Thank you for your participation in this survey for inputs into the NARUC Rate Design Staff Subcommittee Distributed Energy Resources Compensation Manual. The response to each question is limited to 1,500 characters, except question 5, which does not have a character limit. Please note that your responses to this survey may be subject to public disclosure. Please direct inquiries to responses@naruc.org.

NARUC will consider each point of input, however we are seeking a broad range of ideas, rather than large volumes of duplicative responses.  Quantity of response is unimportant in this survey, and if there are many responses sharing the same ideas and perspectives they will have the same weight as a single well-considered response.

**1. What currently-used rate designs or methodologies should be explored in the context of the DER Compensation Manual (e.g., flat, inclining block, time-variable)? What examples of fully-implemented rate designs or methodologies exist?**

Existing rate design and DER compensation methods, such as volumetric rates with low fixed charges, Net Energy Metering (NEM) and Time Varying Rates (TVR) should be included as these have proven effective at incenting customers to adopt DER and in meeting state policy goals. The Manual should also explore methodologies that encourage utilities to integrate DER into grid planning and operations, enabling DER to sub for traditional utility investments where DER can achieve the same goals more effectively and/or affordably. (See our definition of DER and additional thoughts on DER compensation in the Q5 response). The Manual should include rate designs that send appropriate price signals for DER to be deployed and used in ways that benefit DER owners as well as all customers. For example, location-based TVR or targeted incentives (e.g., capacity payments) can signal to end users that the system is strained and can incent reduced consumption or increased DER generation. An [assortment of TVRs](http://www.raponline.org/document/download/id/5131%20%282%29.pdf) should be in the Manual, including Time of Use, Peak Time Rebates (PTR), Critical Peak Pricing (CPP) & Real Time Pricing (RTP). Another way to identify valuable rate designs is to consider regulatory goals, such as improving utility capital asset utilization by filling valleys/clipping peaks (local distribution and system wide). To encourage reducing energy use, inclining block rates can be effective. Utility procurements can also be used such as what ConEd is doing in its NY [BQDM program](http://documents.dps.ny.gov/public/MatterManagement/CaseMaster.aspx?MatterSeq=45800).

**2. What are the current rate design and compensation challenges for DER that should be explored in the writing of the Manual?**

DER is currently not accurately valued/compensated for what it can provide to the grid, including capacity, T&D cost avoidance/deferral and ancillary services such as volt/VAR support. Valuation should also consider the benefits beyond grid impacts. We favor use of a comprehensive benefit-cost analysis. For utilities, current DER compensation can result in lost revenue and potentially in revenue-shifting (note: revenue-shifting, not necessarily cost-shifting), leading some utilities to call for higher fixed charges. Unfortunately, higher fixed charges reduce the signal to use energy more efficiently or invest in DER, which in turn can lead to load growth and the need to build more costly generation, T or D, leading to higher rates in the future. DERs can avoid a wide range of future infrastructure costs and O&M costs. Thus, good rate design should consider not just how to recover past investments but also how to send helpful signals going forward that can reduce future investment. Also, the Manual should explore the value of Advanced Metering Infrastructure (AMI), the absence of which can limit the types of rates that can be offered and can limit the ability to measure and verify DER performance. AMI can also facilitate DER services (e.g., with AMI, a utility can better measure voltage, send a signal that voltage is low and then someone with solar with a smart inverter could respond by increasing voltage and be compensated, all automatically.)

**3. What DER compensation methodologies should be considered in the writing of the Manual (e.g., NEM, value of solar, services model, transactive energy)? Briefly explain examples of fully implemented DER compensation methodologies.**

While no one size fits all, we favor methods that apply to all DER including DG and EE/DSM. We also favor allowing utilities to procure aggregated DER in lieu of traditional investments (e.g., procuring aggregated EE to reduce load instead of upgrading a substation). The Manual should include:

1. NEM at full retail rate, particularly in states with low penetration of DG and in higher penetration states in certain conditions, such as smaller systems with no annual net export that behave more like an EE resource. NEM is simple, easy to understand and implement, and is suitable for approximating the value of DG in many cases.
2. Value of solar (VOS) is a more refined way to compensate solar. VOS should be comprehensive, accounting for avoided costs of fuel, generation, T&D and T&D line losses, plus grid ancillary services and environmental benefits. Value of DER (VODER) more broadly can estimate all values from a specific DER tech for an assumed generation profile.
3. Transactive energy (e.g., customers responding to TVR signals), the most sophisticated form of which utilizes short-duration market prices (e.g. hourly or five-minute) and automated response by appliances, home/building energy management or vehicles-to-grid. Customers using timers to respond to TVR rates is another form of transactive energy.
4. Rates that allow for participation in shared resources (community solar/DG) and remote/virtual NEM resources
5. Rates that enhance DER access for low income customers.

**4. What are the most important state and federal cases, orders, judgments, research, papers and other resources that should be considered in the writing of the Manual? Links to such resources can be provided.**

* NY’s Reforming the Energy Vision and companion proceedings—for how to align utility business models/incentives with the growth of DER and to design rates and DER compensation fairly for all. See multiple AEE filings, including AEE’s [Initial Comments and Proposal on DER Compensation in the LMP+D](http://documents.dps.ny.gov/public/MatterManagement/CaseMaster.aspx?MatterSeq=49770&MNO=15-E-0751) Proceeding (4/18/16) (filing No. 6 under case 15-E-0751)—For our thoughts on how rate design and DER compensation can send appropriate price signals for DERs to be in the right place and time and beneficial to all. The LMP+D rate would be implemented gradually and in way for DER projects to be financeable and to provide a compelling value proposition.
* CA’s [Integrated Distributed Energy Resources](http://delaps1.cpuc.ca.gov/CPUCProceedingLookup/f?p=401:56:12371260614799::NO:RP,57,RIR:P5_PROCEEDING_SELECT:R1410003) (IDER) proceeding and the companion [Distributed Resources Plan](http://delaps1.cpuc.ca.gov/CPUCProceedingLookup/f?p=401:56:17198993525227::NO:RP,57,RIR:P5_PROCEEDING_SELECT:R1408013) (DRP), which collectively seek to identify utility DER needs and valuation and compensation methods. The [4/4/16 pilot program proposal](http://docs.cpuc.ca.gov/SearchRes.aspx?DocFormat=ALL&DocID=159702148) by Commissioner Florio in IDER offers a shareholder incentive for the deployment of a cost-effective DER that displaces or defers a utility expenditure (note in particular [Appendix B](http://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M159/K712/159712294.PDF)).
* CA’s [NEM 2.0](http://delaps1.cpuc.ca.gov/CPUCProceedingLookup/f?p=401:56:15998392010117::NO:RP,57,RIR:P5_PROCEEDING_SELECT:R1407002) proceeding, including the [NEM Successor Order](http://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M157/K960/157960987.PDF) which keeps NEM at the retail rate, but introduces a one-time interconnection fee of $75-$150 and a non-bypassable charge of 2 ¢/kWh consumed that all utility customers pay and requires customers to sign up for TOU rates
* [Hawaii NEM 2.0 Order](http://dms.puc.hawaii.gov/dms/DocumentViewer?pid=A1001001A15J13B15422F9046)
* CA’s [TOU Docket](http://delaps1.cpuc.ca.gov/CPUCProceedingLookup/f?p=401:56:840566695890::NO:RP,57,RIR:P5_PROCEEDING_SELECT:R1512012)
* [NY’s BQDM Order](http://documents.dps.ny.gov/public/Common/ViewDoc.aspx?DocRefId=%7B83594C1C-51E2-4A1A-9DBB-5F15BCA613A2%7D)
* See additional resources to consider in the answer to question 5 below

**5. Please provide any other information, including links to documents, that could assist in the drafting of the Manual. This question does not have a character limit. If you would like to send a document that does not have a link, contact** **responses@naruc.org****.**

We define DER to include distributed generation (CHP, PV, small wind, fuel cells, etc.), energy storage, electric vehicles, demand response, energy efficiency, and microgrids. As such, it includes options for generating electricity, but also for managing how much and when electricity is used.

Rate designs that discourage DER, such as those with higher fixed charges or grid-access fees should not be considered, in part because these options tend to disproportionately hurt low and moderate income customers. A well designed minimum bill could be considered as an alternative to those options. We also do not support non-coincident demand charges, as these do not incent DER that is beneficial to the system. System or feeder peak-coincident demand charges could be considered but should be evaluated carefully relative to other options that may be more effective.

As a part of considering rate options that expose customers to time varying prices, those same customers must have timely access to information and tools that allow them to make decisions in response to prices they see. For example, instituting a coincident-peak demand charge without appropriate consumer education and programs that enable consumers to response to those prices in an effective way, would simply amount to imposing higher fixed charges on customers. We would not support such an outcome.

Energy efficiency needs to be addressed in a way that recognizes its difference from other DERs. EE is compensated primarily by avoided energy purchases, rather than direct payments. This distinction means that a system to compensate DG or DR may not necessarily adequately compensate EE for its load reduction benefits.

Also, rate design cannot be considered in a vacuum. As rate design evolves to better address DER growth and to take advantage of the benefits that DER can provide, a broader assessment should include utility planning practices, utility revenue models, and grid modernization efforts.

Other documents to consider:

* [AEEI’s NY Comments on Utility ETIPs (Energy Efficiency Transition Plans)](http://documents.dps.ny.gov/public/MatterManagement/CaseMaster.aspx?MatterSeq=48057&MNO=15-M-0252) (9/28/15) (filing No. 61)—For our thoughts on how energy efficiency can be compensated through utility procurement of aggregated energy efficiency in lieu of traditional capital expenditures.
* [AEEI’s NY REV Comments on the BCA (Benefit Cost Analysis) Initial White Paper](http://documents.dps.ny.gov/public/MatterManagement/CaseMaster.aspx?MatterSeq=44991&MNO=14-M-0101), including Report by Synapse Energy Economics on benefit-cost analysis frameworks for DER, prepared for AEEI. (8/21/15) (filing No. 452)—For our thoughts on the benefits and costs of DERs and how they should be valued.
* [“Chicago’s REV”](http://www.utilitydive.com/news/chicagos-rev-how-comed-is-reinventing-itself-as-a-smart-energy-platform/416623/) Utility Dive article from 3/31/16 on ComEd’s efforts to determine and compensate DER on a locational basis.
* Peter Kind, “[Pathway to a 21st Century Utility](http://www.ceres.org/resources/reports/pathway-to-a-21st-century-electric-utility)” (November 2015)--addresses threats to utility regulatory and business models and ways to address them. Most relevant to this survey, there are sections on “Ratemaking and Tariff Design” and “Tariff Design Principles for a 21st Century Electric Utility.”
* Synapse White Paper in the NY Clean Energy Standard Proceeding, “[Aiming Higher: Realizing the Full Potential of Cost-Effective Energy Efficiency in New York](file://localhost/%E2%80%A2%09http/%3A%3Adocuments.dps.ny.gov%3Apublic%3ACommon%3AViewDoc.aspx%3FDocRefId%3D%257bBB737DF7-FCAB-4352-8AF1-769339765A6D%257d)” (4/22/16)
* “[A Pathway to the Distributed Grid](http://www.solarcity.com/sites/default/files/SolarCity_Distributed_Grid-021016.pdf)” by SolarCity outlining a pathway to capturing DER’s  value (2/10/16)
* R Street’s study on [“Lessons from Nevada’s NEM Reforms”](http://www.rstreet.org/wp-content/uploads/2016/03/59.pdf) (March 2016)
* RAP, “[Smart Rate Design for a Smart Future](http://www.raponline.org/document/download/id/7680)” (July 2015)
* [Lazard’s Levelized Cost of Energy Analysis](https://www.lazard.com/media/2390/lazards-levelized-cost-of-energy-analysis-90.pdf)
* RMI, “[Location, Location, Location: DERs Find a Market Opportunity in Texas Through Locational Pricing](http://blog.rmi.org/blog_2016_02_24_ders_find_a_market_opportunity_in_texas_through_locational_pricing)” (2/24/2016)
* RAP, “[Designing Tariffs for Distributed Generation Customers](http://smartgridcc.org/designing-tariffs-for-distributed-generation-customers/)” (February 2016)
* RAP, “[Teaching the ‘Duck” to Fly](http://www.raponline.org/document/download/id/6977)” (February 2016)
* Chris King and Bonnie Datta, “[Action by Choice: Results of Opt-in Residential Time-Varying Pricing Programs](http://mag.fortnightly.com/article/Action%2Bby%2BChoice/2345121/284386/article.html),” Public Utilities Fortnightly (December 2015)
* Chris King, “[Transactive energy: Linking supply and demand through price signals](https://books.google.com/books?id=dbRZAwAAQBAJ&pg=PA189&lpg=PA189&dq=%22Transactive+energy:+Linking+supply+and+demand+through+price+signals%22&source=bl&ots=_PB38sQwdL&sig=wd1_DjbqDEqODlsPedZDRIPXYF8&hl=en&sa=X&ved=0ahUKEwihhOWz9bPMAhWBcj4KHcP-A60Q6AEIJDAB#v=onepage&q=%22Transactive%20energy%3A%20Linking%20supply%20and%20demand%20through%20price%20signals%22&f=false),” chapter in Distributed Generation and Its Implications for the Utility Industry, Academic Press (July 2014)
* [Tom Beach Testimony](http://edocket.azcc.gov/Docket/DocketDetailSearch?docketId=18350&documentId#docket-detail-container2) in AZ Value of Solar Docket (2/25/16), filed by Court S. Rich