STATE OF NEW HAMPSHIRE

BEFORE THE

NEW HAMPSHIRE PUBLIC UTILITIES COMMISSION

EnerNOC, Inc.

DOCKET NO. _____

Petition for Investigation into the Use of Live, Online Reverse Auction in Electric Procurement

JOINT PRE-FILED DIRECT TESTIMONY

OF

Sean Perry and Greg Geller
EnerNOC, Inc.

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I. PROFESSIONAL AND EDUCATIONAL BACKGROUND

Q. What is your name and what is your position with EnerNOC, Inc.?

A. My name is Sean Perry and I am a Senior Manager of Wholesale Energy Procurement at EnerNOC.

Q. Please describe your educational background.

A. I received a Bachelor of Science with a double major in Finance and Management from Roger Williams University (Bristol, RI) in 2010.

Q. Please describe your professional background.

A. I am a procurement professional with over seven years of experience conducting wholesale power and natural gas procurements for energy consulting and software firms. I have deep experience in the strategic planning, facilitation, overall program implementation for, and execution of large-scale energy transactions, on behalf of utilities and large commercial and industrial energy consumers, using both paper and software solutions.

Q. What are your responsibilities as Senior Manager of Wholesale Energy Procurement?

A. My primary responsibilities are to design, develop, and execute strategic wholesale energy Request for Proposals (RFPs) and Requests for Bids (RFBs) for EnerNOC's wholesale customers.

Q. What do you consider to be your area of expertise?

A. Wholesale markets and wholesale commodity transactions.

Q. What is the purpose of your testimony?

A. To explain how large energy users and utilities are using innovative technology solutions to transact energy commodities and how this technology can benefit default Energy Service customers in New Hampshire. Because Eversource Energy is the largest provider

of electricity in New Hampshire, EnerNOC is tailoring its explanation of services to Eversource's service territory.

Q. What is your name and what is your position with EnerNOC, Inc.?

A. My name is Greg Geller and I am a Director of Regulatory and Government Affairs at EnerNOC.

Q. Please describe your educational background.

A. I have a Master in Business Administration (MBA) degree from the Boston University School of Management, and a Bachelor of Arts degree from the University of Wisconsin-Madison. Relevant to energy in New England, as part of leading EnerNOC's presence in the ISO-NE market, I have completed coursework on Wholesale Electricity Markets and the Forward Capacity Market.

Q. Please describe your professional background.

A. Before receiving my MBA, I worked in New York City government for nearly three years as a Deputy Chief of Staff and Legislative Director to a New York City Councilwoman. While receiving my MBA, I held an internship at the offshore wind company, Deepwater Wind. Since receiving my MBA in 2010, I have served on the Regulatory and Government Affairs team at EnerNOC in roles of increasing responsibility, starting as a Specialist, then moving to a Senior Specialist, Manager, Senior Manager, and most recently in my current role as a Director.

Q. What are your responsibilities as Director of Regulatory and Government Affairs?

A. I lead EnerNOC's Regulatory and Government Affairs across New England and New York, including at ISO-NE and NYISO, the Public Utility Commissions, and state legislatures. I also have a team reporting to me that is responsible for Canada and the

Midwest. I also share responsibility for EnerNOC's efforts before the Federal Energy Regulatory Commission.

This work covers the entire breath of EnerNOC's services, including energy procurement.

Q. **What do you consider to be your areas of expertise?**

A. My areas of expertise include and are not limited to:

- The participation of Distributed Energy Resources in retail and wholesale markets, and the policies and market designs that will maximize the cost-effective participation of such resources
- Broader wholesale competitive market design, and how the functioning of wholesale markets impacts ratepayers

During my time at EnerNOC, I have held leading roles in the following initiatives:

- EnerNOC's successful effort to convince the Federal Government and the U.S. Solicitor General to seek appeal of the D.C. Circuit Court's decision in *FERC v. EPSA* and *EnerNOC v. EPSA* at the U.S. Supreme Court. In a 6-2 decision, the Supreme Court overturned the D.C. Circuit Court's decision, preserving the direct participation of demand response in wholesale markets.
- The creation or expansion of cost-effective state-level demand response programs in New York, Pennsylvania, Massachusetts, Rhode Island, and Missouri.
- Most recently (July 25, 2018), reaching a successful stakeholder compromise in the highly debated MA DPU 17-146[1] docket alongside stakeholders including Eversource, National Grid, the Mass. Department of Energy Resources, the Massachusetts Attorney General's

[1] Inquiry by the DPU on its own Motion into the eligibility of energy storage systems to net meter pursuant to G.L. c. 164, §§ 138-140 and 220 CMR 18.00, and application of the net metering rules and regulations relating to the participation of certain net metering facilities in the Forward Capacity Market pursuant to Net Metering Tariff, D.P.U. 09-03-A (2009).

Office, and other clean energy industry stakeholders, where EnerNOC was one of the five clean energy companies at the negotiating table.

- The redesign of the ISO-NE and NYISO market rules pertaining to demand response and Distributed Energy Resources.
- Several FERC proceedings related to the participation of demand response, Distributed Energy Resource, and energy storage participation in wholesale markets, most recently the Notice of Proposed Rulemaking on Energy Storage and Distributed Energy Resources (Docket Nos. RM16-23-000; AD16-20-000).

II. BACKGROUND ON ENERNOC AND ITS TECHNOLOGY-ENABLED PROCUREMENT SERVICES

Q. Please describe EnerNOC's corporate structure and business.

A. EnerNOC is a subsidiary of Enel, a multinational power company and a leading integrated player in the global power, gas, and renewables markets. Enel is Europe's largest utility by market capitalization and operates in over 30 countries worldwide, producing energy with 86 GW of managed capacity. Enel distributes electricity and gas through a network of over 2 million kilometers, and with over 65 million business and household customers globally, the Group has the largest customer base among European utilities. Enel's renewables division, Enel Green Power, already manages roughly 40 GW of wind, solar, geothermal, biomass and hydropower plants in Europe, the Americas, Africa, and Asia and has recently arrived in Australia.

EnerNOC, acquired by Enel in August of 2017, partners with enterprises and utilities to reduce costs, manage risks, increase sustainability, and maximize the value of emerging energy technologies through customized energy management strategies. EnerNOC's

technology-enabled advisory solutions help large energy users and utilities create value through strategic energy procurement, energy management, and utility bill management services. Between EnerNOC, which has its headquarters in Boston, and Enel Green Power North America, which has its headquarters in Andover, MA, the Enel Group is one of the largest clean energy employers in New England. EnerNOC's presence in New Hampshire dates back approximately ten years to its initial participation in the ISO-NE Demand Response program, in which large energy users receive compensation for reducing their energy consumption from the grid when system reliability is threatened or when energy prices are high.[2] EnerNOC's presence in New England is also lengthy given that the Regional Greenhouse Gas Initiative ("RGGI") has conducted its quarterly, regional CO2 allowance auctions using EnerNOC's technology-enabled services since RGGI's inception.[3] By revenue and volume, EnerNOC is one of the top U.S. energy procurement specialists.

Q. Please describe the types of energy users and utilities who use EnerNOC's procurement services.

A. EnerNOC procures electricity, natural gas, and other commodities for some of the largest end-users in the country, including the federal government, several state governments, large commercial and industrial entities, and for utilities. Included in the over 100 utilities that have partnered with EnerNOC are Delmarva Power, Con Edison, Dominion, and

[2] EnerNOC is a direct market participant in ISO-New England, providing curtailment services by actively managing demand-side resources, namely large energy users. After enrolling such commercial and industrial end-use customers throughout New England to curtail power use upon receipt of signals from ISONE and to receive economic incentives for doing so, EnerNOC implements its demand response program through automated, aggregated, and intelligent management of end-user lighting, HVAC, distributed generation, and industrial process equipment. These large energy users are connected to our Network Operations Center (the "NOC" in EnerNOC) and communicates real-time load data over a secure Internet connection, allowing our operations staff to monitor and verify demand-side power reductions in real time.

[3] These 40 auctions have generated almost $187,000,000 in benefit to New Hampshire.

Consumers Energy. EnerNOC also currently supports a number of Default Service and Standard Offer Service programs for both electric and natural gas utilities.

Q. Please describe the types of procurement services EnerNOC provides utilities.

A. EnerNOC provides its partner-utilities with a range of services, from a comprehensive suite of procurement services to a narrowly defined set of services, namely, highly efficient technology-enabled bid collection and analysis, and associated reporting, with the clear objective of delivering successful procurement outcomes. When working with a new utility partner, EnerNOC honors and values the legacy components of the utility's procurement process with no impact to rate structures, classes or rate designs, and seeks to integrate nearly seamlessly with the utility's existing procurement processes. Depending on the procurement objectives of the utility, EnerNOC will tailor its process and procurement methods to achieve a successful, efficient procurement. In delivering procurement services, EnerNOC primarily uses the following methods: sealed bid auctions, descending clock auctions, and live, online reverse auctions. To determine which auction method is most appropriate, EnerNOC – in partnership with the utility – evaluates procurement goals and market conditions to identify a best-fit method of procurement. With experience in running tens of thousands of auctions, using numerous auction methods, EnerNOC has observed that live, online reverse auctions offer significant advantages in delivering the most competitive prices with the most transparency.

Q. Please describe EnerNOC's procurement process.

A. EnerNOC's standard procurement process, as outlined below, can be summarized in three phases: Pre-Auction, Day of the Procurement, and Post-Procurement.

EnerNOC takes direction from the utility partner and is able to perform as many or as few tasks that are necessary for a successful procurement event. In some instances, EnerNOC

helps a utility partner define the scope and strategies associated with a transaction. In other instances, EnerNOC is largely engaged for the last part of the procurement, namely, the automation of the bidding process and implementation of technology-enabled auctions. For an Eversource procurement event, EnerNOC would expect to focus on automating and enhancing the bidding process with technology-enabled auctions.

Pre-Auction

Prior to the release of a RFP, EnerNOC and the utility will generally undertake the following steps:

- Define the scope of the procurement event;
- Review the product(s)/contract(s) (confirm what is being transacted, start date, duration, and volume of the transaction);
- Review the bidder qualification process and review potential bidders;[4] and
- Develop an auction strategy, including a structure for sequencing the bidding on various products (overall, the "auction structure").

Following the release of a RFP (and as requested by the utility), EnerNOC is able to assist with counterparty origination efforts,[5] aide in driving uniformity among counterparties, enable contracts with counterparties, collect market feedback, train on auction platform, and hold a Question-and-Answer period. All of this is designed to ensure robust participation from a well-qualified and well-informed group of suppliers during the

[4] In this testimony, we refer to the participants who engage on the platform, and are not our utility partner, as "counterparty(ies)", "supplier(s)", "bidder(s)", and "participant(s)" depending on the role in which the participant is engaged.

[5] Origination of bidders entails comprehensive recruitment of potential bidders, including but not limited to notifications to bidders who have used the EnerNOC platform in the past, advertising in trade press, phone calls, and communicating with the potential 230 suppliers and members of the New England Power Pool Markets Committee.

procurement. Again, EnerNOC is able to partner with the utility, and assist with as many or as few of the aforementioned steps as the utility wants.

Day of the Procurement

On the date and time of the procurement, qualified bidders, our utility partner, and external regulators/stakeholders log in to the EnerNOC platform. EnerNOC team experts run the auction event(s), which includes supporting bidders and regulators, actively monitoring the bidding process, implementing any planned adjustments as needed, reporting, and supporting the award allocation process.

The majority of our utility partners prefer to run live, online reverse auctions. For these auctions, there are strict time limits and auction rules regarding bidding. The auctions are designed to drive the most competitive bidding behavior. Bidders begin by entering a bid at or below the pre-determined opening bid value, which the utility determines in advance in consultation with EnerNOC. Bidders are only able to access pricing feedback in an auction if they enter a bid; without entering a bid, there is no ability for them to simply watch auction price movements. As time progresses, bidders enter lower and lower bids in order to best their competitors. Bidders do not see who else is bidding or how many other bidders there are. Bidders only see the prevailing low price and the time remaining in the auction. This level of price visibility is significant. Without the price discovery that live, online reverse auctions provide, bidders are only able guess how their competitors will bid. Depending how well they guess, they may or may not win the business. With the price discovery that live, online reverse auctions provide, the winner is the most competitive bidder, not the best guesser. In the final seconds of most live, online reverse auctions, as bidders are entering their final bids, they no longer have time to view, interpret, and

respond to their competitors' lower bids. As such, the end of each auction drives bidders to submit their best and final offer, which drives prices even lower.

Post-Procurement

Following all procurement events and as requested by the utility, EnerNOC provides analytical support and procurement reports to support award decisions. EnerNOC's utility partner makes and communicates all final award decisions per their defined process, likely similar to specifications outlined in their legacy RFPs. In the 10-14 days after a procurement event, EnerNOC partners with the utilities to create full scope, fully-auditable event reports, to respond to *ad hoc* requests from the utility and suppliers, and to conduct future event planning and discuss future improvements. EnerNOC provides post-procurement-event assistance as needed, reporting and otherwise, to external regulators/stakeholders.

III. COMPARISON OF PROCUREMENT METHODS

Q. What is the purpose of this section?

A. To provide information on the different procurement methods utilities typically use to procure energy for their default energy service customers, and to compare those methods.

Q. Are you familiar with how Eversource procures Full Requirements Energy Service for its customers on PSNH's Energy Service tariff?

A. Yes. Eversource uses the sealed bid method.

Q. Please briefly describe the sealed bid approach, currently used by Eversource to secure Full Requirements Energy Service for its customers on PSNH's Energy Service tariff.

A. From our understanding of the sealed bid approach currently in use by Eversource and other utilities, each qualified bidder downloads a Microsoft Excel spreadsheet containing a

bid form from the Eversource website, opens the spreadsheet/bid form, enters their company name, enters their offer prices for small and/or large customer classes, saves the spreadsheet, and sends their spreadsheet via email to Eversource by a pre-determined deadline. Throughout the sealed bid process, bidders are without any knowledge, direct or indirect, of what other parties are offering, or even if other parties are offering at all. After bidders have sent their individual spreadsheets via email, the utility's procurement administrator reviews the various bids in the various spreadsheets, and, based on predetermined criteria, selects the best offer or offers.

Q. Aside from the sealed bid method, what other common approaches do utilities use to procure energy for Default Service and/or Standard Service customers?

A. The two other most common approaches are multi-round descending clock auctions ("DCA") and live, online reverse auctions. Compared to the sealed bid method, these methods typically use technology platforms that enable an interactive experience for bidders, price discovery, and a transparent bidding process.

Q. Please describe multi-round descending clock auctions.

A. Descending Clock Auctions (DCAs) are auctions that are designed to secure a specific volume of a commodity at a uniform price. These auctions are conducted over multiple rounds in which all bidders are given the same set price, and each responds with a corresponding volume that they would provide at that price. Bidders cannot see the volume that other bidders offer or how many other bidders are participating in the auction. If the sum of the offered volumes from all bidders exceeds the volume the auction manager is seeking to secure, the auction manager will initiate another round at a lower set price. Once again, all bidders offer the volume they would deliver at that lower price. The rounds continue until the sum of the volumes that the bidders offer equals what the auction

manager needs.[6] At that point, the auction manager declares the auction over, and awards each bidder the volume they offered at the same fixed, uniform, price. The DCA typically requires the most significant time commitment from bidders, as the duration can last 1-2 full days. A prevailing feature of the DCA is the elimination of outlier bidding; as there are no outliers, this method avoids "the winner's curse." Another characteristic is that all bidders are able to compete with the volume they have to offer.

Q. Please describe live, online reverse auctions.

A. Reverse auctions, as a broad category, are simply auctions where bid prices go down instead of up. A live, online reverse auction is a type of reverse auction that is a single round event with a finite start and end time that generally lasts 10-15 minutes. A best-practice design feature of such auctions, including the live, online reverse auctions run by EnerNOC, is that throughout most of the auction, bidders – once they have placed an initial bid within the auction – can see the prevailing best bid. This allows for real-time feedback/price discovery and, nearing the end of the live, online reverse auction, there is generally a "last bid blind" feature. In roughly the last 10 seconds of such an auction, if a bidder wishes to bid, they must place a "best and final" bid without the benefit of being able to respond to the prevailing best bid amount or other critical auction details. In EnerNOC's experience, the inability to respond to price movements in the final moments of an auction leads to aggressive competition among bidders and pushes prices lower.

Q. Please summarize the key differences between these three auction methods.

A. As referenced previously, the biggest differences between traditional sealed bid practices and the DCA and live, online reverse auction methods are efficiency enabled by

[6] In practice, if the total offered volume drops below total requested volume, one of various end-of-auction scenarios is implemented.

technology, and increased competition amongst bidders. The typical utility sealed bid process requires that bidders independently communicate their bids via email or similar communication tool, and a utility employee or consultant on the procurement team compiles, analyzes, and reports on the bidding outcomes. In comparison, DCA, and live, online reverse auctions have interactive technology platforms that can automate many of these steps and engender greater competition amongst bidders.

A benefit and purposeful design feature of technology-enabled auctions, common to both DCAs and live, online reverse auctions, is price discovery, which sealed bid specifically does not provide.

While a DCA has more price discovery than a sealed bid, the DCA has limited price discovery compared to the live, online reverse auction. In a DCA, the auction administrator sets and shares the price (which all bidders know) and bidders indicate their desired volume or share of what is procured. Bidders can only discern that other competitors are willing to accept a certain price, as a final clearing price is uniformly paid to the bidders. This subtlety is important: All bidders are paid a uniform price, which is fixed by the least-competitive bid of a set of engaged bidders. If one or more of the bidders could offer a better bid, they do not need to.

In a live, online reverse auction, there is real-time, dynamic, price discovery throughout the auction, as bidders can see what the prevailing best bid is, yet cannot see volume. Market action and back-and-forth competition among bidders drive the price down, as we have seen individuals repeatedly improve their bids throughout the auction to win the business. Finally, since it is only a single round, a live, online reverse auction tends to be a short-duration event, with the shortest period between when bidders submit bids, the end of the auction, and when a bidder has an idea of whether they have the lowest bid. In our opinion,

this real-time, dynamic price discovery and short auction duration facilitates the most competitive auction outcome possible.

Q. Are live, online reverse auctions only effective when there are ample amounts of bidders participating?

A. No. Some people are concerned that, if bidders sense that there are only a few other bidders in a live, online reverse auction, bidders will not be as aggressive in offering lower prices. In practice, that does not occur for these reasons:

1. Bidders do not see how many other bidders are participating in live, online reverse auctions. Bidders only see a prevailing low price and the time remaining in such an auction. They never know if there are 3 other bidders or 6 other bidders.

2. Even in live, online reverse auctions with many bidders, some bidders do not get aggressive until the end of an auction in order to outbid their competitors. As such, throughout the auction, bidders never know if there are other bidders strategically waiting for the last moments to bid. To optimize their chances of winning, a bidder is incented to put their best-and-final bid in at the last moment.

3. EnerNOC has designed and run thousands of online auctions for unique commodity products. Auction design does not exist in a vacuum. Market dynamics, timing, counterparty interest, and the goals of a utility should all play a role in auction design. Live, online reverse auctions are a valuable tool, but if a different auction design better suits a particular product, the best design should prevail. A utility need not adopt a one-size-fits-all method and become beholden to it for all products. A dynamic approach to auction design makes sense given the dynamic markets in which Eversource operates. EnerNOC offers a no-risk model. EnerNOC's 99% award rate in auctions does show that the process is able to meet or exceed expectations nearly every time.

Q. Are prospective bidders likely to push back on a new procurement method?

A. Technology-enabled auctions are widely used in the utility space, and as such, bidders have grown accustomed to utilizing these sourcing methods. EnerNOC alone has worked with hundreds of unique bidders across tens of thousands of auction events and has seen little to no attrition in bidder participation with a new procurement method. Bidders appreciate the valuable feedback from technology-enabled auctions, most importantly price discovery, which contributes to easing the transition from legacy procurement constructs to technology-enabled auctions.

IV. ADVANTAGES OF TECHNOLOGY-ENABLED AUCTIONS

Q. Is it your opinion that live, online reverse auctions will stimulate more competition for Full Requirements Energy Service rates for Eversource customers on PSNH's Energy Service tariff than possible under the current sealed bid approach?

A. Yes. With all procurements, a key element is to design the procurement event to maximize the probability for a successful outcome; market conditions, participants, and desired procurement outcomes are key elements to determining the best method for procurements, including for when to use auctions.

Q. Please explain this opinion.

A. Technology-enabled auctions enable price discovery, which is key to driving competitive bidding behavior. Price discovery is not possible – by design – with a sealed bid process. In EnerNOC's experience, this price discovery and real-time feedback drives bidders to be more competitive and produce the best possible prices. EnerNOC's position is not to suggest that Eversource and other utilities have erred in any way by using the sealed bid method; sealed bids do work and remain a valuable model in some instances. However,

there has been an evolution in best practices for electricity procurement toward technology-enabled auctions.

Q. In your opinion, what are the other advantages that you see to technology-enabled auctions relative to a traditional sealed bid?

A. The use of technology platforms can lead to increased transparency. Platforms can provide a highly auditable record of every bid and every communication in one place. Live, online reverse auctions also provide quicker feedback to bidders on whether or not they had/have the lowest bid. This is a function of real-time price discovery and in the case of the reverse auction, a single round auction. Further, narrowing the time between when bids are submitted and when a bidder has an idea that they had the lowest bid may contribute to reducing risk premiums, as bidders are more likely to be willing to accept the risk associated with minor market movements prior to an award being made.[7]

Q. Does the live, online reverse auction capture any elements of a sealed bid?

A. Yes. Industry best practices include, during live, online reverse auctions, a "last bid blind" feature, during which in the last ten or so seconds of these auctions bidders do not have the time to both gather the latest pricing feedback and respond with an offer based on that most recently available feedback. This is because placing a bid takes several seconds, and when entering a bid, a bidder cannot see the prevailing low bid. Those waning seconds capture the sealed bid element of bidding blindly in competition with others. With that

[7] We note that the Commission's February 22, 2018 Order in DE 18-002 directed Staff "to draw on its substantial experience in reviewing these types of solicitations, as well as on the experience of other state commissions, and file a proposal for improving our procedures no later than September 1, 2018. In preparing its proposal, Staff's primary considerations should be decreasing retail rates by mitigating potential supplier risk premiums associated with the solicitation process and timelines, and increasing administrative efficiency [emphasis added]. Staff should identify any statutory and rule changes that may be necessary to implement its recommendations." Public Service Company of NH D/B/A Eversource Energy, *2018 Energy Service Solicitation,* Docket No. DE 18-002, Order No. 26,104 (February 22, 2018) at 8.

'last bid blind' dynamic, EnerNOC has repeatedly seen leading bidders outbid *themselves* to win, leading to additional ratepayer savings.

Q. For added context, please provide an analogous example demonstrating the importance of price discovery that is not related to the energy industry.

A. Auction houses such as Sotheby's use live auctions that have price discovery. One example is purchasing a desirable piece of art. We recognize that purchasing art and procuring energy commodities are very different purchases, as purchasing art is likely to include criteria based on emotion. Yet the value of price discovery can easily be demonstrated using an example from the art world. Consider if an auction house used a sealed bid method to sell a valuable painting, and that there are two bidders who want the painting. Buyer A has a budget and willingness to pay $10,000 but is confident they can win with a bid of $9,000, Buyer A will likely bid close to $9,000. However, if the auction house used a live auction, and Buyer A sees Buyer B bid $9,900, Buyer A will go right to their limit and bid $10,000. Without price discovery, the art would have sold for $9,900. With price discovery, the art sells for $10,000, and the seller gains the additional $100. As noted in the Energy and Environmental Economics study discussed in greater detail on page 24 of this testimony, with price discovery, "they can better infer the common price expectation relative to their own private costs."[8] In the art world case, price discovery makes the potential buyers less inclined to bid conservatively.

Q. Please explain how this example is analogous to Full Requirements Energy Service procurements in New Hampshire.

[8] Woo, Chi-Keung, Karimov, Rouslan, Horowitz, Ira. Energy and Environmental Economics, Inc and Warrington College of Business, University of Florida. 2004. *Managing Electricity Procurement Cost and Risk by a Local Distribution Company* p. 16. ("Woo, et. al").

A. Under a sealed bid, bidders bid what they think the utility will accept, balanced against their own profit/margin objectives, and against what they feel is required to be competitive against other bidding parties. Although a bidder usually has a certain cut-off point for how low they are willing to bid, they are not inclined to bid at or near this cut-off point if they think they can win with a higher bid. Under a live, online reverse auction, if a bidder sees that they can only win if they bid as low as their cut-off point, they will bid at their cut-off point, and full requirements energy service customers will benefit from the lower price. To an extent, the same is true of the DCA, where a bidder can remain in the auction as long as the price for that round is above their cut-off point.

Q. What goes into selecting and designing an appropriate procurement method?

A. In planning any procurement, the design of the auction architecture is paramount to maximizing the probability for a successful outcome. The auction designer has to consider elements including market conditions, participants, and desired procurement outcomes to determine the best method for the procurement.

After a product, target date for release, and other key elements are determined, and after an RFP has been released, but before the auction is run, EnerNOC and the utility will meet to discuss, among other items, the opening prices, the number of bidders who have agreed to bid, and their feedback. The utility sets the opening price based on the market, in consideration of the utility's willingness-to-pay and risk management policies, and this action prevents any bidder from achieving outlandish gains by winning the auction at a much higher price point. If a given product is not shaping up to be competitive, the utility may decide to employ a different procurement method, or they may choose to adjust the timing of the auction. If it is clear there will only be two bidders, a well-designed live, online reverse auction can potentially still deliver a competitive outcome.

In EnerNOC's experience, those scenarios are very rare, but the important point is that there is no requirement to run the auction at a specific date and time if it does not look as though there will be competitive results. EnerNOC maintains a 99% award rate for auction-based procurement events, and a 100% approval record from utility commission for overseen auctions, meaning our utility partners and the commissions overseeing those utilities have consistently found the auctions to deliver competitive results.

It is also worth noting that during live, online reverse auctions, bidders see a prevailing low price during these auctions, but they do not see the number of bidders or the number of bids. They have no idea if the relative paucity of bids is a sign of fewer bidders or a strategic play by their competitors. In the final moments of a live, online reverse auction, in the time it takes to enter a bid, the auction effectively becomes blind where each supplier can enter a 'best bid blind'. A supplier could wait until the last second to enter their "best and final" bid and EnerNOC's process is able to capture that type of bidding activity even when the number of bidders is low.

For the most competitive results, auction designs must consider architectural elements and the strategies of bidders. EnerNOC partners with utilities and works hand-in-hand with them to design the best model. Having vast experience with the competitive behavior of bidders, EnerNOC is able to offer guidance on the best model to foster and spur competitive behavior.

Q. Are EnerNOC's procurement events binding for the utility?

A. No. EnerNOC's auctions are non-binding for the utility, until a transaction confirmation is executed. EnerNOC does significant work without obligation, knowing that the results speak for themselves. If the utility does not find the price the procurement event has

produced as acceptable, EnerNOC's utility-partner can walk away without making an award, and with zero out-of-pocket financial penalty for them or for their suppliers.

V. INTERNATIONAL AND ACADEMIC OPINIONS OF TECHNOLOGY-ENABLED AUCTIONS

Q. Do independent experts conclude that alternative methods to a sealed bid process can achieve more competitive outcomes? Please explain.

A. Yes. In 2011, the World Bank issued its extensive study of electricity market auctions. It stated:

> "Most of the energy auctions carried out as part of the first generation of power sector reforms have been designed as sealed-bid auctions. This methodology was the basis for the development of PPAs supporting capacity expansion. It is still used extensively, particularly in places with many sellers and one buyer. However, alternative designs such as the descending clock auction have revealed many advantages over traditional sealed-bid auctions. A clock auction enables an efficient price discovery, and is therefore conducive to more aggressive behavior among bidders, thereby resulting in lower prices [emphasis added]."[9]

Q. Has Commission Staff and/or consultants to the Commission contemplated using alternative procurement methods? Please explain.

A. Yes, as part of the divesture process for generation owned by Eversource, Non-Advocate Commission Staff witness Professor Peter Cramton from University of Maryland (an

[9] L. Maurer and L. Barraso, *Electricity Auctions, An Overview of Efficient Practices*, The World Bank, p. xvii (2011) eISBN: 978-0-8213-8824-2. https://openknowledge.worldbank.org/bitstream/handle/10986/2346/638750PUB0Exto00Box0361531B0PUBLIC0.pdf;sequence=1

expert on auction theory and practice) recommended a "simultaneous ascending clock auction" process to maximize the total value of the assets.[10] Staff highlighted that this process included price discovery, stating, "Please note that under this process, bidders will not be identified by name but their bid amounts will be observable to the other bidders in the auction."[11]

Q. Why did Professor Cramton believe price discovery was important?

A. Professor Cramton stated:

> "The divestiture auction design described above maximizes revenues by curtailing bidders' tendency to bid very conservatively in order to avoid the 'winner's curse.' The winner's curse refers to the tendency for the winning bid in an auction to exceed the intrinsic value of the item purchased. Because of incomplete information, bidders can have a difficult time determining the item's intrinsic value. As a result, the largest overestimation of an item's value ends up winning the auction. In view of the winner's curse, rational participants in common value sealed bid auctions will bid less aggressively in order to avoid or at least minimize its effect. The ascending auction mitigates the winner's curse because the auction enables bidders to draw inferences about asset values from the demands of others [emphasis added].
>
> As the auction progresses, bidders can use the developing pattern of prices as summary information about their rivals' assessments of factors that would affect the valuations of all bidders, such as—in this case—economic

[10] Docket No. DE 14-238, Public Service Company of New Hampshire, *Determination Regarding PSNH's Generation Assets*, Testimony of Peter Cramton, September 18, 2015, p.7, at https://www.puc.nh.gov/Regulatory/Docketbk/2014/14-238.html

[11] Id., Testimony of Leszek Stachow, September 18, 2015, p. 15, at https://www.puc.nh.gov/Regulatory/Docketbk/2014/14-238.html

conditions affecting power prices in New Hampshire and ISO New England. This learning encourages more aggressive bidding and increases revenues [emphasis added]. The reason that learning encourages more aggressive bidding is as follows. Each bidder's valuation of a property is necessarily imperfect. Part of this valuation may reflect the bidder's unique characteristics, but the larger part depends on factors that affect all bidders such as the economic conditions referred to above. As bidders learn more about one another's' valuations—which will necessarily reflect these common factors—the less they will reduce their bids in an attempt to avoid the winners curse."[12]

Q. The testimony from Staff and Professor Cramton was in a docket specific to the divestiture of Eversource's generating assets. Do you believe that testimony is relevant to this proceeding?

A. Yes, it is relevant. Price discovery is critical for achieving the most competitive outcome in both circumstances. Technology-enabled auctions deliver this price discovery.

Q. Professor Cramton and Staff were recommending an ascending clock auction, and did not specifically mention a live, online reverse auction. Do you believe that Professor Cramton's logic is also applicable to a live, online reverse auction?

A. Yes. In the case of the divestiture, the objective was to get the highest possible bid, so the auction had to be ascending. Moreover, Professor Cramton stipulates that "learning encourages more aggressive bidding."[13] This learning happens during a live, online reverse auction, but not a sealed bid.

[12] Testimony of Peter Cramton, *Supra*, at 7.
[13] *Id*.

Q. **Are you aware that the Commission did not implement the recommendation from Staff and Professor Cramton for an ascending clock auction?**

A Yes. However, it does not appear that Staff withdrew their proposal. Staff wrote: "Based on Staff's concerns about the deterministic nature of the auction language in the original Settlement Agreement, Staff had proposed an alternative auction process. As set forth in the Litigation Settlement, the Settling Parties agreed to modify the Settlement Agreement to clarify that the final decision concerning the auction process is in the hands of the Commission with input from an auction advisor/manager. Staff agrees that the auction design should rest first and foremost with the auction advisor selected by the Commission, after being familiarized first with any particular conditions that the Commission believes might govern this auction process."[14]

Q. Are there other reports that highlight why price discovery is important in electricity auctions?

A. Yes. In a report by Energy and Environmental Economics, Inc. and the Warrington College of Business at the University of Florida, the authors analyzed a municipal utility auction in Florida and concluded that:

> "[p]rice discovery is important to both sellers and the [utility]. When sellers can see the evolution of competing price offers, they can better infer the common price expectation relative to their own private costs. The increased price information makes the sellers less inclined to bid conservatively so as to avoid the winner's curse, thus promoting price competition. From the [utility's] perspective, the

[14] Docket No. DE 14-238, Public Service Company of New Hampshire Determination, *Regarding PSNH's Generation Assets*, Supplemental Testimony of Leszek Stachow, January 26, 2016, p.7, at https://www.puc.nh.gov/Regulatory/Docketbk/2014/14-238.html.

auction helps uncover forward-contract prices that are otherwise unavailable or unreliable due to thin trading and other market imperfections (e.g., asymmetric information). This aids the [utility] to make a better-informed purchase decision."[15]

The thin trading markets referenced in the Florida study are relevant in New Hampshire (and other New England markets) where there are often few bidders for certain rate classes.

VI. STATE CASE STUDIES USING LIVE, ONLINE REVERSE AUCTIONS

Q. Are there other utilities in the Northeast region in fully deregulated territories that use live, online reverse auctions? Please name them if they have consented.

A. Yes, Delmarva Power in Delaware uses live, online reverse auctions to procure Standard Offer Service electric contracts.

Q. Please provide any documentation that explains why the utility chose to use a live, online reverse auction.

A. In 2008, Delmarva Power petitioned the Delaware Public Service Commission ("Delaware PSC") to move to a live, online reverse auction. In support of its request, it stated that the live, online reverse auction, "with its transparent price feedback on the prevailing lowest price, can potentially stimulate more aggressive bidding and improved competition among

[15] Woo, Chi-Keung, Karimov, Rouslan, Horowitz, Ira. Energy and Environmental Economics, Inc and Warrington College of Business, University of Florida. 2004. *Managing Electricity Procurement Cost and Risk by a Local Distribution Company* p. 16. ("Woo, et. al.").

suppliers. It is generally accepted that increased competition results in better prices for customers."[16]

Delmarva also stated that it "firmly believes that use of the reverse auction process is a proactive step that should be taken to achieve supply for its SOS customers at the lowest reasonable cost."[17] The Delaware PSC approved Delmarva's petition, finding "the World Energy reverse auction process has proven itself to be effective in achieving robust competition to provide energy supply to customers."[18] EnerNOC acquired World Energy in 2015 and the reverse auction process referred to by the Delaware PSC is the same procurement method to which EnerNOC is referring in this testimony. The Delaware PSC went on to note that:

> "the World Energy reverse auction process is a model that has experienced successful application to the wholesale market. Delmarva reported that the platform has been used in the recent past by Delmarva to procure supply for Virginia SOS customers. World Energy has been awarded a contract by the Regional Greenhouse Gas Initiative ("RGGI") to provide services related to the design and implementation of a regional greenhouse gas emissions allowance auction. In addition, the State of Delaware has successfully used the World Energy reverse auction process to obtain energy supply."[19]

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[16] Motion of Delmarva Power & Light Company to Adopt a Reverse Auction Process for Standard Offer Service Procurement, *In the Matter of the Provision of Standard Offer Supply to Retail Consumer in the Service Territory of Delmarva Power & Light Company After May 1, 2006*, Delaware , PSC Docket No. 04-391, September 19, 2008, p. 3.
[17] *Id.* at 5.
[18] Del PSC Order No. 7461, *In the Matter of the Provision of Standard Offer Supply to Retail Consumers in The Service Territory of Delmarva Power & Light Company after May 1, 2006*, Delaware PSC Docket No. 04-391, October 7, 2008, p. 4.
[19] *Id.* at 3.

Q. Please provide any documentation that summarizes the competitive nature of Delmarva's basic service procurements using the live, online reverse auction method.

A. The independent consultants utilized in Delaware to review the live, online reverse auction methods from year to year have repeatedly praised the results they watched in the auctions. For example, in 2016, the consultant for the Delaware PSC found that: "The auction process itself promotes competition due to EnerNOC's auction platform. It provides real-time feedback to induce competitive bidding behavior."[20] The consultant also highlighted: "Participation was higher than previous levels, too, and resulted in a competitive bidding process."[21]

In 2013, the PSC's consultant, Liberty Consulting proclaimed similarly that:

> "[e]ach of the blocks in each of the tranches received ample bids to create a competitive environment and prices that reflect the competition. Liberty attributes this bid activity to a combination of excellent information provided to power suppliers, and a well-run, relatively transparent auction provided by World Energy. World Energy's system provides useful bidder feedback to induce competitive bidding behavior."[22]

[20] Liberty Consulting Group, Technical Consultant's Final Report to the Delaware Public Service Commission, Delmarva Power & Light's 2015-16 Request for Proposals for Full Requirements Wholesale Electric Supply for Standard Offer Service, March 8, 2016, p. 6.
[21] *Id.* at 3.
[22] Liberty Consulting Group, Technical Consultant's Final Report to the Delaware Public Service Commission, Delmarva Power & Light's 2012-13 Request for Proposals for Full Requirements Wholesale Electric Supply for Standard Offer Service, March 5, 2013, p. 6.

Finally, for years prior to 2010, a separate independent consultant in Delaware opined that the World Energy process was "inherently and structurally open, fair, and transparent" and that the "price-only bid evaluation of a standard product is the ultimate in transparency."[23]

VII. FEDERAL USE OF LIVE, ONLINE REVERSE AUCTIONS

Q. Is the live, online reverse auction method used by the United States government?

A. Yes. The General Services Administration uses EnerNOC's reverse auction platform to procure energy.[24] The Executive Office of the President, through the Office of Management and Budget (OMB), issued a memo dated June 1, 2015 to Chief Acquisition Officers and Senior Procurement Executives highlighting the benefits of reverse auctions and how to get the best results using reverse auctions. The GSA's communication sought to encourage the education of all of the US Government's acquisition workforce of the "points and best practices" outlined in the memo. The memo clarifies that:

> "[a] reverse auction is a process for pricing contracts supported by an electronic tool where offerors bid down, as opposed to the traditional auction which required buyers to submit sequentially higher bids, the main goal of which is to drive prices downward. Offerors are given the opportunity to continually revise their prices during the bidding process until the auction closes. Multiple benefits have been identified with the use of reverse auctions…"[25]

[23] Boston Pacific Company, Final Report of the Technical Consultant on Delmarva's 209-1010 Request for Proposals for Full Requirements Wholesale Electric Power Supply to Delaware's Standard Offer Service Customers, February 16, 2010, p. 2.
[24] https://reverseauctions.gsa.gov/reverseauctions/reverseauctions/
[25] See Effective Use of Reverse Auctions (June 1, 2015), page 1, available at https://www.whitehouse.gov/sites/whitehouse.gov/files/omb/procurement/memo/effective-use-of-reverse-auctions.pdf

The OMB memo further describes price reduction and enhanced competition among the multiple benefits of reverse auctions.

VIII. RELIEF SOUGHT

Q. What relief is EnerNOC seeking from the Commission?

A. EnerNOC respectfully requests that the Commission approve and direct Eversource to utilize live, online reverse auctions to procure Full Requirements Energy Service for its customers on PSNH's Energy Service tariff over the course of the next three procurements (Spring 2019, Fall 2019, and Spring 2020).

Q. Why does EnerNOC suggest Eversource utilize live, online reverse auctions to procure Full Requirements Energy Service for its customers on PSNH's Energy Service and why does it suggest three procurements?

A. With the recent divestiture of its generation assets, Eversource procures more energy than any other utility in the state. Switching to a live, online reverse auction for Eversource has the potential to produce more savings, and robust data for evaluation, compared to a procurement event with a smaller utility. We have also discussed our auction platform at length with procurement professionals at Eversource, and contend that it can deliver significant value for them, and for their customers. Three procurements will provide Eversource and the Commission with a large enough sample size to evaluate the live, online reverse auction.

Q. Is EnerNOC seeking the Commission to approve the live, online reverse auction method for all regulated utilities in New Hampshire?

A. No. EnerNOC is aware that there was a general consensus in Docket No. IR 14-338 against imposing a uniform methodology for procurements and that changes in

procurement methods ought to be done in utility-specific dockets.[26] With the recent regulatory changes associated with the Eversource generation divesture, a change to the procurement method is timely. Once the Commission gains familiarity with live, online reverse auctions, it may be appropriate to consider encouraging New Hampshire's other utilities to use this auction method.

Q. Will EnerNOC support the Commission in evaluating the results of using a live, online reverse auction?

A. Yes. EnerNOC will support the Commission in its evaluative efforts, to understand the applicability and procurement outcomes of Eversource utilizing live, online reverse auctions. Within hours of the procurement event, the Commission can have data and reports from the procurement. Additionally, hard-copy reports and summary slides can be provided.

IX. PUBLIC POLICY SUPPORT

Q. What are some of the public policy reasons for seeking this relief?

A. According to the U.S. Energy Information Administration, New Hampshire residents and businesses pay among the highest electricity price in the country.[27] The Sununu Administration has emphasized the need to lower energy bills and provide relief to New Hampshire ratepayers.[28] The New Hampshire Public Utilities Commission has also noted New Hampshire's high electric prices.[29] EnerNOC believes that using the live, online

[26] Docket No. IR 14-338, Hearing Transcript of May 27, 2015 at 16.
[27] https://www.eia.gov/electricity/monthly/current_month/epm.pdf. See Table 5.6.B
[28] March 21, 2018 Press Release: *Governor Sununu Statement on HB 1550.* January 9, 2018 Press Release: *Governor Chris Sununu Statement on HB 317.*
[29] Docket No. IR 15-124, *Investigation into Potential Approaches to Mitigate Wholesale Electric Prices,* Order of Notice at 2. ("Overall, the average retail price of electricity in New England is the highest in the continental United States, posing a threat to our region's economic competitiveness.")

reverse auction in default energy service procurements will achieve more competitive outcomes and lower energy bills. While every procurement event is different, and while EnerNOC cannot guarantee similar results in New Hampshire, our experience running thousands of auctions suggests that the live, online reverse auction method will deliver more competitive outcomes than the current sealed bid approach.

Q. Are you aware that the Commission opened a docket to review various approaches to energy service solicitations?

A. Yes. EnerNOC has reviewed the filings and hearing transcript in that docket (Docket No. IR 14-338, *Review of Energy Service Procurement Processes for Electric Distribution Utilities*.) EnerNOC understands that the docket was opened to evaluate short-term improvements or adjustments that could be made to mitigate the price volatility of the energy commodity in response to extreme weather conditions.

EnerNOC is aware that in a New Hampshire Public Utilities Commission memo dated May 3, 2015, the Commission's Staff did not support a single state-wide procurement process and stated that a centralized State procurement could increase state administrative costs. Staff opined that utilities should be free to select the most competitive bid offering available.

X. <u>IMPLEMENTING LIVE, ONLINE REVERSE AUCTIONS IN NEW HAMPSHIRE</u>

Q. EnerNOC is seeking to implement live, online reverse auctions starting in the Spring of 2019. Please describe the length of lead time EnerNOC needs to implement a procurement event for a utility.

A. For EnerNOC's involvement, and for an auction of this size and complexity, a one-month period is sufficient for a first event. To be clear, this would not be adding a month to Eversource's existing procurement processes, but would fit within the current process. EnerNOC partners with utilities that bring products to market within hours, days, or weeks. The product set, the market, origination efforts, and complexity of the auction structure are factors that determine the amount of lead time needed to implement a procurement event. Generally, EnerNOC's partners experience shorter times to market than they experienced prior to partnering with EnerNOC.

Q. Please describe how a live, online reverse auction platform would impact the Commission with regard to default energy service procurement.

A. Live, online reverse auctions leverage second generation procurement technology that increases the transparency of auctions. The benefit to Commissioners and Staff is that post-auction analysis is far easier and efficient. An added benefit is that, because these auctions are live, and brief in duration, it enables Commission and Staff to join in an observational capacity to further assess the competitiveness and the integrity of the procurement.

Another benefit is the increased administrative efficiency that a technology-driven process delivers. For example, using electronic time-stamping of bids, and providing immediate documentation allows the Commission to review and approve the procurement event with speed and confidence in the process.

The effects a live, online reverse auction platform would have for the Commission are consistent with current areas of focus, for example:

- In approving Eversource's most recent procurement event results, the Commission recognized the need for more efficient administrative process, and instructed Staff

to prepare a proposal by September 1, 2018, stating "primary considerations should be decreasing retail rates by mitigating potential supplier risk premiums associated with the solicitation process and timelines, and increasing administrative efficiency. [emphasis added]"[30]

- In that approval process, Eversource recently noted to the Commission, that compressing the timeframe for approval minimizes the risk premium suppliers add to their prices.[31] Lowering risk premiums should benefit ratepayers.

Q. Please describe any new barriers or technical requirements that suppliers would face with the live, online reverse auction compared to the current Eversource approach, or any barriers that would be removed.

A. There are no new barriers or significant technical requirements. Many suppliers who are currently competing to serve this load undoubtedly have experience with the EnerNOC platform. All suppliers are required to receive EnerNOC-hosted training on how to use the platform. That requirement is the sole one that new or experienced suppliers would face. The technical requirements which suppliers need to meet are minimal – suppliers need access to the internet, and need to use modern web browsing software (Internet Explorer, Google Chrome, Mozilla Firefox, and Apple Safari are all web browsers that comply with technical requirements of EnerNOC's process). Suppliers receive in-depth training on how to participate in EnerNOC platform-driven procurement events prior to their participation. On auction day, suppliers need only to log into the platform and place their competitive bids, eliminating the barrier of completing and submitting bids using spreadsheets.

[30] Docket No. 18-002, Public Service Company of NH d/b/a Eversource Energy, *2018 Energy Service Solicitation*, Order Following Hearing, Order. 26,104 (February 22, 2018) at 8.
[31] Docket No. DE 18-002, Hearing Transcript dated February 14, 2018, at 61-64.

Q. Do you expect that most of the suppliers who are currently participating in Full Requirements Energy Service procurements in New Hampshire are familiar with the live, online reverse auction process and EnerNOC's platform?

A. Yes.

Q. Would adopting a live, online procurement method change a utility's ability to set qualifications for bidders?

A. No. Legacy qualification methods and mechanisms would remain, among other criteria. These critical elements remain the purview of the utility.

Q. Would adopting a live, online procurement method limit a utility's ability to ladder procurements, select time periods, or segment procurements between residential, small commercial, large commercial, and industrial customers?

A. No. On the contrary, use of EnerNOC's technology should enable simpler and more efficient use of laddering and layering, different time periods, segments, and blocks.

Q. Why is now the right time to implement these procurement methods?

A. Implementing second-generation procurement technology fundamentally improves the competitiveness of bidding and as an outcome, ratepayers benefit through better pricing. It also makes the day-to-day operations of the Commission easier and more efficient, and it makes the utility administration of procurement events easier and more efficient.

Q. Does this complete your testimony?

A. Yes.