BEFORE THE STATE OF NEW HAMPSHIRE

PUBLIC UTILITIES COMMISSION

In the matter of:	**)**
New Hampshire Electric and Gas Utilities	**)**
Docket No. DE 17-136	**)**
2019 Update of 2018-2020 Statewide Energy Efficiency Plan	**)**

Direct Prefiled Testimony

Of

Chris Neme

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On Behalf of

The New Hampshire Office of the Consumer Advocate

Dated: **November 2, 2018**

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I. INTRODUCTION AND QUALIFICATIONS

Q. Please state your name, employer, and business address.

A. My name is Chris Neme. I am a co-founder and Principal of Energy Futures Group, a consulting firm that provides specialized expertise on energy efficiency, demand response and renewable-energy markets, programs, and policies. My business address is P.O. Box 587, Hinesburg, VT 05461.

Q. Please describe your educational background.

A. I received a Master of Public Policy degree from the University of Michigan in 1986. That is a two-year, multi-disciplinary degree focused on applied economics, statistics, and policy development. I received a Bachelor's degree in Political Science from the University of Michigan in 1985. My first year of graduate school counted towards both my Master's and Bachelor's degrees.

Q. Please summarize your professional experience.

A. As a Principal of Energy Futures Group, I play lead roles in a variety of energy-efficiency consulting projects. Recent examples include:

- Representing the Natural Resources Defense Council (NRDC) in Illinois, Michigan, and Ohio consultations with utilities and other parties on efficiency and demand response program design, cost-effectiveness screening, evaluation and shareholder incentive structures; the development of non-wires alternatives pilot initiatives; and other related topics;
- Serving as an appointed expert on the Ontario Energy Board's Evaluation and Audit Committee for natural gas demand-side management, as well as on related committees to provide expertise on efficiency potential studies;

- Serving on the Management Committee and leading strategic planning for a team of firms, led by Applied Energy Group, hired by the New Jersey Board of Public Utilities to deliver the New Jersey Clean Energy Programs;
- Co-authoring the *National Standard Practice Manual for Assessing Cost-Effectiveness of Energy-Efficiency Resources* (May 2017)[1] and assisting state regulators and others in understanding and applying the manual;
- Helping Green Mountain Power (Vermont) forecast the effects of strategic electrification on future electric sales, as well as to design its plan to comply with state requirements to reduce its customers' direct consumption of fossil fuels (including through electrification);
- Drafting and/or reviewing policy reports for the Regulatory Assistance Project on a range of distributed energy issues, including *U.S. Experience with Efficiency as a Transmission and Distribution System Resource*.[2]
- Co-authoring the Northeast Energy Efficiency Partnerships' 2015 report *Energy Efficiency as a T&D Resource: Lessons from Recent U.S. Efforts to Use Geographically Targeted Efficiency Programs to Defer T&D Investments*.[3]

Prior to co-founding Energy Futures Group in 2010, I worked for 17 years for the Vermont Energy Investment Corporation ("VEIC"), the last 10 as Director of its Consulting Division managing a group of 30 professionals with offices in three states. Most of our

[1] National Standard Practice Manual for Assessing Cost-Effectiveness of Energy Efficiency Resources. (Spring 2017) Available at: https://nationalefficiencyscreening.org/national-standard-practice-manual/

[2] Neme, C. and Sedano, R. Regulatory Assistance Project. U.S. Experience with Efficiency as a Transmission and Distribution System Resource. (February 2012) Available at https://www.raponline.org/wp-content/uploads/2016/05/rap-neme-efficiencyasatanddresource-2012-feb-14.pdf.

[3] Neme, C. and Grevatt, J. Energy Futures Group, on behalf of Northeast Energy Efficiency Partnerships' Evaluation, Measurement, and Verification Forum. Energy efficiency as a T&D Resource: Lessons from Recent U.S. Efforts to Use Geographically Targeted Efficiency Programs to Defer T&D Investments. (January 2015) Available at: https://neep.org/sites/default/files/products/EMV-Forum-Geo-Targeting_Final_2015-01-20.pdf

consulting work involved critically reviewing, developing, and/or supporting the implementation of electric, gas, and multi-fuel energy-efficiency programs for clients across North America and beyond.

During my more than 25 years in the in the energy-efficiency industry, I have worked on clean energy policy and program issues for clients in more than 30 states, half a dozen Canadian provinces, and several European countries. A copy of my curriculum vitae is attached as Attachment CN-1.

Q. Have you previously filed expert witness testimony before the New Hampshire Commission?

A. No.

Q. Have you been an expert witness on energy-efficiency matters before other regulatory commissions?

A. Yes, I have filed expert witness testimony on more than 50 occasions before similar regulatory bodies in 11 other states and provinces: Connecticut, Illinois, Maine, Maryland, Michigan, New Jersey, North Carolina, Ohio, Ontario, Quebec and Vermont.

Q. Have you included any attachments with your testimony?

A. Yes. I have provided 13 attachments which are summarized after my table of contents and appended to my testimony. From what I understand, the New Hampshire Public Utilities Commission cannot click-through to file sharing servers where I have provided a shared link to references which are not otherwise available on the web, so I have included such references, as well as my resume, two reports on geo-targeting which I have co-authored, and 4 relevant discovery responses, as attachments.

II. TESTIMONY OVERVIEW

Q. What is the purpose of your testimony?

A. My testimony addresses the potential value of adding non-wires alternatives (NWA) pilot programs to the New Hampshire utilities' 2019 efficiency program portfolios.

Q. How is your testimony organized?

A. I begin by briefly discussing the concept of NWAs and how geographically-targeted efficiency programs can serve as NWAs. I then discuss the likelihood of potential application of NWAs in New Hampshire, how pilot energy efficiency NWAs could be structured and the rationale for considering such pilots in this docket.

Q. What are your summary findings?

A. A summary of my findings is as follows:

1. NWAs, including NWAs relying exclusively on energy efficiency, have been shown to be cost-effective alternatives to traditional T&D investments in many other jurisdictions;
2. It is highly likely that there are elements of the New Hampshire utilities' distribution systems that would be good candidates for NWAs;
3. Launching efficiency-focused pilot NWA projects as part of the utilities' 2019 energy efficiency plans would enable the utilities and the state to learn a great deal, helping to inform future policy and least-cost distribution system planning;
4. There is likely no downside to launching such pilot NWAs because the efficiency resources that would be acquired as part of such pilots are highly likely to be cost-effective – because of the range of other benefits they provide (e.g. avoided energy and avoided capacity costs) – even if the projects fail to defer capital investment in the utilities' distribution systems; and

5. Though, in the long-run, it may be ideal to consider NWAs in other types of dockets that enable consideration of all distributed energy resources (rather than just energy efficiency), it is better to launch limited, efficiency-focused NWA pilots to begin learning now rather than waiting for a comprehensive framework for NWAs to be put in place.

III. THE CONCEPT OF NON-WIRES ALTERNATIVES (NWAs)

1. Overview of NWAs

Q. What is a Non-Wires Alternative (NWA)?

A. The term non-wires alternative (NWA) refers to the strategic deployment of distributed energy resources (DERs) – in specific geographic areas – to defer or eliminate the need for capital investment in the T&D system that would otherwise be needed.[4] DERs can include energy efficiency, demand response, energy storage, and/or distributed generation.

Q. Can NWAs be alternatives to any kind of T&D investment?

A. No. For example, it is usually not possible for NWAs to defer or eliminate the need to replace aging T&D infrastructure assets or to address unexpected equipment failures that create immediate reliability concerns.

Q. For what types of T&D investments can NWAs be viable alternatives?

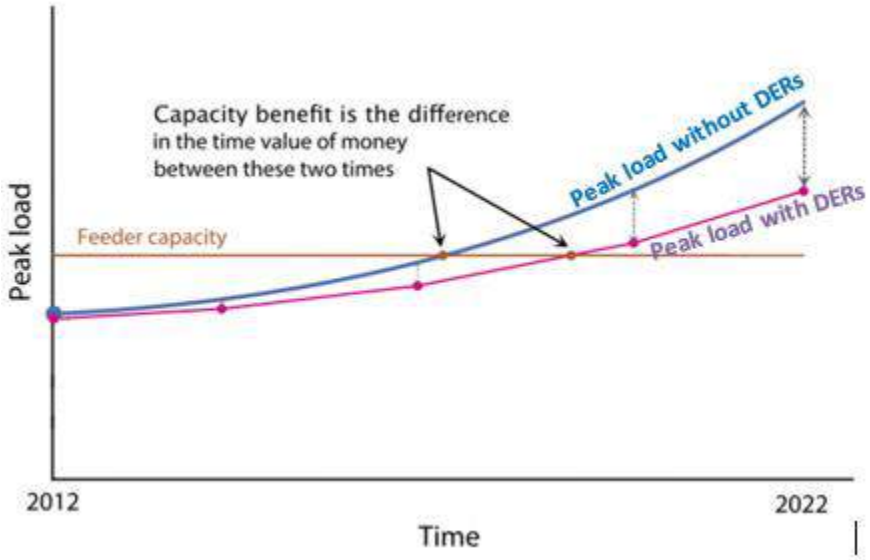
A. NWAs are most likely to be applicable when localized load growth is creating or is forecast to create a potential capacity constraint for one or more elements of the T&D system. In those cases, deployment of new DERs may be able to serve as a cost-effective alternative to capital investments associated with increasing the localized T&D system capacity.

It should be noted that although NWAs can sometimes completely eliminate the need for the traditional capital investment in the T&D system, that will not always be the case. Instead, they may be used to just *defer* the need for the traditional capital investment. Even deferring a planned capital investment for a few years "produces real value to ratepayers because customers

[4] I use the term "non-wires alternatives" (NWAs) throughout this testimony when referring to a range of alternatives to investment in the T&D system. That term is synonymous with "non-wires solutions", "non-transmission alternatives" (when referring to just the transmission portion of T&D), "grid reliability resources", "distributed energy resources", and other terms sometimes used by other parties. It should be noted that "non-wires" is an imperfect, "shorthand" term that is intended to refer to alternatives to a wide range of traditional T&D infrastructure investments, many of which – e.g. substations and/or transformers – are not really "wires.

delay paying for the project and its associated return on the utility's capital. If the cost of [the traditional upgrade] rises more slowly than the customers' discount rate, then paying in the future is better than paying in the present."[5] This point was made graphically in a presentation by Lisa Schwartz to the annual conference of the National Associated of State Utility Consumer Advocates (NASUCA) which I have reproduced and present below as Figure 1.[6]

Figure 1: Benefit of Deferring Traditional T&D Capital Investment



Q. Can you describe some of the barriers that may be inhibiting broader embrace of NWAs in the *transmission* system planning process?

A. There are several barriers to the broader embrace of NWAs in transmission system planning, but the manner in which costs are recovered is probably the largest. In ISO-NE, the costs of a transmission infrastructure investment are generally socialized across all ratepayers in the six-state region. However, in instances where a transmission project is deferred or avoided

[5] Hopkins, A. and Takahashi, K. Synapse Energy Economics. Alternatives to Building a New Mt. Vernon Substation in Washington, DC. (November 2017) Page 19. Available at: http://www.synapse-energy.com/sites/default/files/Mt-Vernon-Substation-17-105-17-047.pdf

[6] Schwartz, L. Lawrence Berkeley National Laboratory. PUC Distribution Planning Practices. (June 2018) Slide 6. Available at: http://nasuca.org/nwp/wp-content/uploads/2017/08/Schwartz-NASUCA-PUC-planning-practices-20180624.pdf

through investment in NWAs, the ratepayers of that state alone would shoulder the cost of the NWA incentives because such investments typically fall within the jurisdiction of the state public utility commission. This would be a significant problem for any embrace of NWAs in New Hampshire meant to actively defer a transmission project, since New Hampshire ratepayers represent only about 10 percent of the load in the ISO-NE region and therefore would only pay about 10 percent of costs associated with a transmission upgrade. Though several recent Orders from the Federal Energy Regulatory Commission have provided some guidance on consideration of non-transmission alternatives,[7] full embrace of such alternatives in the transmission planning process has yet to materialize in most areas of the country.[8]

Q. Can you describe some of the barriers that may be inhibiting broader embrace of NWAs in the *distribution* planning process?

A. While the general rule is that distribution is easier than transmission when considering NWAs,[9] there are still several barriers that inhibit the broader embrace of NWAs in the distribution system planning process.

First, utilities understandably take their obligation to provide safe and reliable service very seriously and tend to hold a degree of trust in the reliability of grid-side investments that they have not yet developed for demand side resources. Second, information asymmetries between the regulator and the regulated—particularly, information asymmetries related to distribution system engineering and planning choices—can be an impediment to regulators'

[7] *See* FERC Order 1000, stating "While we require the comparable consideration of transmission and non-transmission alternatives in the regional transmission planning process, we will not establish minimum requirements governing which non-transmission alternatives should be considered… [but Order 890 requires] public utility transmission providers are required to identify how they will evaluate and select from competing solutions and resources such that all types of resources are considered on a comparable basis."

[8] One notable exception is the Bonneville Power Administration. *See* generally, Fedie, R. Bonneville Power Administration. The Non-Wires Frontier, Lesson from Integrating Distributed Energy Resource into Grid Planning. Available at: https://tinyurl.com/BPANWAPaper

[9] *Supra*, at note 3. Page 58.

understanding of the savings opportunities associated with NWAs. Third, and perhaps most importantly, utilities' financial incentives are generally not well aligned with the objective of pursuing cost-effective alternatives to "poles and wires".[10] This suggests that utilities will focus spending on capital assets (such as poles and wires) because those are the assets on which they earn their return for shareholders.[11] On the other hand, absent policy changes, operating expenses such as a contract with a DER provider or a ratepayer funded investment in energy efficiency meant to alleviate the need for investment in a capital asset, may not provide the utilities' shareholders with such an earnings opportunity.

Q: Are other states in the Northeast analyzing and deploying NWAs?

A: Yes. There has been significant progress on the development NWAs in other northeastern states. In Figure 2 below I summarize and hyperlink to the projects undertaken and policies adopted in the other New England states plus New York.

[10] *Supra*, at note 3. Page 56.
[11] Lazar, J. Regulatory Assistance Project. Electricity Regulation in the US: A Guide. Second Edition. (June 2016) Page 86-87. Available at: http://www.raponline.org/wp-content/uploads/2016/07/rap-lazar-electricity-regulation-US-june-2016.pdf

Figure 2: State Policies and Notable Projects Related to Non-Wire Alternatives

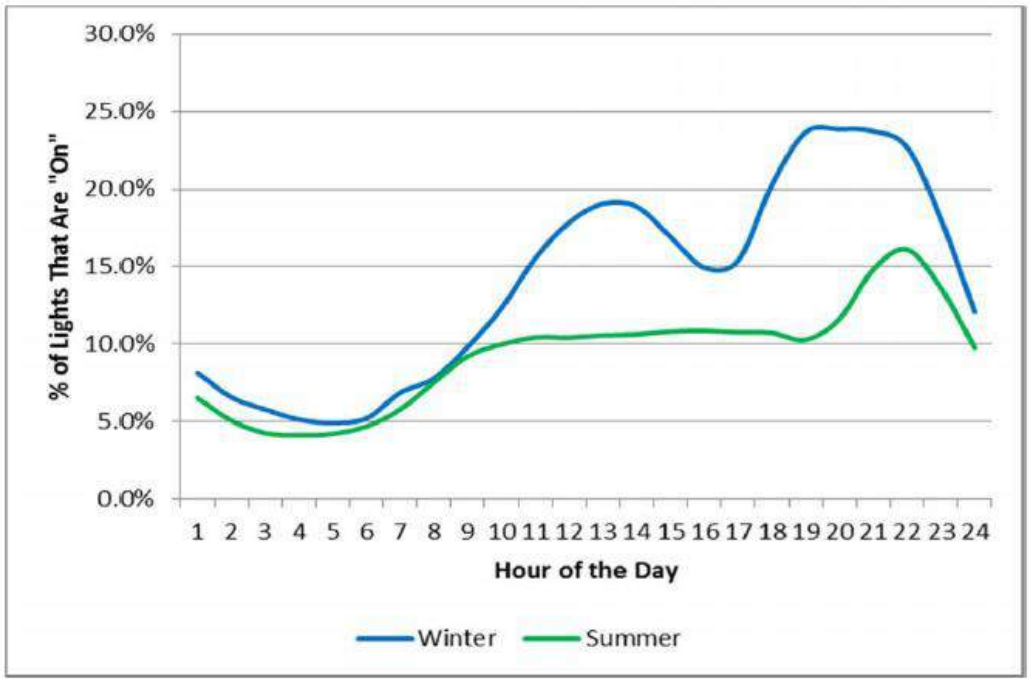
State	Key Policies	Notable Projects
New York	February 2015 PSC Oder Adopting a Policy Framework and Implementation Plan. Required each utility to file at least one NWA candidate. April 2016 PSC Order Adopting DSIP Guidance Established standardized process for utilities to identify NWA candidates. July 2018 DPS Staff Whitepaper Proposes sunsetting LSRV in favor of NWA solicitation processes identified in the DSIPs.	Con Edison began piloting NWAs in 2003. NY REV Connect NWA Site Identifies more than 40 projects at various New York utilities which today are at some stage of solicitation, evaluation, or deployment.
Vermont	2005's Act 61 required long range consideration of NWAs and established a collaborative planning process through a system planning committee. 2006 PSB Order significantly increases Efficiency Vermont budget for targeting of potentially load constrained areas. 2007 Memorandum of Understanding and Order establishing role, composition, and processes of Vermont System Planning Committee	Began piloting NWAs in the mid-1990s in the Mad River Valley, with several projects in the late 2000's, and statewide evaluation process continues until present. (p 24.)
Rhode Island	2006 System Reliability and Least Cost Procurement Law requires Commission to issue system reliability procurement standards. 2011 Commission Order approving least cost procurement standards for NWAs.	Tiverton-Little Compton Project began in 2012 and continues until present.
Maine	2010 Stipulation Agreement establishes to Non-Transmission Alternative (NTA) pilots to be administered by non-utility third party. 2013 Law requires consideration of NTAs. 2017 Hearing Examiners Report delegates NTAs and NWAs to independent third party, but subsequent Commission Order reverses course and delegates to utilities.	Booth Bay NTA pilot began in 2014. Portland Area NTA remains under consideration at PUC.
Massa-chusetts	H. 4857 (Approved August 2018) Requires the electric distribution utilities to develop heat maps showing constrained areas of the distribution system and solicit NWAs based on those maps.	National Grid filed a petition for an NWA project on Nantucket in 2016, but it was subsequently withdrawn.
Connecticut	Connecticut Light and Power's self-administered TD 190 Policy, but no regulatory or legislative requirement.	Southwest Connecticut Reliability Project solicitation in 2004.

2. Efficiency Resources as a Potential NWA

Q. How can efficiency resources affect peak demands on the T&D system?

A. Consider Figure 3, which shows the seasonal and hourly profile of efficient residential light bulb usage as measured for a random sample of efficiency program participants in Connecticut, Massachusetts, Rhode Island and Vermont a decade or so ago.[12] As one might expect, it shows that residential lighting usage is greatest in the evening and greater in winter than in summer. However, it also shows that, across a population of customers, there is some lighting use every hour of the day in every season.

Figure 3: Measured Efficient Residential Light Bulb Usage Patterns



Put simply, the fact that efficiency programs typically reach hundreds or thousands of customers – each of which may use electricity consuming equipment in different ways – means that almost all efficiency measures promoted by utility efficiency programs provide some

[12] *Supra* at note 3, Page 10; See also, Neme, C. and Sedano, R. Regulatory Assistance Project. U.S. Experience with Efficiency as a Transmission and Distribution System Resource. (February 2012) Page 3. Available at: https://www.raponline.org/wp-content/uploads/2016/05/rap-neme-efficiencyasatanddresource-2012-feb-14.pdf

savings during every hour of the year.[13] As a result, virtually all efficiency measures promoted through a utility's system-wide efficiency programs will lower peak demands for all elements of the T&D system. The amount by which localized T&D peak demands are lowered will depend on the season and time of day that each element of the T&D system experiences peak demand, the mix of efficiency measures and programs the utility is promoting (and their different load shapes), and the levels of local customer participation in those programs.

Q. Can these effects of a utility's efficiency programs on localized T&D peaks result in the deferral of T&D capacity upgrades?

A. Yes. Over time, the cumulative effects of year after year of increased efficiency resulting from a utility's system-wide efficiency programs will lower localized T&D peaks enough to defer the time at which at least some T&D capacity upgrades would otherwise have been needed. This is known as "passive deferral" because the programs were not run to defer any specific T&D investments. The concept of passive deferral is the underlying rationale for the use of avoided T&D costs in cost-effectiveness analyses of system-wide efficiency programs.

In addition, utilities can endeavor to build on the effects of their system-wide efficiency programs to increase the level of energy efficiency investment in one or more *specific* geographic locations – at the time of localized peaks – for the express purpose of deferring *specific* T&D capacity upgrades that would otherwise be needed.[14] This is known as "active deferral". It is also what is meant by deployment of geographically targeted efficiency programs as part of an NWA.

[13] There are exceptions, such as programs promoting street light efficiency (no savings during daylight hours) or air conditioner equipment efficiency (usually no savings in winter). However, such measures typically comprise a small portion of utility program savings.

[14] A specific T&D investment that may have been passively deferred for some years by system-wide programs, may eventually still be needed – absent additional efforts to increase local efficiency investment or deployment of other DERs – if localized load growth is greater than the magnitude of the localized peak savings resulting from system-wide efficiency programs.

Q. How can utilities capture additional local peak demand savings – above what their system-wide programs will capture – in specific geographic locations as part of NWA efforts?

A. At a high level, there are three ways that a utility can increase local peak savings in a specific geographic location:

1. **Local target marketing of existing system-wide programs**: utilities can increase the marketing of their system-wide efficiency programs, with a specific focus on marketing to the customers in the targeted geographic area;
2. **Increase local incentives for measures promoted through existing system-wide programs**: utilities can increase the rebate levels and/or other financial incentives just for customers in the targeted geographic area; and
3. **Deployment of new programs not currently part of their system-wide program portfolio**: utilities can design and deploy new programs just in the targeted geographic area.

Q. If energy efficiency incentive levels in an NWA are higher than they are in the statewide program, does that unfairly favor one customer over others?

A. No. The purpose of increasing incentives in an NWA would be to generate greater levels of program participation and savings in a part of the service territory where the value of savings is much higher. That is not "unfair" to anyone. Indeed, the resulting reduction in distribution system costs will benefit all of the utility's customers, including all of those who only got the standard, system-wide program incentive. The alternative would be to spend more money on a distribution system upgrade that would benefit only a fraction of the customers served by the utility (i.e. those served by the substation or other distribution system element being addressed

by the NWA) to address a need created by an even smaller fraction of customers (i.e. those whose increasing loads are forecast to create the distribution system capacity constraint) – but would be paid for by all of the utility's customers.

Q. **If energy efficiency incentive levels are higher than they are in the statewide program, does that mean the utility is providing some customers with more incentive than would have been necessary than to have them invest in the upgrade?**

A. No matter what incentive level is offered for an efficient air conditioner, efficient light fixture, or other efficiency measure, the incentive will be more than what is required for some customers to participate, just enough for others and not enough for those who do not participate. That is true for virtually all efficiency programs, both system-wide programs and those deployed as NWAs. The theoretical alternative would be to separately customize incentive offerings for each and every customer so that they are just enough to get each customer to participate. However, with rare exceptions (e.g. perhaps for efficiency retrofits for the largest of business customers), such customized incentives would be both (A) impractical in most markets (it is impossible to know when individual customers have decided they need to buy a new appliance and, even if the utility did know, it would be impossible to intercede and negotiate incentives with each such customer before they made their purchase); and (B) prohibitively expensive even where it might be theoretically possible.

The key is to set incentives at a level at which the added participation and related savings is worth the added program costs of acquiring the additional participation and savings. Again, this is true for both system-wide efficiency programs and for NWA programs. The only differences are that the benefits of savings from NWA programs are both greater than for system-wide programs and typically only achievable if more aggressive efficiency programs that

can capture savings more quickly are implemented, making it more likely that "over-paying" for the smaller number of customers who would participate at lower incentive levels a reasonable trade-off. Consider the following hypothetical example:

(A) one could triple program savings in a geographic area by doubling rebate levels;

(B) the two-thirds of the savings that are incremental to what the system-wide programs would have produced are enough to defer the distribution system investment; and

(C) the incremental cost of acquiring the additional savings (i.e. the total rebate for the two-thirds of the customers who otherwise wouldn't have participated, plus the rebate bonus for the one-third who would have participate under the system-wide program) is less than the value of the deferral.

In this example, the added incentive would actually save all ratepayers money and should therefore be supported.

Q. Have utilities in other states used geo-targeted efficiency programs as part of NWA strategies?

A. Yes. Three years ago, I co-authored a report for the Northeast Energy Efficiency Partnerships that documented ten different organizations or jurisdictions that had used geo-targeted efficiency programs – either alone or in concert with other DERs – in NWA strategies.[15] Six years ago, I co-authored a similar, though slightly less extensive report, for the Regulatory Assistance Project. The examples in those reports covered a range of local demographics (e.g. very large cities to rural areas or relatively small towns) across many different parts of the country.

[15] *Supra* at note 3.

Though I have not endeavored to update those reports through an exhaustive identification of additional examples that have emerged since 2015, I know that a number of new efforts – many of which are still underway – have been launched since then. For example, I am personally working with two Michigan utilities on new pilot NWA programs that are relying exclusively on efficiency and demand response.

Q. Have such efficiency-focused NWA initiatives been successful?

A. As I stated in the report on Efficiency as a T&D Resource that I wrote for NEEP in 2015, many NWA initiatives that relied (at least in part) upon geographically targeted efficiency investments "demonstrably achieved enough savings to defer some T&D investments for at least some period of time."[16] While data on the cost-effectiveness of NWAs is often not publicly available, the available data with which I am familiar suggest that NWA's which have relied at least in significant part on increased local investments in energy efficiency have been very cost-effective. For example, Con Ed's 2003 to 2010 NWA projects, which relied exclusively on energy efficiency, had a 3-to-1 benefit-cost ratio.[17]

Q. Have there been NWAs that relied in significant part on increased energy efficiency investments that failed?

A. I am not aware of any case in which the decision to pursue an NWA led to the creation of a reliability problem in which utility was not able to "keep the lights on".

I am aware of a couple of areas where NWAs were deployed but where a T&D investment ended up still being made for reasons having nothing to do with the effectiveness of the NWA. For example, one year after the launch of an NWA pilot project in Newport,

[16] *Supr*a. at note 3, Page 55.
[17] *id*..

Vermont, the pilot was terminated when it was determined that "the substation whose rebuilding the program was intended to defer needed to be rebuilt for reasons other than load growth (i.e., 'destabilization of the substation property due to river flooding')."[18] However, I would not consider that a failure of the NWA. It is the kind of thing that can happen on the grid at any time – including in locations for which no investment of any kind ("wires" or NWA) was anticipated to be needed.

There are certainly other cases in which NWAs did not achieve as much demand reduction as expected. That was the case in some Vermont, Rhode Island and New York (Con Ed) NWA projects. However, to my knowledge, in none of those cases did the shortfall in peak savings (relative to expected savings) result in the need to invest in the T&D system. In fact, both Vermont and Con Ed found that NWAs "bought time" to refine load forecasts "to the point in a number of cases where the T&D investments once thought to be needed are now not anticipated to ever be needed."[19,20] I would actually consider those cases to be successes.

NWA investments offer this unique ability to buy time because they are modular by nature and can be deployed on an incremental basis, which provides an advantage over wired investments, which tend to be blocky. When faced with uncertainty regarding new step load additions that may or may not materialize, load growth forecasts that range several years into the future, and uncertainty regarding broader macro-economic trends that tend to affect such

[18] *Supra*. at note 3, Page 49.
[19] *Supra*. at note 3, page 56.
[20] Another such example exists in Rhode Island, where achieved NWA peak savings were also lower than projected, a decision to pursue the traditional "wires" solution has not been made. Instead, the utility is exploring the addition of other DERs. One could argue that the efficiency and demand response efforts to date have bought enough time to allow for consideration of additional DER options. See Opinion Dynamics. National Grid Rhode Island System Reliability Procurement Pilot: 2012-2017 Summary Report. (July 2018) Page 3. (Stating: "Even though the pilot did not meet the 1 MW load reduction goal, its initial progress postponed the investment of the wires alternative that would have occurred in 2014 if not earlier. The investment in the substation upgrade was further deferred due to slower than expected load growth and cooler summer temperatures in 2017.") Available at: http://rieermc.ri.gov/wp-content/uploads/2018/10/2019-srp-report-third-draft.pdf

forecasts, the ability to make small investments as a means of deferring a "go-no-go" decision in a larger investment has inherent benefits.

Finally, even if there are other efficiency-focused NWAs that did not obtain enough peak savings to defer a T&D capital investment, it may not be appropriate to consider them failures because of the other value streams that efficiency investments produce. Specifically, the economic benefits associated with energy and capacity savings produced by NWA efficiency investments may, by themselves (i.e. without any localized T&D benefits), be more than enough to offset the costs of those investments. In other words, the deployment of additional efficiency that fails to defer a T&D upgrade could still lower total energy costs. To the extent that is the case, efficiency investments as part of NWAs can be considered a "no regrets" strategy.

Q. Are you aware of the Marshfield project Eversource cites in its 2015 Least Cost Integrated Resource Plan (LCIRP)?

A. I have limited familiarity with the Marshfield, Massachusetts pilot project, mostly from what I have read about it in Eversource's 2015 LCIRP and several other documents. Specifically, Eversource states that the Marshfield pilot project endeavored to achieve approximately a 2 MW reduction in the local peak demand through a combination of energy efficiency, demand response and distributed solar photovoltaics, but that only about 35% of the targeted peak demand reduction was achieved.[21] The Company goes on to suggest that experience is typical of other utility experiences in geo-targeting energy efficiency programs to avoid or delay T&D investments. In fact, they quote one sentence from the report I wrote for

[21] See Eversource Energy. LCIRP. (June 2015) Page 28. Available at: http://www.puc.state.nh.us/Regulatory/Docketbk/2015/15-248/INITIAL%20FILING%20-%20PETITION/15-248%202015-06-19%20PSNH%20DBA%20EVERSOURCE%202015%20LCIRP.PDF

NEEP, which stated that some of the geo-targeting projects I reviewed achieved less peak savings than they expected, to support their conclusion.[22]

Q: What is your reaction to Eversource's discussion of the Marshfield pilot?

A: First, I am not sure about Eversource's estimate that the program achieved only 35% of the target reduction. A retrospective write-up of the project authored by Lawrence Berkley National Laboratory suggests the project achieved 1.2 MW of load reduction, which would equal about 60 percent of the 2.0 MW target reduction.[23] This requires clarification.

Second, a 1.2 MW reduction represents about 5% of the local peak load.[24] That is a substantial reduction for a project that lasted only about a year and half. Put another way, this may have been primarily a problem of unrealistic expectations – and of too short of a lead time.

Third, while the Eversource quote from my NEEP report is accurate – as I discussed earlier, there are several other examples of NWAs in which actual peak savings were lower than forecast or planned – it is also misleading. In the rest of that almost 90-page report there is extensive discussion of other NWA projects which achieved goals. Furthermore, as I also discussed above, even projects that failed to achieve forecast or target savings levels were often still successful because they bought enough time to determine that the original forecasts of peak demand were too high, so the T&D projects were still deferred (or not needed at all).

[22] *Id.*
[23] Lawrence Berkley National Laboratory. The Marshfield Energy Challenge: A Community-Focused Approach to Increase Demand for Retrofits. Page 1. Available at: http://eta-publications.lbl.gov/sites/default/files/lbnl-3960e-marshfield.pdf
[24] Local peak load was near 25 MW (see Rocky Mountain Institute (et al.). Marshfield Pilot Design Report. (December 18, 2007). Page 1. Available at: http://s3.amazonaws.com/zanran_storage/masstech.org/ContentPages/29104746.pdf)

IV. OPPORTUNITY FOR NWAs IN NEW HAMPSHIRE

Q. How is peak demand forecasted to change in the coming decade in New Hampshire?

A. The table below, presented as Figure 4, is from ISO New England's 2017 Regional System Plan, which forecasts growth in statewide and region-wide net annual and peak electric usage for the next decade, expressed as the compound annual growth rate (CAGR).[25] As the table shows, the New England ISO is forecasting net peak demand – that is, peak demand after adjusting for expected energy efficiency program impacts and installation of "behind-the-meter" photovoltaics – to increase in New Hampshire by about 0.7% per year.

Figure 4: 2017 ISO-NE Net Annual Electric Energy and Peak Demand Forecast

Area	Energy (GWh)			Summer Peak Load (MW)				
				50/50 Load		90/10 Load		CAGR
	2017	2026	CAGR	2017	2026	2017	2026	
CT	31,336	29,039	−0.8%	6,992	6,726	7,666	7,462	-0.3%
ME	11,451	11,902	0.4%	1,960	2,085	2,099	2,233	0.7%
MA	58,336	53,968	−0.9%	12,299	12,185	13,338	13,392	0.0%
NH	11,793	12,101	0.3%	2,460	2,606	2,676	2,854	0.7%
RI	8,180	7,257	−1.3%	1,870	1,828	2,124	2,128	0.0%
VT	5,690	5,412	−0.6%	898	877	942	930	−0.1%
ISO	**126,786**	**119,680**	**−0.6%**	**26,482**	**26,310**	**28,865**	**29,021**	**0.1%**

Q. What does that say about the potential for the state to have future distribution system capacity constraints that would be candidates for NWAs?

A. It suggests that there are likely to be at least some elements of the T&D system on which localized peak load growth will create localized capacity constraints. As I discussed earlier,

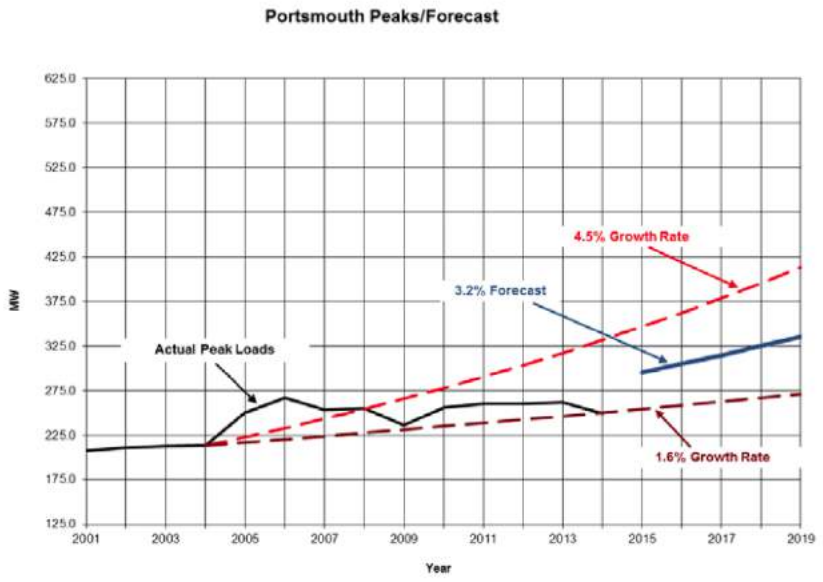
[25] ISO-New England. 2017 Regional System Plan. (November 2017) Page 40. Available at: https://www.iso-ne.com/static-assets/documents/2017/11/rsp17_final.docx

those are the types of T&D needs for which NWAs can be cost-effective alternatives to traditional T&D investments.

Q. Why does modest growth in system peak demand suggest that there are likely to be some elements of the T&D system on which localized load growth will create localized capacity constraints?

A. The 0.7% CAGR in New Hampshire's net peak demand is, by definition, a statewide average. That means there will be parts of the state where load growth is higher and parts where it is lower. For example, Eversource's 2015 LCIRP estimated its system-wide average CAGR as about one percent, but forecasted CAGRs for parts of its service territory as low as 0.5 percent (i.e. for the Berlin/Lancaster and Nashua areas) and as high as 3.2 percent in the Portsmouth area, represented by Figure 5 below.[26] Any such high load growth areas that are also approaching the maximum desirable peak for a circuit or substation would be potential candidates for an NWA.

Figure 5: Eversource 2015 Portsmouth area Load Forecast



[26] *Supra*. at note 21, Pages 3 and 8.

Q. What do you mean by "approaching maximum desirable peak"?

A. Depending on the element of the distribution system being considered (substation, circuit, feeder, etc.), the number of customers served, and the magnitude of the peak load, one would ideally want between 3 and 7 years to plan and implement an NWA.[27] A distribution system capacity constraint that is forecast to occur within that timeframe could be a potential candidate for an NWA.

Q. Are there likely to be load pockets in areas where localized peak demand growth will create a capacity constraint within the next 2 to 7 years?

A. Yes. As identified in the grid modernization working group's report and excerpted in the table below, the three investor-owned utilities collectively have more than 200 substations and over 600 feeders in New Hampshire.[28]

	Feeders			Substations			Capacitors		
	Total	Automated	Percent	Total	Automated	Percent	Total	Automated	Percent
Eversource	464	170	**37%**	173	102	**59%**	983	628	**64%**
Unitil	100	97	**97%**	30	28	**94%**	129	51	**40%**
Liberty	41	17	**17%**	15	10	**67%**	128	6	**5%**

It is highly likely that at least some would meet this criterion. Indeed, in response to discovery in this proceeding, Eversource provided data suggesting that 16 of 92 non-bulk distribution

[27] There may be cases in which NWAs could be effectively deployed to defer distribution system investments with shorter lead times. However, for most cases lead times of three years or more will be needed.
[28] Grid Modernization Working Group, "Grid Modernization in New Hampshire", report to the New Hampshire Public Service Commission, March 17, 2017, Appendix B. Available at: https://puc.nh.gov/Regulatory/Docketbk/2016/16-576/TRANSCRIPTS-OFFICIAL%20EXHIBITS-CLERKS%20REPORT/16-576_2017-03-30_EXH_72.PDF

substations are forecast to have peak loads greater than substation capacity in 2023, and several others for which forecast 2023 peak demand will be within five percent of capacity.[29]

Q. Is that consistent with your experience in other jurisdictions?

A. Yes. In my experience, every utility that has examined its distribution system to assess whether there may be candidates for NWAs has found at least a few viable candidates.

Q. Have the New Hampshire utilities assessed the potential for an energy efficiency NWA to cost-effectively defer distribution system capacity investments?

A. In their response to OCA 2-11(b), the joint utilities stated that "Geo-targeted energy efficiency is typically considered as part of the distribution planning process on a case by case basis…[and r]eview of geo-targeted energy efficiency options will continue to be a part of the distribution planning process and to the extent that it presents a viable solution for a particular situation, the utility would move forward with a discussion and planning process for implementation."[30] In their response to CLF 2-014, the joint utilities also state that "Eversource, Liberty, and Unitil consider targeted energy efficiency as non-wires/non-pipes alternatives as part of their planning process."[31]

Q. Have the utilities' analyses identified any viable candidates for NWAs?

A. Unitil recently identified six potential candidates[32] and Liberty identified two potential candidates for NWA projects[33] in response to the Commission's Order Adopting a New

[29] Response to OCA 2-014(d). Available at: https://tinyurl.com/17-136-OCA-2-014
[30] Response to OCA 2-011(b). Available at: https://tinyurl.com/17-136-OCA-2-011
[31] Response to CLF 2-014. Available at: https://tinyurl.com/17-136-CLF-2-014
[32] Unitil NWA Candidates. (November 2017). Available at: https://drive.google.com/file/d/1gyR8o9FZvE9QIbj8OCrNNSOwTmofpjPH/view
[33] Liberty Utilities NWA Candidates. (November 2017) Available at: https://drive.google.com/file/d/1cpGP9YbitDGY9FSC4tGcKs1fBv-WEDSs/view

Alternative Net Metering Tariff.[34] However, for most of those candidates, it is not clear whether any further assessment was conducted to determine whether sufficient NWA resources to defer the distribution system investments could be cost-effectively acquired. Liberty did subsequently propose a specific NWA strategy, employing both battery storage and geo-targeted energy efficiency, for one of its two candidate areas. Interestingly, it appears as if the efficiency component of that proposal was by far the most cost-effective and accounted for virtually all of the project's forecast net benefits.[35]

Eversource submitted a list of 17 planned capital projects in response to the Commissions' Order Adopting a New Alternative Net Metering Tariff.[36] However, it is not clear which (if any) of those projects the Company considered to be potential candidates for NWAs. I will note that 13 of them were projected to require distribution system improvements to start within a year; only one or two of them had a projected start date at least three years into the future. Given that most NWAs require three or more years of lead time, the Eversource list probably could not be realistically viewed as a list of potential NWA candidates. It is unclear why Eversource did not include projects with longer lead times on its list.

Eversource also briefly discussed its consideration of geographically targeted efficiency programs to defer distribution system investments in its 2015 LCIRP, stating that "to-date,

[34] New Hampshire Public Utilities Commission. Order No 26,029 at 64. (June 23, 2017.) Page 64. (Stating "We therefore approve the EFC proposal that the utilities develop non-wires alternative pilot programs focused on the installation of DG in lieu of potential utility distribution system upgrades. There should be at least one such pilot program location in each utility service territory, assuming appropriate locations can be identified, and Eversource should have at least three such locations. The utilities should identify ***all distribution circuits or substations that are planned for upgrades within the next 5 years,*** the reason for the planned upgrades, the reliability criteria and benefits of the planned upgrades, and the estimated costs of the planned upgrades. The utilities should also propose for Commission review and approval the specific locations on such circuits or affecting such substations where they believe pilot programs should be implemented. If the identification of those specific locations requires a study, then the necessary study should be performed.) Available at: http://www.puc.state.nh.us/Regulatory/Docketbk/2016/16-576/ORDERS/16-576_2017-06-23_ORDER_26029.PDF

[35] Response to OCA 2-011(b). Available at: https://tinyurl.com/17-136-OCA-2-011

[36] Eversource NWA Project List. (November 2017) Available at: https://drive.google.com/file/d/1ci-bv_6XWuXa1IkeDiUzBaW70MHFwkH7/view

Eversource has not identified a distribution system capital project that could feasibly be deferred by geographically targeting its existing energy efficiency programs."[37]

Q. What does the information the utilities have provided to date on NWA viability suggest about the potential for viable NWAs, particularly efficiency NWAs?

A. Not a lot. Put simply, it appears as if the only analysis of the viability of NWAs that is publicly available is the Liberty analysis of its proposed NWA. It is not clear what other analyses have actually been conducted. For example, though Eversource suggests in its 2015 LCIRP that it has not found it to be feasible to defer a distribution system investment "by geographically targeting its existing energy efficiency programs", it is not clear what that means. Did it just look at more aggressively marketing its existing programs, or did it also consider increasing local rebates (or other financial incentives) for those programs? If it only did the former, then it omitted from its analysis one of the most important NWA strategy options. And if it considered increased incentives, how much of an increase did it consider? Further, the reference to geographically targeting of its existing programs, seems to imply that the company did not consider any new program ideas, omitting another "tool" in the efficiency NWA "tool kit". It is also unclear what assumptions the Company made regarding how much existing efficiency program savings could be ramped up locally, how fast the ramp up could occur and what those assumptions were based upon. Finally, it is not clear what distribution system projects were assessed, including whether projects with lead times of 3 to 7 years were considered. Without knowing the answers to these and other questions, it is not possible to determine the degree to which the potential for NWAs – particularly efficiency NWAs – has been explored.

[37] *Supra* at note 21. Page 28.

Q. Does the information the utilities have provided to date on NWAs affect your conclusions regarding the likely potential for viable NWA projects?

A. No. As I discussed above, there are likely to be a number of load growth driven distribution system investments that will be required in the next three to seven years. And given my experience in other jurisdictions, I believe it is extremely likely that at least some of them could be potentially deferred cost-effectively with aggressive geo-targeting of efficiency programs.

V. PROPOSED ENERGY EFFICIENCY NWA PILOT PROJECTS

Q. What are you recommending with regards to NWAs in this proceeding?

A. I am recommending that the New Hampshire utilities develop pilot NWA initiatives, employing just efficiency resources.

Q. What would be learned from such pilot initiatives?

A. First, it would give the utilities experience with assessing the potential candidates for NWAs, as well as how to plan and evaluate them. This will require collaboration between efficiency program planners and distribution system planners that, in my experience, is not very common within utilities but essential to effective deployment of NWAs.

Second, it would give the utilities direct experience with how to ramp up localized peak demand savings from efficiency. That would include lessons learned on how to leverage statewide programs for greater effect in targeted geographies, how to communicate to their customers regarding differences in offerings in geo-targeted areas versus the rest of their service territories, which strategies work most quickly, which strategies can deliver the greatest additional peak savings over different time periods, etc.

Q. Could such a pilot be completed in 2019?

A. No. A pilot NWA should have a duration of at least two years and ideally a little longer than that (perhaps three years being ideal). That way, there is enough time to plan, enough time to adjust strategy mid-stream as some program strategies are shown to work better and others worse than expected, and enough time to build momentum in the market.

Q. What would be involved in planning a pilot NWA?

A. Planning would likely involve the following steps:

- Selecting criteria that will be used to select potential target areas;

- Identifying a short list of potential target areas (substations, circuits, etc.) based on those criteria;
- Additional research and analysis to select the target areas for the pilot;
- Development of an economic framework for assessing cost-effectiveness of the pilots and future NWAs;
- Selecting the efficiency programs on which the pilots will focus;
- Developing a deployment plan for those efficiency programs; and
- Developing an evaluation plan for assessing both the impacts of the geo-targeted efficiency programs and the impacts on the local peaks.

I would expect the first 4-6 months of 2019 to be devoted to planning. Note that some of the planning steps could overlap with launching of the geo-targeted efficiency initiatives.

Q. What criteria would you suggest be used to select the pilot project targets?

A. The ideal candidate would be a distribution element (e.g. substation) for which:

- the forecast need for capital investment is 3 to 5 years out;
- the potential capital investment is big enough (e.g. at least $0.5 to $1.0 million) to make the investment in an NWA substantial, but a small enough project to keep it manageable;
- a peak load reduction of 3% per year over two to three years would enable at least a deferral of the capital investment for a couple of years;
- good data on hourly demands on the distribution system are available – to enable an understanding for planning purposes of current aggregate demand load shapes (i.e. when and for how low the local peak is reached); and
- a good mix of customers so that a variety of different efficiency program strategies can be tested.

Again, it would be ideal to have all of these attributes. However, some trade-offs may be necessary and appropriate.

Q. How would you suggest that the cost-effectiveness of these projects be assessed?

A. In the near term, energy efficiency projects should be assessed using the Utility Cost Test (UCT), because that is the lens through which the traditional investment would have been viewed. That is, the utility would have evaluated only the costs and benefits accruing to the utility system when considering which assets provide the greatest value to ratepayers. In the longer term, the Commission should consider following the procedures set out in the National Standards Practice Manual for quantifying the value associated with demand-side resources, as discussed in Jeff Loiter's Testimony, which is also being submitted by the OCA in this docket.

The Commission should also consider requiring utilities to supplement deterministic net present value calculations made in the context of NWAs by quantifying the localized option value of distributed resources.[38] For example, regulators in New York recently proposed incorporating real option analysis in the benefit-cost test for NWAs.[39] Such an approach would allow the Commission to account for local uncertainties around load volatility, weather, price fluctuations and other factors.

[38] See Generally, Dunsky Energy Consulting. Geo-targeted DSM Cost-Effectiveness Methodology on a Local Scale. (September 2015) Page 26-34. Available at: http://www.dunsky.com/wp-content/uploads/2016/09/NGrid-Geo-Targeted-DSM-Final-Redacted.pdf

[39] New York State Energy Storage Roadmap and Department of Public Service / New York State Energy Research and Development Authority Staff Recommendations. (June 2018) Page 42-44. Available at: http://documents.dps.ny.gov/public/Common/ViewDoc.aspx?DocRefId={2A1BFBC9-85B4-4DAE-BCAE-164B21B0DC3D}

VI. RATIONALE FOR CONSIDERING NWA PILOTS IN THIS DOCKET

Q. This is an efficiency planning docket. Wouldn't it be better to consider the merits of pilot NWAs in another type of docket that would facilitate simultaneous consideration of all DERs?

A. In the long-run, it may be best to consider NWAs in a docket which created a T&D planning, management and cost-recovery framework that required structured assessment and (where appropriate) deployment of NWAs as potentially cost-effective alternatives to traditional T&D investments. That kind of a docket would not only institutionalize appropriate consideration of NWAs, but would enable the optimal mix of DERs to be selected and deployed.

However, New Hampshire does not have to wait for such a comprehensive framework to be put in place to begin making progress in the testing of NWAs. Put another way, the state may not want to "let the perfect be the enemy of the good". Much can be learned relatively quickly from launching pilot NWAs now, with the lessons from those efforts potentially informing the more comprehensive framework that may come later. That is particularly true where:

- the DER options deployed in the pilots – energy efficiency in this proposal – have the potential to cost-effectively defer distribution system investments by themselves;
- the DER options deployed in the pilots – again, energy efficiency in this proposal – have enough other benefits (e.g. other avoided costs) that failure to defer the T&D investment may still be cost-effective, or close to it (i.e. a no regrets scenario); and
- when waiting for the "right docket" may mean one or more years of waiting before anything gets really tested in the field.

Q. Does energy efficiency alone have the potential to cost-effectively defer distribution system investments?

A. Yes. Aggressive geo-targeting of efficiency can cost-effectively defer distribution system investments. While that may not be true for all potential NWA candidates, experience in other jurisdictions certainly suggests it can be true for many of them. In fact, according to GTMResearch, "More specified NWA capacity has been scheduled or deployed through energy efficiency measures than from all other technologies combined." As of August 2017, the overall measure mix for NWA projects that had thus far identified their capacity source was 274 MW of energy efficiency, 56 MW demand response, 8 MW solar photovoltaics, and 5 MW energy storage.[40] Moreover, all of the first 30 NWA projects pursued by Con Ed in its New York service territory relied solely on efficiency resources.[41]

Q. Can efficiency resources acquired through a pilot NWA have enough other (non-distribution system) benefits to pay for themselves if they do not end up deferring the distribution system investment?

A. Yes. For example, Eversource estimates that each of the efficiency programs in its 2019 energy efficiency plan is cost-effective, with all but one having a benefit-cost ratio of at least 1.6 and the portfolio as a whole has a benefit-cost ratio of nearly two-to-one (1.94).[42] Moreover, only about 6% of the portfolio benefits are attributable to avoided distribution system costs.[43] In other words, even with *zero* avoided distribution system benefits, the programs would collectively have a benefit-cost-ratio of about 1.8 to 1. Moreover, that is the TRC benefit-cost ratio. The benefit-cost ratio under the Utility Cost Test would be even better. Thus, while the

[40] St. John, Jeff. GreenTechMedia. "A Snapshot of the US Gigawatt-Scale Non-Wires Alternatives Market." Available at: https://www.greentechmedia.com/articles/read/gtm-research-non-wires-alternatives-market#gs.BRF8aew
[41] *Supra*. at note 3. Page 27.
[42] Joint Utilities. 2019 Energy Efficiency Plan Update. (September 2018) Attachment E, Page 1. Available at: https://www.puc.nh.gov/Regulatory/Docketbk/2017/17-136/LETTERS-MEMOS-TARIFFS/17-136_2018-09-14_EVERSOURCE_UPDATED_EE_PLAN.PDF.
[43] *id*. at Attachment E, Page 2.

mix of programs on which the Company might focus for an NWA pilot might be different, it seems highly likely that efficiency promotions for an NWA would be cost-effective even if there ultimately was no distribution system investment deferral.

Put simply, energy efficiency and other passive resource are the preferred NWA because they are highly cost effective, "extremely reliable[,] and available."[44] For example, a recent evaluation of an NWA project in Maine provided an assessment of various resources' ability to cost effectively provide kW load reductions, excerpted below as Figure 6.[45] This figure shows that other than diesel-fueled backup generation, energy efficiency is by far the most cost-effective T&D demand reduction resource, *even without considering the benefits associated with collateral system peak kW and collateral kWh savings*. When considering those additional benefits, the cost per T&D peak kW saved would likely be significantly negative – i.e. the T&D peak savings are a "bonus" for measures that are cost-effective without them.

Figure 6. Booth Bay Evaluation of Various Demand Resources

Resource	Capacity (kW)	Capacity Price ($/kW/Month)	Cost ($)	Avoided Generation (kWh)
Backup Generator	455	$17.42	$439,473	20,017
Energy Efficiency	256.42	$27.47	$183,676	2,176,085
Solar PV	212.36	$49.78	$240,309	650,367
Demand Response	29.2	$110.00	$66,194	180
Peak Load Shifting	223.60	$110.00	$485,084	74,872
Energy Storage	500	$168.70	$739,945	12,226

[44] Littell, D. Regulatory Assistance Project. Trends and Innovations in the Power Sector: New Hampshire Office of the Consumer Advocate Advisory Board Presentation. (October 2016) Slide 16-22. Available at: https://www.oca.nh.gov/Advisory%20Board/ArchivedMinutes/20161024Mtg/David%20Littell%20RAP%20Presentation%20Slides.pdf

[45] Grid Solar. Boothbay Sub-Region Smart Grid Reliability Pilot Project Evaluation. Page 20 Available at: http://www.neep.org/sites/default/files/resources/FINAL_Boothbay%20Pilot%20Report_20160119.pdf

Q: Is there reason to believe that a comprehensive framework governing the consideration and deployment of NWAs in New Hampshire is imminent?

A. Not to my knowledge. As I understand it, the concept of NWAs has come up in several different proceedings before the New Hampshire Public Utilities Commission in recent years. That history is nicely summarized in a statement of legal position recently drafted by my client, the New Hampshire Office of Consumer Advocate.[46] My review of that history suggests that the state still has work to do before it is ready to adopt a comprehensive framework governing consideration and deployment of NWAs. The next round of LCIRPs might be the venue through which a more comprehensive framework for consideration of NWAs might be established. However, as I understand it, both Eversource and Liberty are not expected to file their next plans until mid to late summer of 2019, with Unitil's plan not due until January of 2020.[47] The last LCIRPs were approved 18 to 26 months after they were filed.[48] If there is a similar timeline for the next plans, that means the next LCIRPs will not be approved – and any NWA pilots that are part of such plans could not proceed – until the beginning of 2021 at the earliest, and perhaps not until 2022.

Again, this suggests that initiating pilot energy efficiency NWAs in 2019 would enable the state to get further up the "learning curve" on NWA analysis and deployment. And as discussed above, it could do so with little to no downside.

[46] New Hampshire Office of the Consumer Advocate. Statement of Legal Position Regarding Geo-Targeted Energy Efficiency Pilots and the 2019 Energy Efficiency Program Plan Update. Filed in Docket No. DE-17-136 on November 1, 2018.

[47] RSA 378:38 describes the timeline for LCIRP submission as "within 2 years of the Commission's final order regarding the utility's prior plan, and in all cases within 5 years of the filing date of the prior plan." *See* also, Order No. 26,050 (Eversource's 2015 LCIRP was filed June 19, 2015 and approved 26 months later on August 25, 2017.) *See also*, Order No. 26,039 (Liberty's 2016 LCIRP was filed January 12, 2016 and approved 18 months later on July 10, 2017.) *See* also, Order No. 26,098 (Unitil's 2016 LCIRP was filed April 9, 2016 and approved 21 months later on January 9, 2018)

[48] *id.*

Q. Are there other utilities that have begun to pilot NWAs through dockets focused on efficiency program plans?

A. Yes. Michigan's two largest investor-owned utilities – DTE and Consumers Energy – both agreed to launch pilot NWAs, funded out of the 2018-2021 R&D budgets of their energy efficiency program plans, as part of settlement agreements on those plans. A copy of the DTE settlement which lays out many of the steps and the expectations regarding how the collaborative development of the pilots will proceed I have provided as Attachment CN-13. The agreements were reached while both utilities had 5-year distribution plans pending approval (in rate cases) before the Michigan Public Service Commission.[49] The initial NWA pilots are currently both in progress, with a second round of pilots in development, while approvals of each utility's distribution system plans are still pending and while the Commission is in the process of developing guidance for future distribution system planning, including guidance on consideration of non-wires alternatives.[50] In other words, both Michigan utilities agreed to get started on pilot NWAs, with a particular focus on energy efficiency (demand response is also being included) at the same time that broader frameworks governing distribution system planning are under consideration in other dockets.

Q. What is your involvement in those Michigan pilot NWAs?

A. I helped to negotiate the settlement agreements that led to the development and launch of the pilots. As part of the settlement, both utilities agreed to work collaboratively with Commission Staff and my client in Michigan, the Natural Resources Defense Council, on the design and evaluation of the pilots, generally following the planning steps I outlined above. In short, I am currently meeting with both utilities on at least a monthly basis – and often several

[49] See record for Michigan Public Service Commission Case numbers U-20134 and U-20162.
[50] See record for Michigan Public Service Commission Case number U-20147.

times a month – to discuss planning decisions, implementation progress and mid-course adjustments that may be appropriate.

Q. Does this conclude your testimony?

A. Yes.