# Calculating the Value Stack for Solar and Energy Storage

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# Agenda

> Value Stack Overview

> Value Stack Calculator

> Q&A

# Value Stack Overview

> Introduced in 2017 as a successor for net metering for certain project types, gradually implemented

> Underlying philosophy: the compensation for a project should reflect the time and location of its generation
>> Higher compensation in congested areas (downstate), higher compensation during peak demand times

> Compensation for energy that is injected to the distribution grid

> Value Stack was reformed ("Phase Two VDER") in 2019 to make it simpler and more financeable

> Phase One Net Metering ("NEM") is still in place for certain project types

# Value Stack Vs Net Metering

> Value Stack
>> Any community solar or remotely credited projects ("front-of-the-meter")
>> All projects above 750 kW AC

> Net Metering
>> Residential PV
>> On-site ("behind-the-meter") PV under 750 kW AC
>> 20-year term, no annual true-up

# Value Stack Elements

> Energy

> Capacity

> Environmental Value

> Demand Reduction Value

> Locational System Relief Value

> Community Credit and Market Transition Credit

# Value Stack Elements - Energy

> AKA Locational-Based Marginal Pricing (LBMP)

> Short Description: Based on the NYISO's auction prices – the same rates that power plants are paid.

> Full Description: The NYISO's zonal, day-ahead hourly auction prices, with a transmission & distribution loss factor applied.

> Pricing changes based on energy demand, cost of utility-scale energy generation (natural gas)

> The most variable and challenging-to-model value stack element.  For instance, was extremely high in 2022 due to natural gas supply constraints brought on by the war in Ukraine

# Value Stack Elements - Capacity

> AKA ICAP

> Short Description: Based on the NYISO's auction prices – compensation is based on how well the project reduces the statewide peak power demand

> Projects can choose from three Alternatives

>> Alt 1: Paid on every kWh generated throughout the year

>> Alt 2: A higher rate than Alt 1, but paid only on generation during a fixed peak window (2-7PM, non-holiday weekdays, June 24 –Aug 31)

>> Alt 3: (storage charged from the grid must choose this alternative). Compensation based on system output during the single statewide peak load hour of the year.

> In all three Alternatives, the compensation rate is based on the NYISO capacity auction prices

# Value Stack Elements – Environmental Value

> AKA "E Value"

> Represents the social and environmental benefits of a "clean" kilowatt-hour

> Value calculated based on Social Cost of Carbon, as calculated by NY DPS

> Projects lock in their E Value rate when they make their 25% utility upgrade payment (or execute interconnection agreement, if no upgrade payment required)

> Current value: 3.013 cents per kWh

> Projects may opt out of receiving the E value, and instead claim a non-tradable, non-monetizable REC that can be retired in the NYGATS platform

# Value Stack Elements – Demand Reduction Value

> AKA "DRV"

> Value based on how well a project reduces the utility's need to make grid upgrades

> DRV rates are locked in for 10 years.

> DRV paid out on grid injections during a fixed peaking window.  In ConEd:
>> Non-holiday weekdays, June 24 – Sept 15
>> Hours vary by location: 11AM–3PM, 2–6PM, 4–8PM, or 7–11 PM.  Check the CSRP Map!

> Future rates will be calculated based on [Marginal Cost of Service Proceeding](#)

# Value Stack Elements – LSRV, MTC, CC

> Location-Specific Relief Value (LSRV):  Available for certain utility-defined substations.  Almost fully allocated

> Market Transition Credit and Community Credit (MTC and CC):  Special incentive for community distributed generation.  Fully allocated in Con Ed territory.  Has been replaced by NY-Sun incentives (Community Adder)

# Are there resources to help me keep this straight?

> [NYSERDA Value Stack Page](#) and [VDER Resources page](#)
>> Overview document, webinar recordings, links to utility filings, etc.

> [Con Edison](#) Components and Eligibility for the VDER Value Stack guide

# Value Stack Calculator

> Free, Excel-based tool designed to help <u>estimate</u> project compensation under the Value Stack Tariff.  Actual compensation is calculated and administered by utility

> Can model front-of-the-meter and behind-the-meter PV, PV paired with energy storage, and (new feature!) standalone storage

> Flexible model – user has significant flexibility on assumptions and escalators.  Be thoughtful on how conservative or aggressive you want your model run to be

# Value Stack Calculator Rev 3.0

> Value Stack Calculator Revision 3.0 is now live!
  - Updated to include 2023 historic data – energy and capacity pricing, LSRV call events
  - New training video and slides have been posted (Value Stack Resources subpage)
  - Now includes standalone energy storage for all utilities, including charging costs

# Value Stack Calculator: Advanced Features

> Unlock workbook to edit: password *nysun*

> *Documentation* tab defined and explains many data sources, calculation methodologies. Includes links to external documents (such as the Con Ed DRV/CSRP map)

> *Summary Outputs* tab provides simple outputs (compensation per year), *Detailed Outputs* provides monthly compensation, and compensation per individual value stack element

> Calculator can model annual degradation of battery system.  Special macro may take 3-10 minutes to run.

> Calculator/modeling questions: vder@nyseda.ny.gov

> Interconnection/tariff questions: please contact utility

# Thank You

> If you have questions on this presentation, please contact [luke.forster@nyserda.ny.gov](mailto:luke.forster@nyserda.ny.gov).