

# New York Energy Storage Services Fact Sheet



**Summer 2018** – NYSERDA Energy Storage Soft Costs Program

## Background

This document summarizes value streams currently available for energy storage systems installed in New York State. Additionally, information on service classifications and demand response programs for each New York utility is provided in the appendices. The information in the following tables is up to date as of: August 17<sup>th</sup>, 2018.

As the electric grid modernizes, value streams will evolve. In his 2018 State of the State Address, Governor Cuomo announced a 1,500 MW energy storage target for the State by 2025, to serve as an aggressive near-term waypoint for the state's 2030 energy storage target that will be established by the Public Service Commission in 2018. To implement the Governor's directive, NYSERDA and the Department of Public Service worked with stakeholders to develop the [Energy Storage Roadmap](#) that identifies market backed policy, regulatory and programmatic actions that can be taken to build this market. The Roadmap is now available for public input and written comments may be submitted until September 10, 2018 with reply comments due by September 24, 2018. The Roadmap includes immediate and near-term actions as well as short-term solutions that can bridge the longer time horizons that some of these market changes require. This roadmap will form the foundation of a Public Service Commission order later this year that establishes a 2030 storage target and deployment mechanisms. Developers are encouraged to actively engage with DPS and NYSERDA in this process as this will play a major role in bringing additional market opportunities to energy storage deployment.

In addition to the Roadmap, major changes to energy storage value streams in the wholesale markets may result from proceedings that are now underway to implement FERC's [Order 841](#). FERC's Order 841 requires that Regional Transmission Organizations (RTO) and Independent System Operators (ISO) revise their market rules to create a participation model for storage in the capacity, energy, and ancillary service markets operated by RTO/ISOs. This fact sheet will be updated to include this information when these changes are fully implemented.

In general, due to grid constraints, energy storage systems will receive the highest compensation in New York City, Westchester, and Long Island. Developers interested in the New York City market and unfamiliar with the permitting and siting requirements are encouraged to speak with NY-BEST or NYSERDA staff and review [CUNY's LI-Ion Permitting and Interconnection Process Guide](#). Information on siting energy storage outside of New York City is available [here](#).

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## Current Findings

Attaining more than one value with energy storage, whether through bill savings, or by receiving compensation by participating in a utility or wholesale market program is known as value stacking. Concurrently serving a customer, the utility, and/or the wholesale market can be an attractive means of realizing enhanced benefits and revenue. Although many of the services listed in this fact sheet can be used in combination, there are limitations to value stacking, which include:

- ⦿ Energy storage system operating constraints (whether the system’s hardware and software can support the operation);
- ⦿ Effects of harsher duty cycles on system life and other cost considerations (whether the economics still work); and
- ⦿ Regulatory and market rules (whether stacking is presently allowed in the market).

NY-BEST has issued its energy storage guide, which provides a deeper analysis of opportunities for, and barriers to, value stacking. This factsheet and the guide are part of a suite of research and resources funded by NYSERDA to reduce storage soft costs and provide technical assistance resources to New York State. More information on energy storage market opportunities can be found on the NY-BEST or the NYSERDA energy storage program website at <https://nysesda.ny.gov/energy-storage>. Financing for energy storage projects is available through the New York Green Bank, and there is currently a [Request for Information](#) seeking information about financing needs and arrangements for energy storage projects in the state. For more information on this opportunity please click [here](#) or reach out to the NY-BEST team. For any questions, please contact [energystorage@nysesda.ny.gov](mailto:energystorage@nysesda.ny.gov) or [admin@ny-best.org](mailto:admin@ny-best.org).

## Presently Monetizable Services

- Contractual Services – highlighted in yellow

See Appendix E for definitions\*

Service	Project & Resource Owner	Compensation Mechanism Description	Price	Constraints & Regulations	Further Information
<b>Customer Demand Delivery Charge Reduction</b>	<p>Building Owner or project developer owns the storage system.</p> <p>Note: For information on Con Ed's Rider Q Tariff which assesses a sub-daily demand charge and can be advantageous to energy storage, please see <a href="#">Appendix C</a> or the <a href="#">Rider Q Fact Sheet</a>.</p>	<p>This revenue stream is applicable only for electricity customers who are charged for their instantaneous demand on a \$/kW basis (i.e. demand charges). Energy storage can provide bill savings by lowering the peaks in their electric consumption, thereby reducing the demand charge component of their electric bill. Note: the distinction between standby charge (daily peak) and standard demand charge (monthly peak) can be quite important for this revenue stream.</p>	<p><b>Stable and Predictable.</b> Prices vary greatly depending on utility, location, time of year and needs of the grid. (see <a href="#">Appendix B</a> for utility and service class specific information).</p> <p><u>Demand Delivery Charges:</u> Varies greatly depending on the service class and a variety of other factors. For example, as can be seen in the Appendix, a Con Ed SC 9 Rate III customer would be charged up to \$44.87/kW during the 8 AM – 6 PM window in the summer.</p>	<p>Could be stacked – but requires control strategies to maximize benefits and revenue in concert with tariffs, e.g. deciding when demand reduction is more profitable than serving other needs.</p>	<p><a href="https://www.nysed.ny.gov/-/media/Files/Programs/Energy-Storage/How-Energy-Storage-Can-Reduce-Electricity-Costs-for-Commercial-Energy-Users.pdf">https://www.nysed.ny.gov/-/media/Files/Programs/Energy-Storage/How-Energy-Storage-Can-Reduce-Electricity-Costs-for-Commercial-Energy-Users.pdf</a></p> <p><a href="http://energy.pace.edu/projects/chp-tools">http://energy.pace.edu/projects/chp-tools</a></p>
<b>Energy Supply Arbitrage (Energy Shifting and ICAP Tag Reduction)</b>	<p>The building owner or third party owns and operates the resource.</p>	<p>Compensation would occur through reduced energy supply costs by buying (or charging) at a lower cost than when sold (or discharged) during peak demand periods. Further, this operation of the system may result in a reduction of a customer's capacity tag (known as the ICAP tag) on their supply charges. These benefits may occur together through energy arbitrage and result in a reduction of the customer's energy bill.</p>	<p>Price is dependent on the difference in electricity prices in a service territory (e.g. peak vs. off-peak hours). The value would be highest in areas where energy costs the most (NYC Service Area). Capacity tags are based on the customer's contribution to the peak load during the prior year.</p>	<p>This can be stacked with other values, often as a secondary benefit of demand charge reduction for behind-the-meter installations.</p>	<p>ConEd's <a href="#">Retail Access System</a> provides additional information on capacity tag reduction.</p>
<b>Utility Demand Response Programs</b>	<p>Building Owner or project developer owns the storage system.</p>	<p>The <b>Commercial System Relief Program (CSRP)</b> aims to reduce demand system wide. Customers are given 21 or more hours' notice and can be enrolled in either the voluntary or reservation program. Resources must enroll a minimum of 50 total kW.</p>	<p><b>Stable and Predictable.</b> Prices vary depending on location and the needs of the grid in that region. (see <a href="#">Appendix A</a>). Prices ranges:</p> <ul style="list-style-type: none"> <li>• <b>Performance Payments:</b> \$0.15 to \$1/kWh for scheduled</li> </ul>	<p>Could be stacked with other values – storage system must be operated to respond to calls from utility for demand reduction over other grid services. <i>Compensation is tied to previously established baselines, so system operation for other services like</i></p>	<p><a href="https://www.coned.com/en/save-money/rebates-incentives-tax-credits/rebates-incentives-tax-credits-for-commercial-">https://www.coned.com/en/save-money/rebates-incentives-tax-credits/rebates-incentives-tax-credits-for-commercial-</a></p>

	<p>The system must respond to signals from the utility.</p> <p>As of 2/22/18 energy storage systems in Con Ed’s service territory are allowed to export energy onto the distribution grid as part of DR programs.</p>	<p>The <b>Distribution Load Relief Program</b> (DLRP) aims to reduce load at the network level, customers receive 2 hours’ notice for a contingency event, and less than 2 hours prior to an immediate DLRP event.</p>	<p>events, as much as \$10.00/kWh for emergency events</p> <ul style="list-style-type: none"> <li>• <u>Monthly Payments</u>: \$6 to \$25/kW/month</li> </ul>	<p><i>demand charge reduction can affect compensation.</i> Facilities can be enrolled in both programs.</p>	<p><a href="https://www.coned.com/en/save-money/rebates-incentives-tax-credits/rebates-incentives-tax-credits-for-commercial-industrial-buildings-customers/demand-management-incentives">industrial-buildings-customers/smart-usage-rewards</a></p>
<p><b>Utility Demand Management Program (Con Ed only)</b></p>	<p>Building Owner or project developer owns the storage system.</p> <p>Owner receives incentive to aid project installation (up to 50% of project cost plus a 20% bonus if completed by the installation deadline).</p>	<p>Projects receive compensation from the utility in the form of \$/kW. Cost-effective projects are funded, according to a benefit-cost analysis or BCA.</p> <p>Project developers are also eligible to receive an incentive payment to help cover the cost of certification to the UL standards at a certified testing laboratory.</p>	<p>For 2019 for battery storage, the incentive cap for projects is \$1,350/kW plus the \$270/kW bonus incentive if completed by the installation deadline.</p> <p>\$2,100/kW+ \$420/kW for thermal storage. Projects that are cost-effective will receive funding.</p> <p>Note: the program no longer funds projects based on an auction.</p>	<p>This project would be eligible for multiple value streams – <b>must commit to a minimum of 1 kW reduction from 2-6 PM on days when Con Ed initiates a DR event under its CSR program or NYISO under the EDRP or ICAP-SCR programs.</b> Projects cannot receive incentives from any programs other than Con Edison’s and NYISO’s demand response programs.</p>	<p><a href="https://www.coned.com/en/save-money/rebates-incentives-tax-credits/rebates-incentives-tax-credits-for-commercial-industrial-buildings-customers/demand-management-incentives">https://www.coned.com/en/save-money/rebates-incentives-tax-credits/rebates-incentives-tax-credits-for-commercial-industrial-buildings-customers/demand-management-incentives</a></p>
<p><b>Service Class 11 – Buyback Service (Con Ed only)</b></p>	<p>The building owner or project developer would own the system. They would need to opt-in to SC-11.</p>	<p>Projects are compensated for the energy they export onto the electric grid. The system receives both a capacity and volumetric payment.</p>	<p>Projects would receive the wholesale LMP for energy exported onto the grid as well as a capacity payment from the ISO, based on the marginal clearing price.</p>	<p>The resource must be at least 1 MW and located in a suitable location in Con Ed’s service territory to be eligible for SC-11. Since the system pays retail for electricity, and only receives wholesale payments this value stream will <i>only</i> be relevant for certain exporting projects when stacked with other values, like demand response.</p>	<p>For more information see <a href="#">leaf 462 (page 84/126) in Con Ed’s rate schedule</a></p>
<p><b>VDER (Value of Distributed Energy Resources)</b></p>	<p>The project developer would own the system and be compensated for energy exported to the grid.</p>	<p>Projects are compensated for energy exported to the grid and would receive the “value stack” for the energy. More information on the value stack can be found <a href="#">here</a>. This opportunity will become more valuable when the updated NY-SUN incentive is released.</p>	<p>The price varies depending on location. Certain high value locations would have better economics than other projects receiving VDER compensation.</p>	<p>This value stream is only available to storage systems co-located with solar. There are certain metering requirements for systems to receive this value stream.</p>	<p>For more information on VDER and the upcoming changes to this opportunity, please contact the NY-BEST Team.</p>

<p><b>NYISO Demand Response Programs</b></p>	<p>The facility (building owner) or third party owns the storage system and offers its capabilities into the wholesale electricity markets. [reliability or economic depending on program].</p> <p>Compensation varies greatly depending on location and service provided to the ISO. The battery must be optimized to fulfill its specific role.</p>	<p><b>ICAP-SCR</b> – Installed Capacity Special Case Resources – monthly capacity payment based on total facility load reduction, plus energy payment for actual load reductions in tests and events. SCRs are subject to penalty if they do not meet their obligated load reduction. [<i>Reliability</i>]</p> <p><b>EDRP</b> -Emergency Demand Response Programs. There is an energy payment based on actual load reductions in tests and events. The resource must be behind-the-meter. [<i>Reliability</i>]</p> <p><b>DADRP</b> – Day Ahead Demand Response Programs – customers submit day ahead bids by indicating the load reduction amount and time of day. [<i>Economic</i>]</p> <p><b>DSASP</b> – Demand Side Ancillary Service Program – participate in ancillary service market to provide operating reserves and/or regulation service to the grid. [<i>Economic</i>]</p>	<p>The resource LBMP for actual load reductions with a daily guarantee of minimum payment nomination (the strike price) recovery. The resource must achieve at least a 100-kW demand reduction, which can be achieved through aggregation.</p> <ul style="list-style-type: none"> <li>• Customer receives the greater of real time LBMP or \$500/MWh for actual load reductions.</li> <li>• The resource must reduce demand at least 100 kW</li> </ul> <p>There is an offer floor of \$75/MWh, and the resource is paid the day ahead LBMP for their actual performance. The resource must be able to reduce demand at least 1 MW, and can aggregate resources to meet this reduction.</p> <p>The resource must have a minimum reduction of 1 MW (in aggregate in a load zone).</p> <ul style="list-style-type: none"> <li>• The resources are paid marginal clearing price of the ancillary service provided.</li> </ul>	<p><b>All programs meet the minimum load reduction requirements or aggregate with other customers to fulfill the minimum MW reduction.</b></p> <p>They can participate as one of three types of demand side resources (SCRs, DSASP, and EDRP). They can participate in one reliability based and one economic based demand response program simultaneously. <i>Demand side resources are not permitted to supply electricity to the wholesale market.</i></p> <p>More information on the baselines for NYISO Demand Response can be found in the <a href="#">Energy Storage Guide</a>.</p>	<p><b>For more information on NYISO demand response programs please see:</b></p> <p><a href="http://www.nyiso.com/public/webdocs/markets_operations/services/market_training/workshops_courses/Training_Course_Materials/NYMOC_MT_ALL_2017/Demand_Response.pdf">http://www.nyiso.com/public/webdocs/markets_operations/services/market_training/workshops_courses/Training_Course_Materials/NYMOC_MT_ALL_2017/Demand_Response.pdf</a></p>
<p><b>NYISO ICAP (Installed Capacity)*</b></p>	<p>Project developer or building owner can own the resource.</p> <p>Compensation received in exchange for capacity provided to the capacity market.</p>	<p>Compensation is from the NYISO, based on the market clearing price, and utilities/LSEs are obligated to purchase capacity at this cost. The ICAP market is open to all registered NYISO customers. The resource must meet a 1 MW, 4-hour minimum bid.</p>	<p>Price is paid in \$/kW/month and varies greatly depending on the location/time. Amount ranges:</p> <ul style="list-style-type: none"> <li>• \$0.00 - \$11.71/kW/month</li> <li>• Average Prices for Summer 2017: <ul style="list-style-type: none"> <li>○ G-J Locality (Lower Hudson Valley) - \$10.50/kW - Month</li> <li>○ NYCA (New York Control Area) - \$3.00/kW - Month</li> <li>○ NYC - \$11.71/kW - Month</li> </ul> </li> <li>• <b>Exact price determined during monthly and day-ahead auctions</b></li> </ul>	<p>It is generally cost prohibitive to stack this with other values because of buyer side mitigation rules, which are designed to prevent uneconomic offers from receiving bids through the ICAP market.</p> <p><b>The resource must fulfill its contribution to peak load or face a penalty.</b> In NYS capacity is acquired through 6-month contracts. This market is only open to ELRs in service areas where energy storage systems are permitted to export energy onto the grid. Please contact the soft costs team for more information.</p>	<p><b>Pricing and Data:</b></p> <p><a href="http://icap.nyiso.com/ucap/public/auc_view_strip_detail.do">http://icap.nyiso.com/ucap/public/auc_view_strip_detail.do</a></p>

<p><b>NYISO Frequency Regulation*</b></p>	<p>The project developer is the resource owner.</p> <p>Receive a payment from the NYISO in exchange for the frequency regulation service they are providing to the grid.</p>	<p>The compensation is from the NYISO, in the form of \$/MWh based on the regulation capacity awarded and the regulation movement provided - the value can vary greatly depending on the needs of the grid.</p>	<p>Price is paid in \$/MWh; the value will be highest in more highly populated areas of the state where energy needs shift more frequently. From June 2017 to September 2017, the price has varied between \$2/MWh and \$123.48/MWh – the avg. was \$8.28/MWh (for the same time period), so the value is more consistently low, and values near \$120/MWh are rare.</p>	<p>It is challenging to combine with other values, since the service requires short duration/high output operation following a control signal varying on a timescale of seconds. <b>Projects must be 1 MW or larger to participate.</b></p> <p><i>This is the only wholesale market that can be satisfied by LESRs (storage systems with less than an hour duration).</i></p>	<p><b>Pricing and Data:</b>  <a href="http://www.nyiso.com/public/markets_operations/market_data/pricing_data/index.jsp">http://www.nyiso.com/public/markets_operations/market_data/pricing_data/index.jsp</a></p> <p><b>NYISO Ancillary Services Manual:</b>  <a href="http://www.nyiso.com/public/webdocs/markets_operations/documents/Manuals_and_Guides/Manuals/Operations/ancserv.pdf">http://www.nyiso.com/public/webdocs/markets_operations/documents/Manuals_and_Guides/Manuals/Operations/ancserv.pdf</a></p>
<p><b>NYISO Reserves (Spinning)*</b></p>	<p>The project developer is the resource owner and receives a payment from NYISO in exchange for the grid service provided.</p>	<p>The compensation is from the NYISO, in the form of \$/MWh - but can vary greatly depending on <b>time and location</b>. Reserve providers must bid into a <i>NYISO day-ahead market</i> as a flexible supplier to receive compensation; the criteria considered include energy bids, reserve availability bids, response rate, and the upper operating limit.</p>	<p>Price is paid in \$/MWh. Values vary widely:</p> <ul style="list-style-type: none"> <li>• Has regularly been as low as \$0/MWh, but has been as high as \$118.48/MWh (from June 2017-September 2017)</li> <li>• the avg. was \$.47/MWh (for the same time period)</li> </ul>	<p>Short duration/high output batteries are best for this specific service– it is difficult to stack these values. Spinning reserves respond in 10 or 30 minutes while other resources are brought on line, filling the gap between frequency regulation and peaker plants.</p> <p>The system would need to be located in a region where storage can export energy onto the grid.</p>	<p><b>Pricing and Data:</b>  <a href="http://www.nyiso.com/public/markets_operations/market_data/pricing_data/index.jsp">http://www.nyiso.com/public/markets_operations/market_data/pricing_data/index.jsp</a></p> <p><b>NYISO Ancillary Services Manual:</b>  <a href="http://www.nyiso.com/public/webdocs/markets_operations/documents/Manuals_and_Guides/Manuals/Operations/ancserv.pdf">http://www.nyiso.com/public/webdocs/markets_operations/documents/Manuals_and_Guides/Manuals/Operations/ancserv.pdf</a></p>
<p><b>NYISO Volt Var Optimization (Reactive Power)*</b></p>	<p>The project developer is the resource owner.</p> <p>Receives a payment from NYISO.</p> <p>Volt Var Optimization is the process of managing voltage levels in the grid, allowing the grid to operate at an optimal level.</p>	<p>The compensation is from the NYISO and is based on two formulas that determine the value the resource is providing to the grid. Participation and compensation amount is determined by a competitive bidding process.</p>	<p>Price is determined by the <b>contribution to the grid</b> and the <b>lost opportunity cost</b>:</p> <ul style="list-style-type: none"> <li>• <i>Contribution to grid = VSS Compensation rate * (lagging MVAR capacity + abs value leading MVAR capacity)</i></li> <li>• <i>Lost Opportunity Cost = max MW output (real time LBMP * (EOP – max (Actual Energy Injection)) * (fraction of an hour the reduction is necessary).</i></li> </ul>	<p>It is difficult to combine this with other services; hence the payment for lost opportunity cost that is given to resources that participate in the VVO market.</p> <p>Storage systems that want to receive this value would need to be located in a service area where storage systems can export energy onto the grid. Please contact the soft costs team for up to date information.</p>	<p><b>Pricing and Data:</b>  <a href="http://www.nyiso.com/public/markets_operations/market_data/pricing_data/index.jsp">http://www.nyiso.com/public/markets_operations/market_data/pricing_data/index.jsp</a></p> <p><b>NYISO Ancillary Services Manual:</b>  <a href="http://www.nyiso.com/public/webdocs/markets_operations/documents/Manuals_and_Guides/Manuals/Operations/ancserv.pdf">http://www.nyiso.com/public/webdocs/markets_operations/documents/Manuals_and_Guides/Manuals/Operations/ancserv.pdf</a></p>

<p><b>Non-Wire Alternatives Including Peaker Displacement</b></p>	<p>The project developer or utility owns the NWA, which is selected through an RFP process.</p> <p>Peaker Displacement will grow in importance upon the implementation of NYSDECs <a href="#">proposed regulations</a> for peaker plants.</p>	<p>The project owner or developer receives dollar payments. Compensation amount and structure varies as agreed upon in the RFP process or competitive solicitation. Opportunities are available in all utility service territories. The Energy Storage Roadmap recommended that NWAs are expanded to include DER deployments that are in the ratepayers' best interest.</p>	<p>Compensation depends on the location and benefits provided to the grid. The price per kW can vary greatly, depending on the utility and the needs of the grid in the given service area.</p>	<p>The project is designed to meet requirements of the NWA solicitation (this is the priority service and may limit other opportunities). The NY-BEST team can indicate which opportunities are best for energy storage.</p>	<p>Please see <a href="https://nyrevconnect.com/non-wires-alternatives/">https://nyrevconnect.com/non-wires-alternatives/</a> for more information on the process and current solicitations.</p>
<p><b>Emergency Power and Power Islanding</b></p>	<p>The municipality, facility owner, or project developer own the resource.</p>	<p>Compensation is unconventional.</p>	<p>The main form of compensation is the increased resiliency of a building, energy security, and avoided business operation losses during an outage.</p>	<p>The resource could be eligible to receive other value stack components in the future.</p> <p>More information can be found here: <a href="https://nysolarmap.com/media/1727/roadmap_final_final_228.pdf">https://nysolarmap.com/media/1727/roadmap_final_final_228.pdf</a></p>	<p>The Interruption Cost Estimator (ICE) Calculator can be used to estimate the cost of interrupted electricity: <a href="http://www.icecalculator.com/">http://www.icecalculator.com/</a></p>
<p><b>NYSERDA Programs</b></p>	<p>NYSERDA has funding available for energy storage projects.</p>	<p>PON 3541 seeks demonstration projects for commercially available distributed energy storage systems to “stack” multiple value streams</p> <p>PON 1746 - The NYSERDA Flexible Technical Assistance (FlexTech) Program provides feasibility studies for customers on potential energy storage installations</p>	<p>There is no maximum funding for a project under this PON, but it will not exceed 50% of the total project cost</p> <p>NYSERDA will fund up to seventy five percent (75%) of the eligible study costs, up to \$100,000.</p>	<p>Please see NYSERDA’s Energy Storage Program for more information on these programs. <a href="https://www.nyserdanyc.org/All-Programs/Programs/Energy-Storage/Funding-and-Assistance">https://www.nyserdanyc.org/All-Programs/Programs/Energy-Storage/Funding-and-Assistance</a></p>	

The linked document was prepared by Energy + Environmental Economics for NYSERDA. The document discusses and explores various value streams that are available for distributed energy storage, and provides additional information about what services can be stacked together. To access the document please [click here](#).

*The team understands that stacking values for energy storage systems is a difficult process, and the NYSERDA softs costs team is available to serve as a resource to project developers. Please do not hesitate to reach out with any questions. NYSERDA: [energystorage@nyserdanyc.org](mailto:energystorage@nyserdanyc.org) NY-BEST: [info@ny-best.org](mailto:info@ny-best.org)*

*\*The NYISO values, marked with the \*, are currently extremely difficult to stack with other services because of operational constraints preventing participation in both the wholesale and distribution markets. There is an ongoing process to develop rules to allow participation in both markets. Click [here](#) to access NYISO’s DER Roadmap and [here](#) to learn more about the process.*

## Appendix A: Demand Response Programs

Utility	Monthly Reservation Payment	Demand Response Programs
<b>PSEG LI – (5/1-9/30)</b>	\$5/kW/month	\$.25/kWh
<b>CHG&amp;E – TDR Program</b>	\$6.82/kW/month	N/A
<b>CHG&amp;E – CSRP</b>	21 hours - \$4/kW/Month (Reservation only)	(Reservation) 21 hours - \$.25/kWh (planned) or \$.50/kWh (unplanned) (Voluntary) \$.25/kWh (planned) or \$1.00/kWh (unplanned)
<b>Con Ed – DLRP Reservation Payment Option:</b> must be located in Tier 1 or Tier 2 network	Tier 1 Network - \$18/kW/Month for 4 or fewer events and \$23/kW/Month for 5 or more events  Tier 2 Network - \$25/kW/Month for 4 or fewer events and \$30/kW/Month for 5 or more events	\$1/kWh  (For Voluntary Participation Option there is no reservation payment. Participants receive \$3/kWh.)
<b>Con Ed – CSRP Reservation Payment Option</b>	Staten Island/Westchester \$6/kW/Month for 4 or fewer events and \$11/kW/Month for 5 or more events  Brooklyn, Bronx, Manhattan, Queens \$18/kW/Month for 4 or fewer events and \$23/kW/Month for 5 or more events	\$1/kWh for a planned event, and \$6/kWh for an unplanned event  (For Voluntary Participation Option there is no reservation payment. Participants receive \$3/kWh during a planned event and \$10/kWh during an unplanned event.)
<b>RG&amp;E – CASHBACK:</b> commercial/industrial min. 100 kW	N/A	\$.45 + /kWh
<b>RG&amp;E – CSRP</b>	\$3.25/kW/month (4 or less events) or \$3.50/kW/month (5 or more)	\$.15/kWh
<b>RG&amp;E – DLRP:</b> only some customers eligible	\$3.25/kW/month (4 or less events) or \$3.50/kW/month (5 or more)	\$.15/kWh first four hours \$.30/kWh after four hours
<b>NYSEG – CASHBACK:</b> commercial/industrial min. 100 kW	N/A	\$.45 + /kWh
<b>NYSEG – CSRP</b>	\$2.75/kW/Month (4 or less events) or \$3.00/kW/Month (5 or more)	\$.15/kWh

<b>NYSEG – DLRP:</b> only some customers eligible	\$2.75/kW/Month (4 or less events) or \$3.00/kW/Month (5 or more)	\$.15/kWh first four hours \$.30/kWh after four hours
<b>O&amp;R – DLRP</b>	Tier 1 - \$3/kW/Month Tier 2 - \$5/kW/Month	\$.50/kWh
<b>O &amp; R – CSRP</b>	\$3/kW/Month	\$.50/kWh
<b>National Grid – CSRP</b>	\$2.75/kW/Month (4 or less events) or \$3.00/kW/Month (5 or more)	Planned - \$.17/kWh Unplanned - \$.21/kWh
<b>National Grid – DLRP:</b> Kenmore Ave. ONLY	Reservation – \$4.69/kW/Month	Reservation - \$1.02/kWh Voluntary - \$1.20/kWh

Note: For those services above that say reservation (or planned); the resource is obligated to provide the reductions included in their bid or face penalties from the utility

## Appendix B: Energy Cost by Utility and Service Class (2018 Rates)

Please note: does not include other charges that may apply such as supply related, SBC, MAC, RDM, etc.

### Consolidated Edison Company of New York:

Rate Type	Tariff Level
SC 1 (Summer)	\$.10221/kWh first 250 + \$.11749/kWh/Month over 250 kWh
SC 1 (Not Summer)	\$.10221/kWh/Month
SC 1 (Summer, 10AM-10PM, M-F)	\$.3445/kWh/Month
SC 1 (Summer Nighttime, Weekends)	\$.0132/kWh/Month
SC 1 (Not Summer, 10AM-10PM, M-F)	\$.1250/kWh/Month
SC 1 (Not Summer, Nighttime, Weekends)	\$.0132/kWh/Month
SC 1 (Summer, 8 AM-Midnight)	\$.2180/kWh/Month
SC 1 (Summer, Midnight-8 AM)	\$.0154/kWh/Month
SC 1 (Not Summer, 8 AM-Midnight)	\$.0807/kWh/Month
SC 1 (Not Summer, Midnight-8 AM)	\$.0154/kWh/Month
SC 2 (Summer)	\$.1246/kWh/Month
SC 2 (Not Summer)	\$.1046/kWh/Month
SC 2 (Summer, 8AM-10PM, M-F)	\$.2938/kWh/Month
SC 2 (Summer, Nighttime, Weekends)	\$.0108/kWh/Month
SC 2 (Not Summer, 8AM-10PM, M-F)	\$.1447/kWh/Month
SC 2 (Not Summer, Nighttime, Weekends)	\$.0108/kWh/Month
SC 5 Low Tension (summer)	\$153.07 + \$26.87/kW/Month over 5 kW \$.0399/kWh
SC 5 High Tension (summer)	\$122.61 + \$21.45/kW/Month over 5 kW \$.0399/kWh
SC 5 Low Tension	\$98.20 + \$17.11/kW/Month over 5 kW \$.0399/kWh
SC 5 High Tension	\$67.73 + \$11.68/kW/Month over 5 kW \$.0399/kWh
SC 5 High/Low Tension (Summer, 8-6, M-F)	\$4.36/kW \$.0079/kWh
SC 5 High/Low Tension (Summer, 8-10, M-F)	\$8.96/kW \$.0079/kWh
SC 5 Low Tension (Summer, other, low tension only)	\$8.59/kW \$.0079/kWh
SC 5 High/Low Tension (not summer, 8-10, M-F)	\$7.62/kW \$.0079/kWh
SC 5 (not summer, low tension only, other hours)	\$2.71/kW \$.0079/kWh
SC 5 Low Tension (Summer, 8-6, M-F)	\$263.60/Month \$5.68/kW of Contract Demand \$.2319/kW-used
SC 5 High Tension (Summer 8-6, M-F)	\$263.60/Month \$3.19/kW of Contract Demand \$.2319/kW-used
SC 5 Low Tension (Summer, 8-10, M-F)	\$263.60/Month \$5.68/kW of Contract Demand \$.6314/kW-used
SC 5 High Tension (Summer, 8-10, M-F)	\$263.60/Month \$3.19/kW of Contract Demand \$.2016/kW-used
SC 5 Low Tension (Nighttime, Weekend)	\$263.60/Month \$5.68/kW of Contract Demand
SC 5 High Tension (Nighttime, Weekend)	\$263.60/Month \$3.19/kW of Contract Demand
SC 5 Low Tension (Not Summer, 8-10p, M-F)	\$263.60/Month \$5.68/kW of Contract Demand \$.5039/kW-used
SC 5 High Tension (Not Summer, 8-10p, M-F)	\$263.60/Month \$3.19/kW of Contract Demand \$.2632/kW-used
SC 5 Low Tension (Not summer, not peak hours)	\$373.92/Month \$6.02/kW of Contract Demand
SC 5 Low Tension (Not Summer, 8-10, M-F)	\$373.92/Month \$6.02/kW of Contract Demand \$.5681/kW-used
SC 5 Low Tension (Summer, 8-6, M-F)	\$373.92/Month \$6.02/kW of Contract Demand \$.2704/kW-used
SC 5 Low Tension (Summer, 8-10, M-F)	\$373.92/Month \$6.02/kW of Contract Demand \$.6584/kW-used
SC 5 High Tension, below 138 kV (Not summer, not peak)	\$373.92/Month \$4.30/kW of Contract Demand

### Con Ed Legend

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The **standby** rate is an electric rate available to large customers who have their own distributed energy resources (“DERs”) on-site, including solar, combined heat and power (“CHP”), and storage. The standby rate calculates demand based on daily, rather than monthly, peaks. Daily, rather than monthly, peak load management gives a storage vendor the flexibility to operate the storage system to best serve the customer without the risk that a missed peak could greatly increase the demand charges for the month. For example, a storage vendor has the flexibility to participate in a demand response event rather than reduce the customer’s peak load on a given day. In Con Ed’s territory, the standby rates are Rate III or Rate IV of SC 5, Rate IV or Rate V of SC 8, 9, or 12, or Rate II of SC 13.

SC 5 High Tension, below 138 kV (Not summer, 8-10, M-F)	\$373.92/Month \$4.30/kW of Contract Demand \$.3290/kW-used
SC 5 High Tension, below 138 kV (Summer, 8-6, M-F)	\$373.92/Month \$4.30/kW of Contract Demand \$.2873/kW-used
SC 5 High Tension, below 138 kV (Summer, 8-10, M-F)	\$373.92/Month \$4.30/kW of Contract Demand \$.2132/kW-used
SC 5 High Tension, at 138 kV (not summer, not peak)	\$278.15/Month \$1.74/kW of Contract Demand
SC 5 High Tension, at 138 kV (not summer, 8-10, M-F)	\$278.15/Month \$1.74/kW of Contract Demand \$.1422/kW-used
SC 5 High Tension, at 138 kV (summer, 8-6, M-F)	\$278.15/Month \$1.74/kW of Contract Demand \$.2137/kW-used
SC 8 Low Tension (Summer)	\$357.96 + \$32.29/kW/Month over 10 kW \$.0176/kWh
SC 8 High Tension (Summer)	\$281.98 + \$25.43/kW/Month over 10 kW \$.0176/kWh
SC 8 Low Tension	\$276.71 + \$24.95/kW/Month over 10 kW \$.0176/kWh
SC 8 High Tension	\$200.74 + \$18.08/kW/Month over 10 kW \$.0176/kWh
SC 8 Low Tension (Summer, all hours)	\$18.49/kW/Month \$.0079/kWh
SC 8 Low Tension (Summer, M-F, 8-10)	\$19.32/kW/Month \$.0079/kWh
SC 8 Low Tension (Summer, M-F, 8-6)	\$8.65/kW/Month \$.0079/kWh
SC 8 High Tension (Summer, M-F, 8-6)	\$8.65/kW/Month \$.0079/kWh
SC 8 High Tension (Summer, M-F, 8-10)	\$19.32/kW/Month \$.0079/kWh
SC 8 High/Low Tension (M-F, 8-10)	\$13.72/kW/Month \$.0079/kWh
SC 8 Low Tension (all hours)	\$5.11/kW/Month \$.0079/kWh
SC 8 Low Tension (Summer, all hours)	\$18.99/kW/Month \$.0079/kWh
SC 8 Low Tension (Summer, M-F, 8-10)	\$20.63/kW/Month \$.0079/kWh
SC 8 Low Tension (Summer, M-F, 8-6)	\$8.65/kW/Month \$.0079/kWh
SC 8 High Tension (Summer, M-F, 8-6)	\$8.65/kW/Month \$.0079/kWh
SC 8 High Tension (Summer, M-F, 8-10)	\$20.63/kW/Month \$.0079/kWh
SC 8 High/Low Tension (M-F, 8-10)	\$15.24/kW/Month \$.0079/kWh
SC 8 Low Tension (all hours)	\$6.05/kW/Month \$.0079/kWh
SC 8 Low Tension (Off peak)	\$303.78/Month \$7.44/kW/Month of contract demand
SC 8 High Tension (Off peak)	\$303.78/Month \$6.99/kW/Month of contract demand
SC 8 Low Tension (Summer, M-F, 8-6)	\$303.78/Month \$7.44/kW/Month of contract demand; \$.6743/kW-used
SC 8 Low Tension (Summer, M-F, 8-10)	\$303.78/Month \$7.44/kW/Month of contract demand; \$1.4319/kW-used
SC 8 Low Tension (off peak, M-F, 8-10)	\$303.78/Month \$7.44/kW/Month of contract demand; \$.9422/kW-used
SC 8 High Tension (Summer, M-F, 8-6)	\$303.78/Month \$6.99/kW/Month of contract demand; \$.6743/kW-used
SC 8 High Tension (Summer, M-F, 8-10)	\$303.78/Month \$6.99/kW/Month of contract demand; \$.4725/kW-used
SC 8 High Tension (off peak, M-F, 8-10)	\$303.78/Month \$6.99/kW/Month of contract demand; \$.5538/kW-used
SC 8 Low Tension	\$1,170.87/Month \$6.84/kW Contract Demand
SC 8 Low Tension (Summer, M-F, 8-6)	\$1,170.87/Month \$6.84/kW Contract Demand \$.6557/kW-used
SC 8 Low Tension (Summer, M-F, 8-10)	\$1,170.87/Month \$6.84/kW Contract Demand \$1.3466/kW-used
SC 8 Low Tension (M-F, 8-10)	\$1,170.87/Month \$6.84/kW Contract Demand \$.8690/kW-used
SC 8 High Tension below 138 kV	\$1,170.87/Month \$6.60/kW Contract Demand
SC 8 High Tension below 138 kV (Summer, M-F, 8-6)	\$1,170.87/Month \$6.60/kW Contract Demand \$.6557/kW-used
SC 8 High Tension below 138 kV (Summer, M-F, 8-10)	\$1,170.87/Month \$6.60/kW Contract Demand \$.4424/kW-used
SC 8 High Tension below 138 kV (M-F, 8-10)	\$1,170.87/Month \$6.60/kW Contract Demand \$.5205/kW-used
SC 8 High Tension above 138 kV	\$210.58/Month \$2.71/kW Contract Demand
SC 8 High Tension above 138 kV (Summer, M-F, 8-6)	\$210.58/Month \$2.71/kW Contract Demand \$.4917/kW-used
SC 8 High Tension above 138 kV (M-F, 8-10)	\$210.58/Month \$2.71/kW Contract Demand \$.2375/kW-used
SC 9 Low Tension (Summer)	\$166.50 + \$24.33/kW/Month over 5 kW \$.0221/kWh
SC 9 High Tension (Summer)	\$128.72 + \$18.45/kW/Month over 5 kW \$.0206/kWh

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SC 9 Low Tension	\$132.99 + \$19.22/kW/Month over 5 kW \$.0221/kWh
SC 9 High Tension	\$95.27 + \$13.33/kW/Month over 5 kW \$.0206/kWh
SC 9 Low/High Tension (Summer, all hours)	\$16.51/kW \$.0079/kWh
SC 9 Low/High Tension (Summer, 8-10, M-F)	\$15.39/kW \$.0079/kWh
SC 9 Low Tension (Summer, 8-6, M-F)	\$8.23/kW \$.0079/kWh
SC 9 Low/High Tension (M-F, 8-10)	\$11.35/kW \$.0079/kWh
SC 9 Low Tension (all hours)	\$5.30/kW \$.0079/kWh
SC 9 Low Tension (Summer, all hours)	\$17.71/kW \$.0079/kWh
SC 9 Low/High Tension (Summer, 8-10, M-F)	\$18.52/kW \$.0079/kWh
SC 9 Low/High Tension (Summer, 8-6, M-F)	\$8.64/kW \$.0079/kWh
SC 9 Low/High Tension (M-F, 8-10)	\$11.99/kW \$.0079/kWh
SC 9 Low Tension (all hours)	\$5.08/kW \$.0079/kWh
SC 9 Low Tension (all hours)	\$99.42/Month \$7.87/kW of Contract Demand
SC 9 Low Tension (Summer, M-F, 8-6)	\$99.42/Month \$7.87/kW Contract Demand \$.4866/kW-used
SC 9 Low Tension (Summer, M-F, 8-10)	\$99.42/Month \$7.87/kW Contract Demand \$1.0052/kW-used
SC 9 Low Tension (M-F, 8-10)	\$99.42/Month \$7.87/kW Contract Demand \$.6820/kW-used
SC 9 High Tension (all hours)	\$99.42/Month \$5.57/kW Contract Demand
SC 9 High Tension (Summer, M-F, 8-6)	\$99.42/Month \$5.57/kW Contract Demand \$.4939/kW-used
SC 9 High Tension (Summer, M-F, 8-10)	\$99.42/Month \$5.57/kW Contract Demand \$.3271/kW-used
SC 9 High Tension (M-F, 8-10)	\$99.42/Month \$5.57/kW Contract Demand \$.4181/kW-used
SC 9 Low Tension Wholesale (all hours)	\$99.42/Month \$7.87/kW of Contract Demand
SC 9 Low Tension Wholesale (Summer, M-F, 8-10)	\$99.42/Month \$7.87/kW of Contract Demand \$1.0052/kW-used
SC 9 Low Tension Wholesale (M-F, 8-10)	\$99.42/Month \$7.87/kW of Contract Demand \$.4296/kW-used
SC 9 High Tension Wholesale (all hours)	\$99.42/Month \$5.57/kW of Contract Demand
SC 9 High Tension Wholesale (Summer, M-F, 8-10)	\$99.42/Month \$5.57/kW of Contract Demand \$.3271/kW-used
SC 9 High Tension Wholesale (M-F, 8-10)	\$99.42/Month \$5.57/kW of Contract Demand \$.1585/kW-used
SC 9 Low Tension (all hours)	\$1781.57/Month \$7.01/kW Contract Demand
SC 9 Low Tension (Summer, M-F, 8-6)	\$1781.57/Month \$7.01/kW Contract Demand \$.4894/kW-used
SC 9 Low Tension (Summer, M-F, 8-10)	\$1781.57/Month \$7.01/kW Contract Demand \$1.0307/kW-used
SC 9 Low Tension (M-F, 8-10)	\$1781.57/Month \$7.01/kW Contract Demand \$.7577/kW-used
SC 9 High Tension below 138 kV (all hours)	\$1781.57/Month \$6.62/kW Contract Demand
SC 9 High Tension below 138 kV (Summer, M-F, 8-6)	\$1781.57/Month \$6.62/kW Contract Demand \$.4951/kW-used
SC 9 High Tension below 138 kV (Summer, M-F, 8-10)	\$1781.57/Month \$6.62/kW Contract Demand \$.3384/kW-used
SC 9 High Tension below 138 kV (M-F, 8-10)	\$1781.57/Month \$6.62/kW Contract Demand \$.4521/kW-used
SC 9 High Tension above 138 kV (all hours)	\$348.69/Month \$2.76/kW Contract Demand
SC 9 High Tension above 138 kV (Summer, M-F, 8-6)	\$348.69/Month \$2.76/kW Contract Demand \$.3680/kW-used
SC 9 High Tension above 138 kV (M-F, 8-10)	\$348.69/Month \$2.76/kW Contract Demand \$.2015/kW-used
SC 9 Wholesale Low Tension (all hours)	\$7.01/kW of Contract Demand
SC 9 Wholesale Low Tension (Summer, M-F, 8-10)	\$7.01/kW of Contract Demand \$1.0307/kW-used
SC 9 Wholesale Low Tension (M-F, 8-10)	\$7.01/kW of Contract Demand \$.4898/kW-used
SC 9 Wholesale High Tension (all hours)	\$6.62/kW of Contract Demand
SC 9 Wholesale High Tension (Summer, M-F, 8-10)	\$6.62/kW of Contract Demand \$.3384/kW-used
SC 9 Wholesale High Tension (M-F, 8-10)	\$6.62/kW of Contract Demand \$.1788/kW-used
SC 12 Low Tension (Summer)	\$171.46 + \$31.01/kW/Month over 5 kW \$.0181/kWh
SC 12 High Tension (Summer)	\$135.64 + \$24.51/kW/Month over 5 kW \$.0181/kWh

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SC 12 Low Tension	\$96.27 + \$17.39/kW/Month over 5 kW \$.0181/kWh
SC 12 High Tension	\$60.60 + \$10.91/kW/Month over 5 kW \$.0181/kWh
SC 12 Energy Only (Summer)	\$12.16 for 10 kWh + \$.1167/kWh over 10
SC 12 Energy Only	\$12.02 for 10 kWh + \$.1051/kWh over 10
SC 12 Low Tension (Summer, all hours)	\$13.49/kW, \$.0079/kWh
SC 12 High/Low Tension (Summer, M-F, 8-10)	\$18.50/kW, \$.0079/kWh
SC 12 High/Low Tension (Summer, M-F, 8-6)	\$7.82/kW, \$.0079/kWh
SC 12 Low Tension (all hours)	\$11.24/kW, \$.0079/kWh
SC 12 High/Low Tension (M-F, 8-10)	\$9.68/kW, \$.0079/kWh
SC 12 Low Tension (Summer, all hours)	\$17.32/kW, \$.0079/kWh
SC 12 High/Low Tension (Summer, M-F, 8-10)	\$16.84/kW, \$.0079/kWh
SC 12 High/Low Tension (Summer, M-F, 8-6)	\$7.13/kW, \$.0079/kWh
SC 12 Low Tension (all hours)	\$13.19/kW, \$.0079/kWh
SC 12 High/Low Tension (M-F, 8-10)	\$7.44/kW, \$.0079/kWh
SC 12 Energy Only (all off peak hours)	\$30.12/Month \$.0108/kWh
SC 12 Energy Only (Summer M-F, 8-10)	\$30.12/Month \$.2938/kWh
SC 12 Energy Only (M-F, 8-10)	\$30.12/Month \$.1447/kWh
SC 12 Low Tension	\$132.55/Month \$6.47/kW Contract Demand
SC 12 Low Tension (Summer, M-F, 8-6)	\$132.55/Month \$6.47/kW Contract Demand \$.4911/kW-used
SC 12 Low Tension (Summer, M-F, 8-10)	\$132.55/Month \$6.47/kW Contract Demand \$1.2652/kW-used
SC 12 Low Tension (M-F, 8-10)	\$132.55/Month \$6.47/kW Contract Demand \$.9098/kW-used
SC 12 High Tension	\$132.55/Month \$5.64/kW Contract Demand
SC 12 High Tension (Summer, M-F, 8-6)	\$132.55/Month \$5.64/kW Contract Demand \$.4911/kW-used
SC 12 High Tension (Summer, M-F, 8-10)	\$132.55/Month \$5.64/kW Contract Demand \$.4445/kW-used
SC 12 High Tension (M-F, 8-10)	\$132.55/Month \$5.64/kW Contract Demand \$.4320/kW-used
SC 12 Low Tension	\$763.07/Month \$6.09/kW Contract Demand
SC 12 Low Tension (Summer, M-F, 8-6)	\$763.07/Month \$6.09/kW Contract Demand \$.5187/kW-used
SC 12 Low Tension (Summer, M-F, 8-10)	\$763.07/Month \$6.09/kW Contract Demand \$1.3670/kW-used
SC 12 Low Tension (M-F, 8-10)	\$763.07/Month \$6.09/kW Contract Demand \$.9781/kW-used
SC 12 High Tension below 138 kV	\$763.07/Month \$5.87/kW Contract Demand
SC 12 High Tension below 138 kV (Summer, M-F, 8-6)	\$763.07/Month \$5.87/kW Contract Demand \$.5187/kW-used
SC 12 High Tension below 138 kV (Summer, M-F, 8-10)	\$763.07/Month \$5.87/kW Contract Demand \$.4796/kW-used
SC 12 High Tension below 138 kV (M-F, 8-10)	\$763.07/Month \$5.87/kW Contract Demand \$.4748/kW-used
SC 12 High Tension above 138 kV	\$208.31/Month \$2.01/kW Contract Demand
SC 12 High Tension above 138 kV (Summer, M-F, 8-6)	\$208.31/Month \$2.01/kW Contract Demand \$.3893/kW-used
SC 12 High Tension above 138 kV (M-F, 8-10)	\$208.31/Month \$2.01/kW Contract Demand \$.1650/kW-used

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See link for more information: <https://www.coned.com/external/cerates/documents/elecPSC10/SCs.pdf>

### National Grid:

SC 2 Non-Demand	(\$21.02) \$.05696/kWh
SC 2 Demand	(\$52.52) \$10.27/kW/Month
SC 3 Secondary	(\$260.15) First 40 kW \$401.20 + 10.03/kW over 40 \$.85 RKVA
SC 3 Primary	(\$436.70) First 40 kW \$326 + 8.15/kW over 40 \$.85 RKVA
SC 3 Sub-transmission	(\$565.23) First 40 kW \$110.80 + 2.77/kW over 40 \$.85 RKVA
SC 3 Transmission	(\$565.23) First 40 kW \$110.80 + 2.77/kW over 40 \$.85 RKVA
SC 3A secondary	\$9.18/kW/Month \$1.02 RkVA (+ \$1,000 delivery charge)
SC 3A Primary	\$9.18/kW/Month \$1.02 RkVA (+\$1,000 delivery charge)
SC 3A Sub-Trans	\$3.56/kW/Month \$1.02 RkVA (+\$1,400 delivery charge)
SC 3A Transmission	\$2.84/kW/Month \$1.02 RkVA (+\$3,500 delivery charge)

See link for more information: [https://www9.nationalgridus.com/niagaramohawk/business/rates/4\\_elec\\_rates.asp](https://www9.nationalgridus.com/niagaramohawk/business/rates/4_elec_rates.asp)

\*Rates in ( - ) indicate customer charge

### New York State Electric and Gas:

SC 1	(\$15.11) \$.03963/kWh
SC 2	(\$8.40) \$9.32 /kW \$.002612/kWh
SC 3 primary	(\$66.46) \$5.81/kW \$.002614/kWh \$.00078/kVah
SC 3 Sub-transmission	(\$289.44) \$4.30/kW \$0.00/kWh \$.00078/kVah
SC 6	(\$17.60) \$.04298/kWh
SC 7 Secondary	(\$130.23) \$8.54/kW \$0.00/kWh \$.00078/kVah
SC 7 Primary Distribution	(\$467.18) \$6.97/kW \$0.00/kWh \$.00078/kVah
SC 7 Primary Sub-transmission	(\$1048.59) \$2.04/kW \$0.00/kWh \$.00078/kVah
SC 7 Primary Transmission	(\$2288.06) \$.79/kW \$0.00/kWh \$.00078/kVah

See link for more information:

<https://www.nyseg.com/MediaLibrary/2/5/Content%20Management/NYSEG/SuppliersPartners/PDFs%20and%20Docs/N%20Electric%20Rate%20Summary.pdf>

\*Rates in ( - ) indicate customer charge

### Rochester Gas & Electric:

SC 1	(\$21.38) \$.04181/kWh
SC 2	(\$21.38) \$.03292/kWh
SC 3	(\$260.65) \$16.53/kW Variable/kWh
SC 7	(\$71.74) \$16.24/kW \$.00887/kWh
SC 8 Secondary	(\$809.20) \$14.22/kW Variable/kWh
SC 8 Substation	(\$1803.53) \$8.97/kW Variable/kWh
SC 8 Primary	(\$1019.63) \$13.82/kW Variable/kWh
SC 8 Sub-transmission Industrial	(\$1905.31) \$9.09/kW Variable/kWh
SC 8 Sub-transmission Commercial	(\$1840.34) \$9.88/kW Variable/kWh
SC 8 Transmission	(\$3344.03) \$8.73/kW Variable/kWh
SC 9	(\$59.50) \$11.34/kW \$.01408/kWh

See link for more information:

<http://www.rge.com/MediaLibrary/2/5/Content%20Management/RGE/SuppliersPartners/PDFs%20and%20Docs/RGE%20Electric%20Rate%20Summary.pdf>

\*Rates in ( - ) indicate customer charge

### Orange & Rockland Utilities:

SC 2 Demand Secondary (Summer)	First 5 kW \$2.37/kW, over 5 kW \$14.26/kW	First 1250 kWh \$.07047/kWh, up to 30,000 kWh \$.03459/kWh, in excess of 30,000 kWh \$.01948/kWh	
SC 2 Demand Secondary (Other)	First 5 kW \$1.36/kW, over 5 kW \$8.27/kW	First 1250 kWh \$.05497/kWh, up to 30,000 kWh \$.03310/kWh, in excess of 30,000 kWh \$.01798/kWh	
SC 2 Demand Primary (Summer)	\$14.55/kW	\$.02092/kWh	
SC 2 Demand Primary (Other)	\$8.08/kW	\$.02085/kWh	
SC 3 (Summer)	\$17.51/kW	\$.01087/kWh	
SC 3 (Other)	\$9.91/kW	\$.01087/kWh	
SC 9 Primary	Period A: \$17.21/kW \$.01632/kWh	Period B: \$8.12/kW \$.01632/kWh	Period C: No Demand \$.00609/kWh
SC 9 Substation	Period A: \$11.75/kW \$.00903/kWh	Period B: \$5.31/kW \$.00903/kWh	Period C No Demand \$.00556/kWh
SC 9 Transmission	Period A: \$7.79/kW \$.00218/kWh	Period B: \$5.30/kW \$.00218/kWh	Period C: No Demand \$.00205/kWh

See link for more information: <https://www.oru.com/external/orurates/documents/ny/2014ORElectricRateCaseFilingTestimonies.pdf>

**Central Hudson Gas and Electric:**

SC 1	(\$24.00) \$.06586/kWh
SC 2 Non Demand	(\$35.00) \$.02702
SC 2 Primary	(\$310) \$7.64/kW \$.00168/kWh
SC 2 Secondary	(\$84.00) \$9.06/kW \$.00591/kWh
SC 3	(\$1,500) \$9.84/kW \$.83/Rkva
SC 6	(\$27.00) Peak: \$.09507/kWh Off Peak: \$.03169/kWh
SC 13 Substation	(\$3,800) \$7.49/kW \$.83/Rkva
SC 13 Transmission	(\$5,020) \$4.30/kW \$.83/Rkva

See link for more information: [https://www.cenhud.com/static\\_files/cenhud/assets/pdf/deliveryratesummary.pdf](https://www.cenhud.com/static_files/cenhud/assets/pdf/deliveryratesummary.pdf)

\*Rates in ( - ) indicate customer charge

**PSEG Long Island and Long Island Power Authority:**

Rate 281, 283, 291 (June 1-Sep 30)	\$14.54/kW/Month \$.0249/kWh
Rate 281, 283, 291 (Oct 1-May 31)	\$13.33/kW/Month \$.0100/kWh
Rate 285 Secondary	Off-peak: \$0/kW/month \$.0050/kWh Peak: \$24.39/kW/month \$.0323/kWh Intermediate: \$5.81/kW/month \$.0206/kWh
Rate 285 Primary	Off-peak: \$0/kW/month \$.0029/kWh Peak: \$20.93/kW/month \$.0281/kWh Intermediate: \$5.13/kW/month \$.0181/kWh
Rate 285 Transmission	Off-peak: \$0/kW/month \$.0028/kWh Peak: \$17.30/kW/month \$.0263/kWh Intermediate: \$4.21/kW/month \$.0170/kWh
Rate 282 Secondary	Off-Peak: \$0/kW/month \$.0030/kWh Peak: \$49.43/kW/month \$.0216/kWh Intermediate: \$4.24/kW/month \$.0181/kWh
Rate 282 Primary	Off-Peak: \$0/kW/month \$.0027/kWh Peak: \$46.98/kW/month \$.0194/kWh Intermediate: \$4.06/kW/month \$.0164/kWh
Rate 284 Secondary	Off-Peak: \$0/kW/Month \$.0001/kWh Peak: \$47.27/kW/Month \$.0276/kWh Intermediate: \$4.73/kW/Month \$.0178/kWh
Rate 284 Primary	Off-Peak: \$0/kW/Month \$.0001/kWh Peak: \$42.44/kW/Month \$.0198/kWh Intermediate: \$4.24/kW/Month \$.0036/kWh
Rate 284 Transmission	Off-Peak: \$0/kW/Month \$.0001/kWh Peak: \$31.72/kW/Month \$.0187/kWh Intermediate: \$3.16/kW/Month \$.0034/kWh

See link below for more information about service classes: <https://www.psegliny.com/files.cfm/rates-comm.pdf>

## Appendix C: Rider Q Tariff

There are three different rate options for customers who decide to take advantage of the Rider Q tariff, each of which provides a different opportunity for energy storage vendors. Each of these options is a one-time election. Options A and B are both available to customers that would otherwise be billed under the conventional standby rate and may be a more beneficial variant of the standby rate. Each of these options are outlined in the table below.

Option Name	At a Glance
<b>A: Customer Chooses Contract Demand</b>	<ul style="list-style-type: none"> <li>Customer takes standby service, but can choose and more frequently modify contract demand level, rather than being set by the utility (this is the customer’s maximum expected demand from the grid)</li> <li>High penalties for exceeding contract demand</li> <li>If penalties can be avoided this represents a good opportunity for Energy Storage developers</li> </ul>
<b>B: Locational Variant As-Used Daily Demand Delivery Charges</b>	<ul style="list-style-type: none"> <li>The tariff has three demand charge periods:               <ul style="list-style-type: none"> <li>a decreased demand charge during the 8am-10pm window, M-F, June-September;</li> <li>a significantly increased demand charge for a specified 4-hour peak window, M-F, June-September;</li> <li>and an 8am-10pm window, M-F, all other months.</li> </ul> </li> <li>The time for the 4-hour increased-demand-charge window is pre-set by ConEd and is aligned with when the local network peak occurs. See page 68 (leaf 241) in this <a href="#">PDF</a>.</li> <li>A narrower time window with increased demand charges represents an opportunity for energy storage developers to target a customer’s peak billing rate while also providing system value.</li> </ul>
<b>C: Export Pilot Credit</b>	<ul style="list-style-type: none"> <li>Method of valuing exported energy, where customers received a monthly credit for their energy exports during the summer months</li> <li>May create an opportunity for hybridized systems.</li> </ul>

### Option B: Locational Variant As-Used Daily Demand Delivery Charges

Rider Q, Option B is an alternative method for calculating the as-used daily demand charge for customers served under the standby rate. This option creates the most opportunity for energy storage systems. This is open to standby rate customers receiving their energy from service classifications 5, 8, 9, 12, 13 or PASNY. The conventional as-used daily demand charge under the standby rate is a set to a 10 or 14-hour window throughout the territory. Rider Q concentrates the peak hours into a 4-hour window each day, Monday-Friday, June-September. This 4-hour window varies depending on which demand response network (CSRP and DLRP) the customer is located in. The opportunity is the greatest in DLRP zones. The table below illustrates this variation. All demand delivery charges for overlapping periods are additive, so for the 11 AM-3 PM window (Rider Q, Option B) a customer would have an as-used demand delivery charge of \$1.5019/kW.

Rider Q: Option B (Customer on SC-9 Standby Rate in an 11AM-3PM CSRP Zone, Low Tension Service)	Conventional Standby Rate (Customer on SC-9 Standby Rate in an 11 AM – 3 PM CSRP Zone, Low Tension Service)
<b>As Used Daily Demand Charges:</b> <ul style="list-style-type: none"> <li>Summer, M-F, 11 AM-3 PM → \$.7480/kW</li> <li>Summer, M-F, 8 AM-10 PM → \$.7539/kW</li> <li>Charges Applicable to all other months, M-F, 8 AM-10 PM → \$.6820/kW</li> </ul>	<b>As Used Daily Demand Charges:</b> <ul style="list-style-type: none"> <li>Summer, M-F, 8 AM-6 PM → \$.4866/kW</li> <li>Summer, M-F, 8 AM-10 PM → \$1.0052/kW</li> <li>Charges Applicable to all other months, M-F, 8 AM-10 PM → \$.6820/kW</li> </ul>
Customer Charge: \$99.42/Month	Customer Charge: \$99.42/Month
Contract Demand Charge: \$7.87/kW	Contract Demand Charge: \$7.87/kW

## Appendix D: Notes and Definitions

**BCA:** Benefit-Cost Analysis

**Con Ed:** Consolidated Edison Company of New York

**CSR:** Commercial System Relief Program

**DLRP:** Distribution Load Relief Program

**ELR:** Energy Limited Resource: This is a front of the meter resource where its operation is limited to certain times by some constraint. It must be able to operate for at least 4 consecutive hours each day.

**ESCO:** Energy Service Company

**High Tension:** This is the primary voltage side of final stepdown transformers, typically 13, 27, or 33 kV.

**kVA:** kilo volt \*amperes; this is equal to 1 kW (when power factor is equal to 1)

**LBMP:** Location Based Marginal Pricing

**LESR:** Limited Energy Storage Resource: This is a front of the meter energy storage resource where it is limited to less than an hour of contiguous operation.

**Low Tension:** This is the secondary voltage side of a final stepdown transformer, typically 208 V or 480 V.

**NYISO:** New York Independent System Operator

**NYSERDA:** New York State Energy Research & Development Authority

**Peak Demand Charge:** Peak demand is measured based on the top 30 minutes of demand, using rolling averages of two 15-minute windows during peak hours. Standard rates are based on the single peak demand for the month. Standby rates are based on the peak demand each day. Generally, peak hours for all rates are during M-F, 8 AM-10 PM, with increased charges June-September.

**REC:** Renewable Energy Credits

**RFP:** Request for Proposals

**RGGI:** Regional Greenhouse Gas Initiative

**Standby Rate:** A standby rate is a special tariff charged to large commercial and industrial customers who produce some, but not all of their own electricity requiring that they remain connected to the grid. The standby rate calculates demand based on daily, rather than monthly, peaks. Daily, rather than monthly, peak load management gives a storage vendor the flexibility to operate the storage system to best serve the customer without the risk that a missed peak could greatly increase the demand charges for the month. For example, a storage vendor has the flexibility to participate in a demand response event rather than reduce the customer's peak load on a given day.

**Time of Use (TOU) Rates:** Time of use rates are a voluntary service class, where energy use is measured for several different periods of time. This allows customers to shape their energy use around times where the grid is less constrained, and energy is less expensive. There are three windows where demand is measured; 8 AM to 6 PM, 8 AM to 10 PM, and all other hours.



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