BEFORE THE COUNCIL FOR THE CITY OF NEW ORLEANS

APPLICATION OF ENTERGY NEW ORLEANS, INC. FOR APPROVAL TO CONSTRUCT NEW ORLEANS POWER STATION AND REQUEST FOR COST RECOVERY AND TIMELY RELIEF	**)**	**DOCKET NO. UD-16-02**

PRE-FILED TESTIMONY

OF

PHILIP HENDERSON

ON BEHALF OF

ALLIANCE FOR AFFORDABLE ENERGY,

DEEP SOUTH FOR ENVIRONMENTAL JUSTICE, 350 LOUISIANA – NEW ORLEANS

AND SIERRA CLUB

October 16, 2017

Q1. Please state your name, position, and business address.

A. Philip Henderson
Senior Financial Policy Specialist
Natural Resources Defense Council
1152 15th Street, NW
Washington, DC 20005

Q2. On whose behalf are you testifying?

A. I am testifying on behalf of Alliance for Affordable Energy, 350 Louisiana – New Orleans, Deep South Center for Environmental Justice, and Sierra Club.

Q3. Please summarize your professional and educational experience, and attach a current copy of your *curriculum vitae*.

A. I have worked at NRDC since 2010. In my work I serve as a technical expert at NRDC on energy efficiency program design, energy efficiency measures and interventions in buildings, and financing or energy efficiency project, including utility operated financing programs. In this work I research policies and practices of utilities and utility regulators related to energy efficiency and work with commercial market participants on new and innovative methods to accomplish and implement energy efficiency measures. This research includes technical analysis of program evaluation and results to support adoption of efficiency programs, including how utilities procure energy efficiency as a resource.

I have published articles related to energy efficiency in journals, including the Electricity Journal, and the Federal Reserve Community Development Investment Review.

I have also published many reports on utility energy efficiency programs and practices, including a Program Design Guide for Energy Efficiency in Multifamily Properties,

Utility On Bill Financing, Utility Landlord Portals, and Real Time Energy Management in Office Buildings. I frequently present reports and papers at energy efficiency industry conferences. I serve on the U.S. Department of Energy State and Local Energy Efficiency Acton Network. I have authored many Comments and written submissions to utility commission proceedings.

Please see Appendix A for ***curriculum vitae.***

Q4. What are the topics of your testimony?

A. In her testimony, Dr. Elizabeth Stanton discusses the benefits of competitive procurement. My testimony describes how a utility could use a competitive all-source solicitation as part of the procurement process to obtain information from the market about the various alternatives and resource options available to solve the utility's resource needs. When facing a substantial procurement decision, such as whether to build a power plant, the Council, the utility, and all stakeholders would benefit from the information an all-source solicitation would provide about the costs and benefits of options. Using this process helps to assure the resource selected for utility procurement is in customers' best interests.

Q5. What has changed in the market landscape for utility resources that warrants the Council adding a new competitive solicitation to the procurement processes?

A. The market landscape for utility resources has changed substantially in recent years. Today more than ever before utilities have a robust array of options to fulfill resource needs. The pace of change can mean even the most informed utility planners must regularly seek input from the market to accurately assess and compare the price, functionality, and other attributes of various resource alternatives.

Consider a few specific examples. Solar and wind generation costs have declined markedly over the past decade giving utilities many new options for deployment. Demand-side management and energy efficiency are proven low-cost resources with results from many other programs related to specific interventions and building types. Recent innovations in efficiency equipment and tools offer building owners and utilities' demand-side programs new opportunities.

A recent report from Navigant Research describes the dynamic building efficiency market: "The landscape for energy efficient building technologies may be changing more rapidly today than it has at any point in its history. New market trends such as digitization, as-a-service offerings, the Internet of Things (IoT), and the ubiquitous nature of software systems are bringing new dynamics of operation and competition."[1]

New energy storage technologies such as batteries are advancing rapidly and the pace of change and innovation is expected to continue. Energy storage offers utilities new opportunities to manage load and obtain valuable grid services.

New technologies offer new tools for load-shifting demand response programs, which are particularly important when a utility's resource need is driven by peak demand.

These market developments mean that when a distribution utility faces a resource need, an "all source" solicitation can be a powerful tool to assure the utility planners and all stakeholders have the information needed for integrated decision making – evaluating power supply and demand-side resources on an equal footing.

Q6. Why should the Council consider adopting a competitive all source solicitation for major resource procurement decisions?

[1] Energy Efficient Buildings Global Outlook, Navigant Research Report, 2Q 2017.

A. Using an all-source solicitation will add confidence and transparency to the resource selection process.

Consider a traditional procurement process, in which the utility has identified its need for additional power generation. In many cases, state utility regulators require utilities to make major resource procurements through competitively bid solicitation, such as seeking power purchase agreements from multiple prospective suppliers. This type of competitive bidding delivers price competition, but generally only for the solution specified by the procuring utility. If a utility solicits competitive bids to build a 250 MW gas-fired power plant, it obtains added confidence that price and other key terms are fair market, but the bidding does not address the fundamental question of whether building a 250 MW power plant is the optimal use of customer funds.

An "all source" solicitation seeks information about and proposals from resource alternatives to help address that questions. It would deliver information about costs and benefits of many resource alternatives that could potentially fulfill the resource needs identified by the utility planners. This process would add confidence that the selected resource is the optimal resource to fulfill the utility's identified need and would provide transparency into the criteria used to select the resource.

Q7. Why should the Council seek to assure the utility obtains input from market participants before approving procurement of a specific resource type?

A. Obtaining information from market participants has many benefits. One benefit is that the utility can obtain input and ideas from many innovators in the marketplace if they have a solution that fits the utility's resource needs. The speed of innovation in the utility sector can outstrip even the best utility planner's ability to monitor all available alternatives and

developments. An all-source solicitation helps assure the utility planner has market-current information on available choices. To illustrate the point, consider the chart at Appendix C, which is reprinted from a 2017 report published by Lazard, showing substantial price differentials between various generation resources. The average price ranges shown reflect ongoing innovation and maturation in the markets for solar, wind, and energy storage, as well as the range of prices for thermal generation resources. In addition to the many resources noted in the Lazard chart, a wide range of demand side resources are also available, with price and non-price attributes that can vary depending on many factors. The market can change rapidly in a short time. A solicitation helps assure the evaluation is current.

Another benefit is that it adds transparency, because it documents the many potential resources evaluated and it documents the selection criteria used to identify the procured resource. Transparency is a core value in utility planning. Transparency increases confidence in the outcome for all stakeholders.

Another reason to seek market input is culture. Utilities, like institutions in many critical sectors, operate with a professional culture that can prefer known solutions and avoid innovation with risks. This has many beneficial outcomes -- risk-aversion can protect customers' interests, adding safety, reliability, and stability. At the same time, it can hinder adoption of new alternatives that may offer advantages and have risks that are manageable. Soliciting input from the market on many solutions available could help utilities adopt technologies and methods that deliver benefits and fit the utility's needs.

A final reason to seek input from the market relates to the long-standing concern that some utilities have an inherent incentive to "self-build," because utility earnings are often

linked to owning assets such as power plants. Many utility regulators and commentators have expressly cited the incentive to self-build in support of regulatory directives to utilities to use an IRP process in resource planning and competitive bidding for procurement of new power resources. While an "all source" solicitation process does not address incentives, the transparency can add confidence in the outcome and bolster support for the resource selected by the utility.

Q8. Does a competitive "all source" solicitation change the utility's role in selecting the appropriate resource?

A. It should not change. Using an "all source" solicitation is intended to inform the decision-making process. The process assumes the distribution utility (or other procuring entity) has discretion to select the appropriate resources to procure, within the parameters established by the Council, the utility regulator. The distribution utility typically has the expertise and responsibility to identify and select the appropriate resources for procurement. The purpose of an all-source solicitation is to assure the procurement decision is made with information about alternatives and transparency. It is not intended to substitute in any way for the utility exercising its judgement about the most appropriate resources.

Q9. Does using an "all source" solicitation require the utility to select any specific proposal?

A. No. An "all source" solicitation assumes the utility would exercise its discretion to select the most appropriate resource using a wide range factors and attributes, weighted according to the circumstances and existing regulatory parameters established between the utility and the Council.

Q10. Please describe the basic steps a utility would follow to conduct an all source solicitation.

A. Step 1 is for the utility (or other procuring entity) to describe the need for new resources with the specificity and information to enable potential suppliers to offer creative solutions and resource alternatives. For example, a typical scenario is that a utility might describe existing capacity limits and expected growth in demand that leaves a resource gap by a particular date. In that scenario, the specific circumstances driving excess load (e.g., summertime peak load in residential houses) should be described in the solicitation. Step 2 is for the procuring utility to describe for prospective bidders the primary factors that will be material to selecting the resources to procure. The utility will receive better and proposals that are more likely to fit the utility's needs if prospective suppliers understand the evaluation criteria. It also improves transparency for stakeholders and confidence in the process when the evaluation criteria are defined in advance of receiving proposals. Examples of selection criteria might include:

- Time values when power supplied or saved is more valuable -- time of day, days of week, seasonal.
- Locational factors related to the value of power supplied or saved.
- Operational price volatility and fuel price volatility
- Term of commitment
- Information about reliability in certain conditions
- Construction risk and delivery risk
- Ancillary services associated with power facilities or devices.
- Time to start-up and dispatch for certain kinds of generation

- Durability in storm risks, resiliency to floods
- Maintenance costs
- Water usage

The evaluation criteria should indicate approximately how material factors will be weighted in the selection process, if it is known.

It is also important to include all policy objectives that may be applicable in the evaluation criteria, such as a preference for resources with low-carbon emissions, maximizing cost-effective energy efficiency, and procuring energy efficiency to displace costlier resources.

Step 3 is to issue a solicitation. A solicitation could take the form of a Request for Information (RFI) or a more rigorous Request for Proposals (RFP). A Request for Information (RFI) may be appropriate in many instances. It will provide greater flexibility for the procuring entity and less intensive proposals from respondents. An RFI is intended to provide the utility with general information about prospective suppliers and directional information to guide further procurement diligence on potential resources.

If the procuring entity has sufficient specificity about the resources, products, or services needed, an RFP may be appropriate, which asks prospective vendors to offer more detailed and more reliable information on price, delivery terms, and other specified attributes of the proposed solutions.

To accomplish the all source purpose of the solicitation, it should expressly seek information from prospective suppliers of resource options such as:

- Demand response for peak load reduction.

- Expanding energy efficiency programs or services. This may mean increasing investments in existing programs, launching new programs, or direct delivery of services to certain sectors (e.g., municipal offices, residential homes, apartments, commercial offices, refrigerated warehouses, hotels, schools, etc.).
- Energy storage facilities
- Utility-owned distributed solar, possibly coupled with battery storage

Step 4 is to evaluate proposals. The centerpiece of a competitive bidding process is evaluating proposals. Evaluating proposals and selecting a resource or mix of resources to procure requires judgement, expertise, and may involve subjective evaluation of risk and other factors. It requires full information about the utility system, planning requirements, demand forecasts, and more. Different resource options, and combinations of resources, have practical differences that mean they are not exact substitutes in all cases.

For all these reasons and more, the distribution utility is likely to be the best party to evaluate proposals, to accord weight to different attributes of resource alternatives, and to exercise judgement required to select an appropriate resource or mix of resources to procure.

Reasonable parties can disagree about how evaluation criteria should be applied to any proposal and how different resource attributes should be weighted and valued. There are two important factors that can go a long way to resolve disagreements. The first is transparency in the process. Documenting the evaluation criteria used to select resources will be helpful. This occurs within needs of utility confidentiality and protection of

proprietary information. The second is stakeholder engagement in the process. One option is to convene a procurement working group.

Q11. Are there any other points the Council should consider when evaluating the all-source solicitation process?

A. Yes. I would call attention to four additional points. First, Council can tailor the solicitation process to the circumstances – the size of the investment, timing factors related to the utility's resource need. It may be applied to a specific procurement. There may also be legitimate reasons a utility or utility regulator might determine to not use a competitive procurement process in certain instances. Small procurements, procurements by small utilities, or procurements with very tight requirements, for example, could warrant different treatment.

Second, independent oversight of the process offers benefits. Competitive bidding processes often require an independent monitor. The monitor's function often includes assuring all prospective bidders have reasonably similar information required to submit proposals, reviewing the solicitation, evaluation criteria, and selection process, and monitoring communication between the utility and bidding parties. Any utility affiliate that bids on the RFP will require additional attention. The monitor should be a person or firm unaffiliated with the utility or any participant in the RFP and engaged by the utility regulator. The monitor should provide a report back to the utility and utility regulator.

The third consideration is stakeholder engagement. Consider use of a procurement working group to include knowledgeable participants from customers, consumer advocates, efficiency experts, and industry trade groups.

The fourth point is to consider how an investor owned utility recovers its costs and earns its authorized return on capital deployed for system investments such as demand-side management, energy storage, and innovative solutions that may be highlighted in an all-source procurement. The Council may wish to evaluate and clarify how a utility would earn its authorized revenue on such investments. There is a substantial amount of recent scholarship and commentary on performance based earnings models for utilities as alternatives to traditional models, as well as activity among utility commissions.

Q12. Would an all-source competitive solicitation complement the Council's current IRP process?

A. Yes. Competitive all source solicitation draws upon the principles of transparency and competition that the Council has adopted for integrated resource planning. It applies these planning principles to procurement. Distribution utilities with an obligation to meet their customers' electricity needs must continually assess the power resources they will need over a long planning horizon. Long-term planning processes, such as Integrated Resource Planning (IRP), have proven to be powerful tools. The process requires the utility, with participation of key stakeholders, to evaluate a wide range of resource options, including demand side management, such as energy efficiency and demand response programs, that can reduce forecasted load on the system, alongside supply options, such as conventional thermal power plants, solar, and wind power.

Integrated planning processes that evaluate all-sources have created value for utilities and their customers by revealing to all participants the highest value (or "least cost") mix of resources and documenting the criteria used to select the resources.

In the IRP process, the utility and stakeholders define a roadmap to meet forecasted power needs with a combination of demand-side and supply resources of optimal value. [2] The IRP emphasizes transparency. It requires documentation of existing resources, forecasted demand, distribution constraints, and other key inputs. This allows all participants to test and refine the assumptions that are relevant to the mix of resources selected for utility investment.

The IRP also simulates competition among alternatives. Expert utility planners compare costs and benefits of a wide range of resource options and document the criteria used to evaluate and select resources, including all applicable policy mandates.

Competitive all source solicitation applies IRP principles to the procurement process. This is not a new idea. In fact, articles from more than 30 years ago clearly identify how to implement the values of competition and transparency into utility procurement.[3] Utilities since early 1990s have used "demand side bidding."[4]

More recent papers from leading voices specify how the competitive acquisition process can be applied to different regulatory structures.[5] One author identified the variety of state utility regulatory models as a barrier to greater use of genuinely competitive

[2] Specifically related to New Orleans, see New Orleans City Council, Docket UD-08-02, contains multiple documents describing the Integrated Resource Planning process, including Resolution R-13-363 ("In Re: Resulotion Regarding Proposed Rulemaking to Establish integrated Resource planning Components and Reporting Requirements for Entergy New Orleans, Inc."). See also Rachel Wilson and Bruce Biewald, *Best Practices in Electric Utility Integrated Resource Planning;* and E*xamples of State Regulations and Recent Utility Plans*, Synapse Energy Economics, June 2013 (prepared for the Regulatory Assistance Project).

[3] Ralph Cavanagh, *Least-cost Planning Imperatives for Electric Utilities and their Regulators*, The Harvard Environmental Law Review, Vol. 10, Pg. 299 (1986).

[4] *Key Issues in Developing Demand-Side Bidding Programs,* C.A. Goldman and E. Hirst, Lawrence Berkeley Laboratory, September 1989. *Review of Demand-Side Bidding Programs: Impacts, Costs, and Cost-Effectiveness,* C.A. Goldman and M.S. Kito, Lawrence Berkeley Laboratory (1994).

[5] *Reinventing Competitive Procurement of Electricity Resources*, Ralph Cavanagh, published on ElectrictyPolicy.com, Sept., 2010.

procurement.[6] The author wrote: "My view is that the various utility models each allow for a durable solution, in the form of competitive resource procurement and integration by regulated electric distribution companies. Energy efficiency should be treated as a resource for this purpose, and regulators' primary aim should be to ensure an acquisition process open to all, with results that minimize the life-cycle cost of reliable electricity service while meeting society's environmental goals."

Q13. Does all-source procurement substitute for policies and programs to capture all cost effective energy efficiency?

A. No. It is important to emphasize that procurement of additional demand-side resources, such as might be procured through an "all source" solicitation, are additive to and do not substitute for or replace policies to continuously operate programs to capture all cost-effective energy efficiency.

A primary reason to continuously invest to procure all cost-effective energy efficiency is that they create value. Each dollar spent on cost-effective programs creates value worth one dollar or more to the utility's customers. To the extent certain energy efficiency measures are not cost-effective, the additional demand or energy savings can be less costly than other resource options. A portfolio of mature programs operating in the market will give the utility tools to make adjustments to obtain added amounts of energy efficiency in different sectors, or in specific locations, or at certain times of day, thereby empowering utility planners to treat efficiency as a resource.

Q14. Are there examples of utilities or regulators who have used all-source solicitations in procurement?

[6] Ibid.

A. Yes, all-source solicitation has been used in procurement by utilities in several states. There are also important lessons from related activities such as how efficiency and non-traditional resources participate in wholesale markets. In Appendix B, I briefly discuss some selected examples of this procurement method.

Q.15 Does that conclude your testimony?

A. Yes.

AFFIDAVIT

STATE OF District of Columbia)

COUNTY OF Washington)

I, Philip Henderson, do hereby swear under the penalty of perjury the following:

That I am the person identified in the attached prepared testimony and that such testimony was prepared by me under my direct supervision; that the answers and information set forth therein are true and accurate to the best of my personal knowledge and belief; and that if asked the questions set forth herein, my answers thereto would, under oath, remain the same.

Philip Henderson

SWORN TO AND SUBSCRIBED BEFORE ME THIS 13th **DAY OF** Oct, 2017

NOTARY PUBLIC

My commission expires: July 31, 2019

DWANE MCGINNIS NOTARY PUBLIC MY COMMISSION EXPIRES 7/31/2019 DISTRICT OF COLUMBIA

Appendix A
Curriculum Vitae of Phillip Henderson

Professional Qualifications of Philip Henderson

Professional Experience

Natural Resources Defense Council (NRDC), *Washington, D.C.,* 2010 to Present

- Research on effective utility policies and practices for energy efficiency.
- Technical expert on utility energy efficiency programs related to buildings.
- Expert financing programs for energy efficiency investments.
- Advocacy
- Design and lead aLaunched and led effort to implement programs for utilities to use data analytics address energy efficiency in buildings. Designed and executed study on commercial building owner use of analytics to improve operations to validate savings.

Overture Technologies, *General Counsel & Strategy, Bethesda, MD,* 2007 to 2009

- Managed the company's legal and compliance functions, including working closely with prospective customers (mortgage investors, federal and state GSEs, and large lenders) on design and use of automated underwriting systems to manage risk and improve decisions.
- Negotiated agreements with financial institutions using technology licensing and software-as-service models. Protected company's technology with patent and trademark filings.
- Worked closely with CEO and Board on corporate strategy, regulatory matters.
- Managed Series C financing of $6.0 million and related bridge loans and outreach to prospective investors.

LendingTree, Inc., Associate General Counsel and Strategy, *Charlotte, NC,* 1999 to 2006

- Launched and led government affairs to address and resolve key strategic, legal and policy challenges. Worked with policymakers, regulators, and media to accomplish key objectives within budget.
- Led strategic projects: evaluate potential acquisitions, implement new consulting services product. Created and executed service to identify lender business methods related to top-performance. S tudied group of lenders and distributed key actionable lessons through reports, presentations, and thought leadership.
- *Associate General Counsel, r*esponsible for managing legal functions on major transactions. Supported successful IPO working with outside counsel and underwriters. Managed key projects, including acquisition and new product development. Managed privacy and data security policies and monitored compliance.

Kirkpatrick & Lockhart, *Associate Attorney*, Washington, DC 1997 to 1999

United Companies Financial Corp., *Associate General Counsel*, Baton Rouge, LA 1995 to 1997

U.S. House of Representatives, *Legislative Counsel* to Rep. Cleo Fields, Washington, DC 1993 to 1995

EDUCATION AND CREDENTIALS

University of Virginia School of Law, Juris Doctor, 1993

University of North Carolina Greensboro, Bachelor of Arts, Economics and History, 1990

Appendix B
Selected examples related to utility all-source procurement

Appendix B

Selected examples related to utility all-source procurement

Section 1. Utility competitive procurement

a) California's all-source and energy storage procurements

In recent years California faced two events that might have led to power emergencies – the unexpected closure of San Onofre Nuclear facility and the unexpected closure of Aliso Canyon gas storage facility. To manage the anticipated loss of capacity, the California Public Utilities Commission (CPUC) ordered the large investor-owned utilities to rapidly procure additional energy efficiency and demand side management through ramping-up of existing programs, demand side management, energy storage facilities, along with additional power supply projects.

i) SDG&E and Southern California Edison

In 2014, California regulators ordered two utilities, San Diego Gas and Electric and Southern California Edison, to use competitive all-source procurement to identify 1,000 to 1,500 MW of power from clean resources – resources preferred under CPUC policy.[1] This order was issued because the utilities needed to replace power lost due to unexpected closure of a large nuclear power plant.[2]

San Diego Gas and Electric issued all-source RFO for 400 to 600 MW to meet its local capacity requirement.[3] SDG&E expressly sought bids for energy storage, demand response, and related clean energy sources. SDG&E decision criteria FAQ (Here)

ii) Southern California Edison

In 2013, the CPUC ordered Southern California Edison Company (SCE) to procure between 1,400 and 1,800 MW to meet its capacity requirements.[4] The Decision requires SCE to abide by CPUC and state law that preferences certain clean resources. SCE's solicitation included a range of demand-side and energy storage resources and occur within SCE's existing programs designed to meet aggressive EE goals. See Southern California Edison – Solicitations website. SoCal Edison's Procurement Plan (documents filed with CPUC).

---

[1] See CPUC Decision 14-03-004.

[2] For a discussion of the circumstances the led to the California solicitation, see the NRDC blog by Sierra Martinez located here: https://www.nrdc.org/experts/sierra-martinez/its-official-efficiency-clean-energy-help-fill-californias-nuclear.

[3] See SDGE RFP and related documents on its website https://www.sdge.com/all-source-2014-rfo.

[4] CPUC Decision Authorizing Long Term Procurement for Local Capacity Requirements, Decision 13-02-015, February 13, 2013. The need for this additional capacity was driven, in large part, by the closing of a gas storage facility.

b) New York

The New York Public Service Commission proceeding Reforming the Energy Vision has led utilities in New York state to "all source" solicitations expressly seeking energy efficiency, demand response, energy storage, and other resources.

i) Consolidated Edison (ConEd) -- BQDM Auction

In 2014, the New York PSC ordered a program for ConEd to establish the Brooklyn Queens Demand Management ("BQDM") program to procure 52 MW of energy efficiency and other "customer-side and non-traditional utility-side solutions" by 2018 to enable deferral of major new substation upgrades.[5] Without the demand-side solutions to manage load, ConEd expected to spend over $1 billion on distribution upgrades. With the energy storage projects and demand-side management, the upgrades were expected to be deferred until 2026. As of the most recent reports on the project indicating results of the energy storage and demand-side projects, the deferral period may be substantially greater.[6]

ConEd described the project in its initial BQDM plan as follows:

> *"Beginning in 2013, increased customer electric demand growth in Brooklyn and Queens began to overload the capabilities of the sub-transmission feeders serving the Brownsville No. 1 and 2 substations. In its petition, the Company forecasted that, unless the anticipated load growth in these BQDM Area is alleviated, by 2018 the sub-transmission feeders serving the area will be overloaded by 69 megawatts ("MW") above the system's current capabilities for approximately 40 to 48 hours during the summer months. The BQDM Program is designed to address the overload by reducing load 69 MW, with approximately 52 MW of the reduction to be achieved using a combination of non-traditional utility-side and customer-side solutions and 17 MW through traditional utility infrastructure investment. The precise mix of customer- and utility-side non-traditional solutions as well as the quantity of load relief needs needed for reliability each year will depend upon the solutions available to the Company and the evolution of system needs respectively. The Company anticipates that a majority of the achieved reductions will result from the customer-side, typically deployed on customer property, and the*

[5] New York PSC, CASE 14-E-0302, ORDER ESTABLISHING BROOKLYN/QUEENS DEMAND MANAGEMENT PROGRAM.
[6] See NY PSC Extends Con Ed Demand Program, RTO Insider, July 16, 2017.

> *remainder will result from the utility-side, i.e., solutions directly connected to the distribution network."*[7]

On July 15, 2014, Con Edison issued a Request for Information ("RFI") seeking information and proposals for customer-side and utility-side non-traditional solutions for the BQDM Program. The results of the RFI informed ConEd's preparation of two auctions to procure specific types of resources. (see **https://conedbqdmauction.com/)**

In August 2016, ConEd announced it had procured a range of resources including energy storage, energy efficiency (through "direct install" programs and more), combined heat and power, cooperative programs with the New York City Housing Authority, improving municipal buildings, demand response, and more.

In a recent report (January 2017), Con Ed reported "The Company has been successfully implementing the BQDM Program and projects that it will achieve, under budget, more demand reductions than originally assumed necessary to defer the traditional infrastructure targeted in the petition and Order."

ii) National Grid

Beginning in January,2017 National Grid issued several RFPs for eligible resources to reduce load in certain areas of New York State.[8] The RFP defines targeted resources as follows:

> *"Non-Wires Solutions" (NWS), sometimes referred to as Non-Wires Alternatives (NWA), is the umbrella term for ensuring that a portfolio of alternatives to distribution and/or transmission lines is analyzed and considered in the planning and possible permitting of such facilities.*
>
> *A NWA could include any action or strategy that could help defer or eliminate the need to construct or upgrade components of a transmission and/or distribution system affected by loading that is estimated to exceed equipment limits.*
>
> *NWA's are defined and referred to as any demand response, distributed generation, conservation or energy efficiency measure, generation altering pricing strategies that individually or in combination delay or eliminate need for upgrades to transmission and/or distribution system.*"

---

[7] Brooklyn Queens Demand Management Program, Implementation and Outreach Plan, 1-30-2017, Consolidated Edison Company of New York, January 30, 2017. (quotation from pages 3-4)

[8] New York Public Service Commission, 14-M-0101, Proceeding on Motion of the Commission in Regard to Reforming the Energy Vision (REV), filing of National Grid January 25, 2017. National Grid has issued subsequent similar RFPs and documents can be found on the NYSERDA website: https://nyrevconnect.com/.

c) Arizona.

In March, 2016, Arizona Public Service (APS) an investor owned utility, issued "all source" RFP for 400 to 600 MW of capacity. APS solicited thermal generation, energy storage, renewables, and non-supply side technologies. Minimum of 25 MW aggregate size. The RFP stated a preference for resources dispatchable between hours of 3pm and 9pm, June to September.

According to a December 2016 statement, APS concluded the All Source solicitation and signed agreements with subsidiary of Star West Generation, LLC, to contract for 565 megawatts of capacity from the Arlington Valley combined cycle power plant for six years.

Section 2. Procurement of Demand Side Resources in Wholesale Capacity Markets

Recent transactional experience in capacity markets is useful demonstration of demand-side procurement. It is included to demonstrate the reliability of demand-side resources.[9] These are wholesale transactions. The results demonstrate that programs operated by utilities (or other load serving entities) can deliver continuous load-reduction that is relied upon to make capacity on the system available for generating resources.

a) PJM

In the market operated by the PJM independent system operator, energy efficiency is bid-in by program administrators (such as utilities operating programs), and it is acquired at a market clearing price to enable the delivery of generation resources somewhere else on the system. In the 2019/2020 market conducted 3 years ahead in 2016, over 1,500 MW of energy efficiency cleared.[10] In other words, generators on the PJM system paid other utilities a market-clearing price to operate energy efficiency programs in order to free up capacity on the transmission system.

b) ISO NE

The Forward Capacity Market operated by ISO-New England shows similar positive results. The transmission system operator allows an energy efficiency provider (such as a utility) to sell the additional capacity created by efficiency to a generator who needs it. Recent reports show 2,250 MW of energy efficiency clearing in the 2016 market process.

---

[9] Gottstein and Shwartz, *The Role of Forward Capacity Markets in Increasing Demand-Side and Other Low-Carbon Resources, Report of the Regulatory Assistance Project*, 2010. *See also* Dalton, *Planning versus Partiality*, Public Utilities Fortnightly (Dec. 2014).

[10] See 2019/2020 RPM Base Residual Auction Results, published by PJM and located online at: www.pjm.com/~/media/markets-ops/rpm/rpm-auction-info/2019-2020-base-residual-auction-report.ashx

c) NYISO's Installed Capacity Market

The New York Independent System Operator (NYISO) annually establishes the amount of capacity needed to fulfill system reliability requirements (including a reserve margin) in specific areas. Large areas of New York City and Long Island are identified as transmission constrained. Utilities are required by the system operator to maintain a large amount of local installed capacity. Determination of the amount of local installed capacity that is required is driven largely by coincident peak load.

NYISO operates an auction-like market (ICAP) to determine price entities are paid to provide capacity. The market allows demand response programs to participate, subject to certain conditions and evaluation requirements.[11]

Section 3. Standard Offer Programs.

Utilities in several states procure energy efficiency and demand side management resources through programs structured as standard offers. This is not an "all source" solicitation. It is included here as an example of distribution utility procurement of demand-side resources.

A program example is implemented in Texas.

Transmission and distribution utilities in Texas, regulated by the Texas Public Utilities Commission, operate a set of energy efficiency programs called "Standard Offer Programs." Through these programs, the utility procures energy efficiency resources through payments to vendors. To illustrate, CenterPoint Energy describes its program as follows:

> *"The Texas electric utilities' programs improve the energy efficiency of residential and commercial customers through Standard Offer Programs (SOPs) and Market Transformation Programs (MTPs). SOPs support an infrastructure of contractors ("energy efficiency service providers" (EESPs)) delivering equipment and services directly to customers. Over 100 unique EESPs participated in the commercial SOPs and over 200 unique EESPs participated across the residential SOPs. Implementation contractors selected by the utilities deliver MTPs that provide additional outreach, technical assistance, and education to customers in harderto-reach markets (e.g., small business, health care, schools, and local governments) and/or for select technologies (e.g., recommissioning, air conditioning tune-ups, pool pumps). All utilities provide energy efficiency*

[11] For a full discussion, see Distributed Energy Resources Roadmap for New York's Wholesale Electricity Markets, A Report by the New York Independent System Operator (January 2017). Located at: http://www.nyiso.com/public/webdocs/markets_operations/market_data/demand_response/Distributed_Energy_Resources/Distributed_Energy_Resources_Roadmap.pdf

> *offerings to low-income customers through hard-to-reach (HTR) programs that are delivered in a way similar to the residential SOPs.*"[12]

These are essentially demand-side procurement programs – the utilities pay commercial contractors a pre-defined price per kilowatt or kilowatt hour hour for energy use reductions expected from projects. Project eligibility requirements provide the utility sufficient assurances the savings are reliable. Pogram evaluation conducted by the state has verified the savings attribution and the strong cost-effectiveness of the program.

Evaluation results for Centerpoint's Standard Offer Program for program year 2015, for example, show over 76,000,000 kwh saved and 12,000 kw load reduction from the Standard Offer Programs.[13] The residential SOP (including low income) and commercial achieve cost effectiveness scores greater than 2, meaning Centerpoint customers realized approximately two dollars in value for each dollar devoted to the program. This is in the context of total Centerpoint demand side programs with savings for PY2015 of 168,489 in demand (kW) and 189,551,012 in total energy (kWh) savings.[14]

Other Texas utilities have realized similarly healthy results from the Standard Offer Program.

[12] Text taken from Centerpoint website, page titled Energy Savings Programs, on August 9, 2017.
[13] Public Utility Commission of Texas Annual Statewide Portfolio Report for Program Year 2015—Volume II, August 15, 2016. (See tables 3.2.1 for commercial program impacts and 3.3.1 for residential).
[14] Ibid.

Appendix C
Levelized Cost of Energy Analysis

Chart below reprinted from: Lazard, Levelized Cost of Energy Analysis, V. 10, December 2016. Chart below appears as page 2. Study available online at:

https://www.lazard.com/media/438038/levelized-cost-of-energy-v100.pdf