERC*, 205 F. 3d 235, 245-46 (5<sup>th</sup> Cir. 2000)

markets, when required, infrastructure upgrades are the selling generator’s responsibility. In contrast, QFs can interconnect to and put power into the utility’s system without bearing the full costs and consequences of delivered QF energy, which are then borne by customers. This gives QF generators that otherwise would have to use the transparent organized market’s process a way to avoid doing so, putting the costs on utility consumers.

All generators have equal access to the organized market’s energy, capacity, and ancillary services markets. The market’s pricing provides the applicable avoided locational value for purchasing energy and capacity, and thereby informs the need for generation and its value at the discrete location. A mandate that the utility must purchase at a non-market, derived rate becomes a mandate to purchase at a rate that is disassociated from the market price that informs the value of that purchase. The purchase obligation and mandate to provide an aggregated long-term rate thus requires utilities to supply a derived price signal, so to enable development for the profit of the QF, as opposed to actual needs that could be negative at locations with excess capacity.

Selling into organized markets based on signals the markets are providing promotes rational decision-making and beneficial siting of generating capacity. The value for purchases should be determined solely by the need for the generation, and all generators, regardless of size, should sell into the market at prices based on that need. By removing the 20 MW threshold, the Commission can ensure that no generator receives preferential treatment – just as other generators must offer their output into the market, all QFs also should be required to do so by directly selling into the structured market. Price signals in organized markets for purchases of energy or capacity are not rendered less relevant or appropriate simply because a supplier is smaller or happens to be a QF.

V. **Communications**

Please place the following persons on the Commission’s official service list:

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VI. **Conclusion**

Duke Energy Corporation has demonstrated that PURPA requires the balancing of utility needs, customer protections, and encouraging QF implementation. The multi-billion dollar size and scale of QF independent power producers shows the goal of encouraging QF development has more than succeeded and has been achieved. QFs are competing fully in functioning markets without barriers to entry. An unconditional must-take purchase obligation at the utility’s “avoided cost” fails to achieve the required balancing, because the needs and cost avoidance has been lost. As the Commission noted in Order No. 69 (at 12227): “If an electric utility has sufficient capacity to meet

its demand, and is not planning to add any new capacity to its system, then the availability of capacity from qualifying facilities will not . . . enable the utility to avoid any capacity costs.”

The Commission’s goal should now be to *incorporate* QF resources into the *utility’s generation portfolio* in the manner Congress intended. A needs-based approach will achieve the balancing Congress required, by advancing the goal of incorporating QFs into utility generation portfolios to meet PURPA’s goals of conserving energy, improving reliability, at just and reasonable rates. Under a needs-based approach, after a utility identifies its need for energy or capacity that it has committed itself to meet by building or purchasing supply, the utility would satisfy that need by a combination of demand-serving system assets and QF facilities. For example, if a utility identified a need for 500 MWs of new capacity, it could satisfy that need through 300 MWs of base-load type generation and 200 MWs of intermittent small power production QF resources, along with a combination of battery-storage and fast-start fossil generators to reliably manage the generation profile of intermittent generators. Subject to the approval of the utility’s retail regulator, the utility would meet those needs by market requests for proposals, because as the Commission explained in Order No. 69 (at 12226): “The rate for such a purchase should thus be based on the price at which such power is purchased or can be expected to be purchased based upon bona fide offers . . . .” The bona-fide offers in a non-discriminatory process, taking into account the necessary reliability contribution, operational control and dispatch value that the utility is seeking from the QF, would establish the rate for the purchases. Rates based on bona-fide bids (rather than “estimated” avoided costs) would inherently include an appropriate and committed market-based return and revenue stream for the QF bidders, reliability management provisions, and ensure that the rates are “just and reasonable to the electric consumers of the electric utility.”

There is simply no empirical reason, and nothing in PURPA, to require utilities to purchase energy or capacity regardless of need, and at rates that are disassociated from that need. The Commission should also establish standards applicable to QFs to ensure that all generators contribute to system safety and reliable parallel operations with utilities. Lastly, the Commission should remove the 20 MW purchase waiver threshold in the PJM and MISO organized markets.

The Commission’s orders and regulations guide and provide strong signals to state regulatory commissions and markets. Hence, Duke Energy Corporation respectfully asks the Commission to propose and issue regulations and orders promoting a return to PURPA’s first principles as set forth herein, including in the balancing of policies a needs-based implementation, with rates established through actual incremental bona fide offers in a non-discriminatory process.

Respectfully submitted on behalf of Duke Energy Corporation

/s/ Kendal Bowman

Vice President Regulatory Affairs and Policy