STATE OF CONNECTICUT
PUBLIC UTILITIES REGULATORY AUTHORITY

DEEP AND PURA JOINT PROCEEDING ON THE VALUE OF DISTRIBUTED ENERGY RESOURCES	: : : :	DOCKET NO. 19-06-29 SEPTEMBER 18, 2019

COMMENTS (SECOND ROUND) OF THE INSTITUTE FOR POLICY INTEGRITY AT NYU SCHOOL OF LAW

The Institute for Policy Integrity at New York University School of Law ("Policy Integrity") appreciates the opportunity to submit the following comments to Connecticut's Department of Energy and Environmental Protection (DEEP) and Public Utilities Regulatory Authority (PURA) regarding the Draft Outline of the Study of the Value of Distributed Energy Resources (DERs) in response to the August 29, 2019 Notice and Request for Comments (Notice) issued in the above-captioned proceeding. Policy Integrity is a non-partisan think tank dedicated to improving the quality of government decisionmaking through advocacy and scholarship in the fields of administrative law, economics, and public policy.[1]

1. Section 6 of Public Act 19-35, An Act Concerning a Green Economy and Environmental Protection, directs DEEP and PURA to jointly study the value of DERs in Connecticut. The Draft Outline proposes to focus on just five technology use cases, three behind-the-meter (BTM)—solar PV, energy storage, and fuel cells—and two in-front-of-the-meter (FTM)—solar PV and energy storage. However, as the August 29th Notice recognizes, the Study should be "inclusive of all technology use cases that are relevant to state policy." Policy Integrity's comments, which recommend the addition of two more technology use cases, recognize the need to strike a balance between the competing priorities of focus and inclusion.

2. Before turning to those proposed additional technology use cases, Policy Integrity responds to Paragraph 1(a) of the Notice, which asks commenters to indicate whether one or more of the five technology use cases included in the Draft Outline is more relevant to evaluate than the others. Policy Integrity does not believe that a particular technology use case is more relevant. However, given that two of the proposed technology use cases consider energy storage, we encourage DEEP and PURA to recognize that storage *can* be but is not necessarily a source of emissions reductions.[2] As California and New York have learned through experience and analysis, assessing the potential of energy storage to avoid emissions requires consideration of

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[1] This document does not purport to present New York University School of Law's views, if any.

[2] *See* Richard L. Revesz & Burcin Unel, *Managing the Future of the Electricity Grid: Energy Storage and Greenhouse Gas Emissions*, 42 HARV. ENVTL. L. REV. 139 (2018).

marginal emissions rates during charging and discharging times.[3] The Study should not, therefore, assume that storage will reduce emissions and should instead evaluate how marginal emissions rates would respond to storage deployments.

3. Paragraph 1(b) of the Notice invites commenters to argue for the evaluation of one or more additional technology use cases. In response, Policy Integrity suggests that the Study should evaluate the additional technology use cases listed in table 1.

Table 1. Additional Technology Use Cases to Evaluate.

Technology Use Case	Details
(i) BTM solar-plus-storage	▪ Co-located assets to be operated in coordination. ▪ Similar to BTM solar PV and BTM energy storage in terms of expected scale, ownership, and applications (e.g., residential, commercial).
(ii) FTM solar-plus-storage	▪ Co-located assets to be operated in coordination, and in collaboration with a utility. ▪ Similar to FTM solar PV and FTM energy storage in terms of expected scale, ownership, and applications (e.g., utility, MUSH, large commercial, industrial).

4. Research and practical experiences from around the U.S. have demonstrated that it is often as or more cost-effective to install and operate DERs in combination than as standalone resources.[4] As Regulatory Assistance Project researchers explain in their August 2019 report, *Capturing More Value From Combinations of PV and Other Distributed Energy Resources*, DER combinations can yield "synergistic opportunities" that are more valuable than the sum of what the individual DERs can offer.[5] These general conclusions derive from research

[3] California: Decision Approving Greenhouse Gas Emission Reduction Requirements for the Self-Generation Incentive Program Storage Budget, Order Instituting Rulemaking Regarding Policies, Procedures and Rules for the California Solar Initiative, the Self-Generation Incentive Program and Other Distributed Generation Issues, Rulemaking 12-11-005, Decision 19-08-001, at 14 (Aug. 1, 2019); New York: Order Establishing Energy Storage Goal and Deployment Policy, N.Y. Pub. Serv. Comm'n, Case 18-E-0130, In the Matter of Energy Storage Deployment Program 86-91 (Dec. 13, 2018), https://perma.cc/25D7-DL5R.

[4] *See, e.g.*, E. O'Shaughnessy et al., *Solar plus: A Review of the End-User Economics of Solar PV Integration with Storage and Load Control in Residential Buildings*, 228 APPLIED ENERGY 2165, 2168-69 (2018) (examining 23 economic analyses of solar-plus installations and finding that combination with storage or load control techniques increase the value of solar PV units); Eric O'Shaughnessy et al., Nat'l Renewable Energy Lab., Solar Plus: A Holistic Approach to Distributed Solar PV 34 (June 2017), https://perma.cc/K8QA-4JZ9 ("Overall, the solar plus approach results in more cost-effective PV system sizes, which may be larger or smaller than standalone solar PV systems.").

[5] John Shenot et al., Reg'y Assistance Project, Capturing More Value From Combinations of PV and Other Distributed Energy Resources (Aug. 2019), https://perma.cc/P63S-TGQR.

mostly focused on states other than Connecticut, but still provide a notable and relevant background for Connecticut-specific evaluation.[6]

5. The DER combinations in table 1 are relevant to the Study for two reasons. The first stems from trends in the marketplace for DERs, such as falling capital and installation costs, and a steadily improving understanding of how DER combinations can yield more valuable versions of whatever function each individual DER might perform. Responses to Connecticut's 2018 zero carbon energy resources RFP demonstrate how falling costs and recognized functionality are already evident in project proposals developed to serve Connecticut customers.[7] Specifically, nearly half of the 71 solar PV bid packages submitted in response to that RFP included co-located storage resources.[8] In addition, the relatively high demand charges included in Connecticut electricity tariffs make BTM solar-plus-storage likely to be a more valuable economic option for many residential and commercial customers than standalone solar or storage.[9]

6. The second reason is alignment with the objectives for state energy policy that were codified in Connecticut's 2018 Comprehensive Energy Strategy, including cost-effective deployments of zero-carbon resources, improved energy efficiency, and improved resilience.[10] As recent reports explain, both BTM and FTM installations of solar and storage can potentially perform a wider range of functions than standalone solar or storage, and can often do so more cost-effectively.[11] Combining solar and storage can also contribute more effectively to resilience than standalone installations because BTM solar-plus-storage, unlike standalone BTM solar PV, can generally operate during grid outages.[12]

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[6] *See* Kat Friedrich, *Connecticut Lays the Groundwork for Clean Energy*, CLEAN ENERGY FINANCE FORUM, Oct. 10, 2018, https://perma.cc/7CQJ-EYQP (quoting CT Green Bank CEO: "Solar with battery storage can be combined with demand response, energy efficiency, renewable heating and cooling, and electric vehicles. This represents an opportunity to continue to drive investment that modernizes the grid while reducing greenhouse gas emissions to confront climate change.").

[7] John Weaver, *Connecticut zero Carbon Bid Gets 71 Solar Proposals*, PV MAG., Oct. 1, 2018, https://perma.cc/VC7Z-ASL9.

[8] Jordan Shoesmith (@JordanShoesmith), TWITTER (Sept. 19, 2018, 10:34 AM), https://twitter.com/jordanshoesmith/status/1042467070099812352.

[9] Shenot et al., *supra* note 5, at 21 fig.1; *see also* Pieter Gagnon et al., Lawrence Berkeley Nat'l Lab., Solar + Storage Synergies for Managing Commercial-Customer Demand Charges (2017), https://perma.cc/SH4K-VZYX.

[10] Connecticut Comprehensive Energy Strategy, 28, 34, 48 (Feb. 2018), https://perma.cc/EP6W-7LHJ.

[11] Shenot et al., *supra* note 5, at 20-22, 30-38; *see also* Community Solar Value Project, Resource Links for Solar Plus Storage (July 2017), https://perma.cc/UD5V-MGDZ (providing annotated bibliography of resources).

[12] *Solar + Storage for Resiliency*, ENERGY SAGE (May 10, 2019), https://perma.cc/L5DV-CLTA.

7. In conclusion, just as evaluating BTM and FTM solar-plus-storage is likely to add important insights to the Study, omitting their evaluation would mean leaving their potential value—in comparison both to other DERs and to centralized resources—obscure. While ignoring these resource combinations is not certain to impede the development of a sound DER compensation scheme, it could impair future efforts to integrate DER combinations into that scheme.

Respectfully submitted,

/s/ Justin Gundlach
Justin Gundlach, Attorney
Institute for Policy Integrity at NYU School of Law
139 MacDougal Street, 3rd floor
New York, NY 10012
justin.gundlach@nyu.edu
Phone: (212) 992-8932

CERTIFICATION OF SERVICE

I, the undersigned, hereby certify that on September 18, 2019 an electronic copy of the above COMMENTS was sent by email to all participants of record listed in the joint PURA/DEEP web filing system for docket number 19-06-29.

Respectfully submitted,

/s/ Justin Gundlach
Justin Gundlach