



**NYSERDA**

# **Summary of *Value of Distributed Energy Resources***

***Updated to Include Phase 1 Implementation Order***

Updated 10.13.2017

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# Section 1

## Overview of VDER, Net Metering, and Phase 1 Net Metering

# Introduction

- NEM (net metering) since 1997 has been effective at growing NY's PV market
  - However, it's a blunt method for valuing distributed energy resources (VDER). Time and location of generation are not considered in compensation structure
- As part of Reforming the Energy Vision (REV), NYS is transitioning away from net energy metering (NEM)
- NYS' Public Service Commission (PSC) released 2 VDER Orders to start this transition
  - *Phase One* (March 9, 2017)
  - *Phase One Implementation Order* (Sept 14, 2017)
- VDER Phase Two will be an ongoing process

# Phase One

## What's Impacted

- **Solar PV**, Wind, Hydro, Farm Waste Generation, and Fuel Cells up to 2 MW AC\*
- Combined Heat and Power (CHP) up to 10kW AC
- National Grid, NYSEG, Central Hudson, Orange and Rockland, ConEd, Rochester Gas & Electric

\*Per Implementation Order pg 4, “The Commission expects to move towards a maximum project size of 5 MW by early 2018.”

# Volumetric vs Monetary Metering

**Volumetric metering** tracks net kWh delivered to grid

- NEM is a volumetric method. PV production exported to the grid is credited on the customer's utility bill with a kWh reduction on a 1:1 ratio

**Monetary metering** converts energy production into dollars

- PV customers and off-takers see a dollar credit on their energy bill (not a kWh credit)
- Solar energy consumed onsite is not delivered to the grid and is not converted to a monetary credit

*For both metering methods, kWhs consumed on-site are kWhs not purchased from the utility. They reduces the customer's bill like energy efficiency.*



# Definition of Project Types

## Mass Market

- PV system is located at customer site
- Residential or small commercial: customer has non-demand billing



# Definition of Project Types

## Large-scale onsite

- Onsite projects for commercial customers with demand billing or mandatory hourly pricing (MHP)

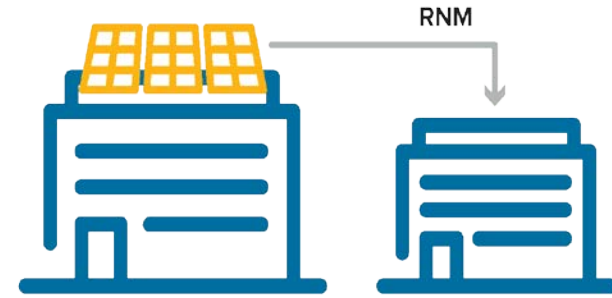




# Definition of Project Types

## Remote net metering (RNM)

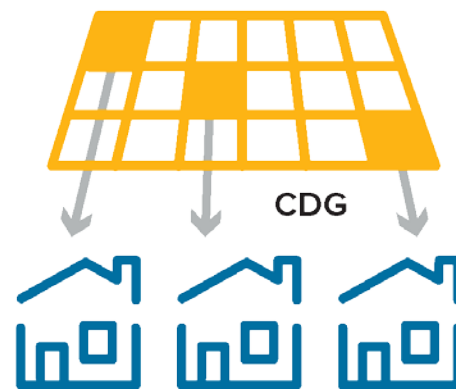
- Off-site projects of nonresidential customers; credits are used to offset use at remote meters
- Certain RNM projects already meeting specific criteria are grandfathered into monetary RNM compensation. These projects must generally be installed by the end of 2017



# Definition of Project Types

## Community Distributed Generation (CDG) or Community Solar

- Off-site projects located behind a nonresidential host meter that provide bill credits to subscribed members
- Typically 10+ members, but in conjunction with VDER order, the PSC approved a waiver for multifamily projects



# VDER Phase One Tariff Categories

1. **Phase One NEM** – was temporarily available to non-Mass Market projects that met certain milestones by 7/17/2017. Available for Mass Market through 1/1/2020
2. **Value Stack** – available for most commercial/industrial projects moving forward

\* Net Energy Metering (NEM) – no longer available for new projects. Projects interconnected before 3/9/2017 will continue to receive NEM for life

# Phase One NEM

Phase One NEM is similar to NEM compensation except:

- Phase One NEM projects are subject to a 20-year term
- Credits will carry over to next billing periods (no annual true-up)
- After a 20-year period, projects will receive compensation structure in effect at that time

# Phase One NEM

## Mass Market - How to Qualify

- Projects installed between 3/9/2017 and 1/1/2020 are eligible for Phase One NEM
- Utility territory MW limits specified by order
- PSC will determine appropriate action when 85% allocation is hit



## Mass Market MW Allocations by Utility

CHGE	O&R	NGRID	NYSEG	CoNEd	RG&E
30	25	55	20	65	5

# Phase One NEM

## Commercial – How to Qualify

- No longer available to new projects
- To qualify for Phase one NEM a project must have made payment of 25% of interconnection upgrade costs, or have executed an interconnection contract (SIR ) by July 17<sup>th</sup> 2017



# Value Stack

- The Value Stack consists of several elements representing the value of a kWh to the grid and the environment
- Some elements are time and location sensitive
- kWh produced in congested parts of the grid during peak demand time will be paid more
- CDG projects will receive an additional item (MTC) to better align compensation with NEM/retail rates

# Value Stack

- Applies to projects not eligible for NEM or Phase One NEM
- Monetary crediting only. Customers will see a dollar credit on their bill
- Compensation is based on electricity delivered to the grid (not consumed onsite) on an hourly basis
- Projects receiving the Value Stack will have a compensation term of 25 years, then receive compensation structure then in effect
- Excess dollar credits will carry over to next billing periods



# Value Stack



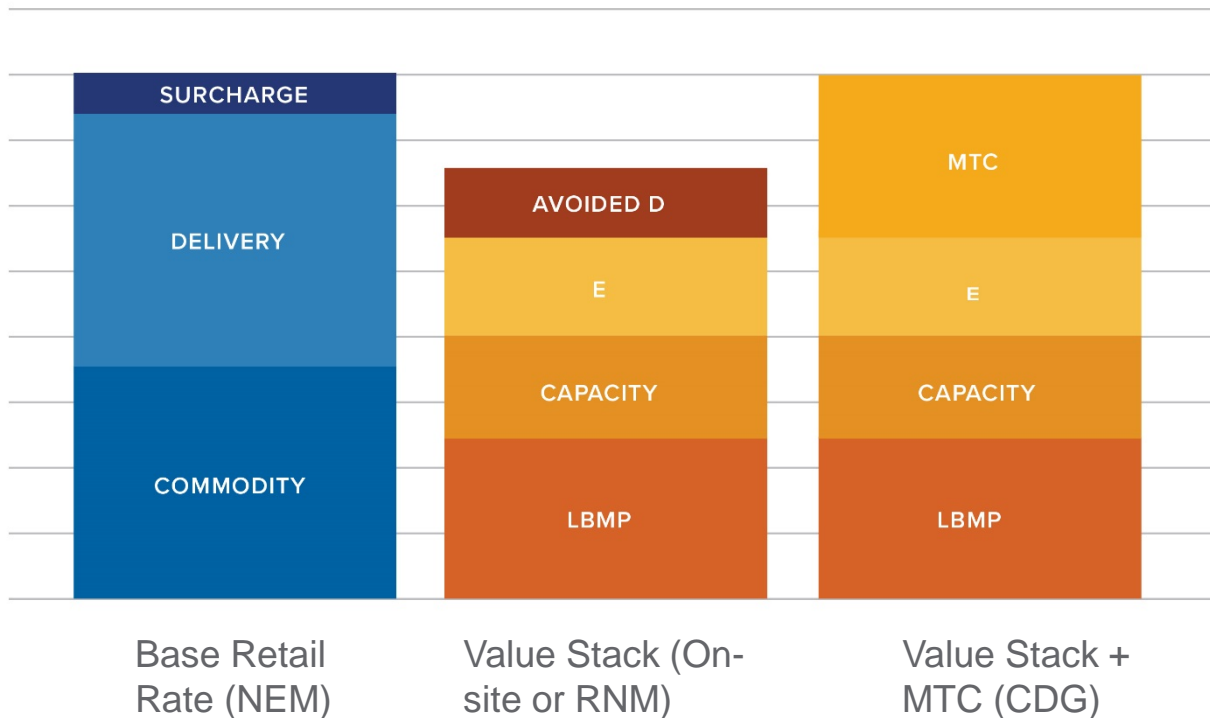
## How to Qualify

- Projects that do not receive NEM or Phase One NEM will receive the Value Stack
- Projects receiving NEM or Phase One NEM may opt into Value Stack
- All projects receiving the Value Stack must have advanced utility meter capable of measuring hourly electric exports and imports

# Phase One Value Stack - Components

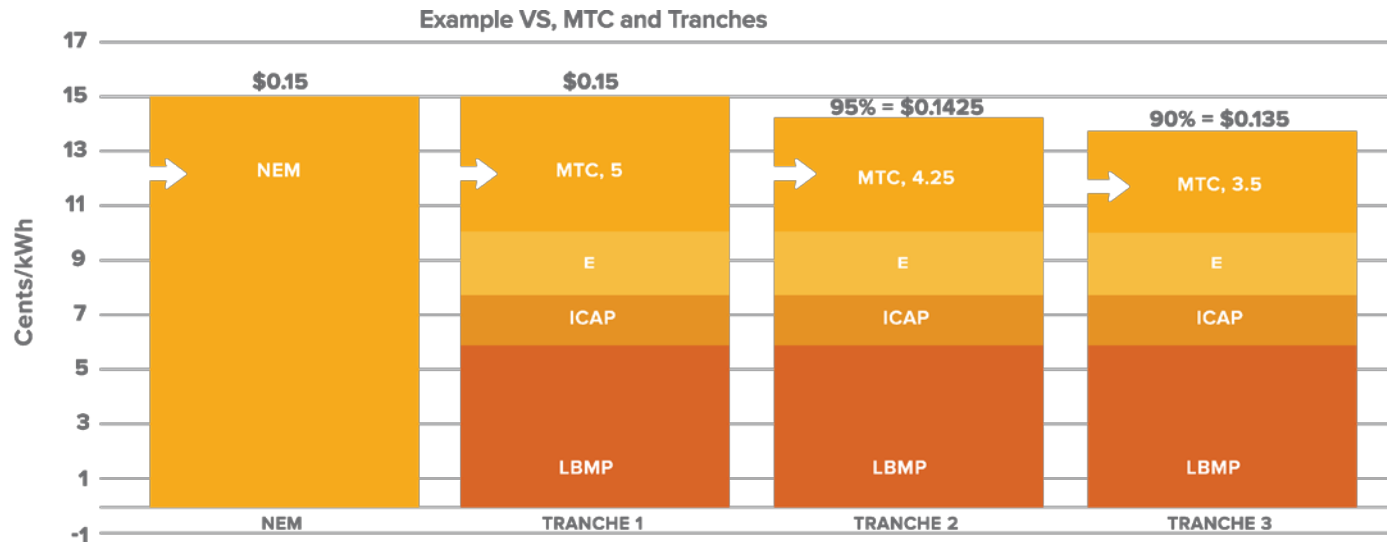
- **Energy (LBMP)** – the current wholesale energy price, changes hourly
- **Capacity (ICAP)** – similar to the capacity credit currently provided under NEM, changes monthly
- **Environmental benefits (“E”)** – project’s rate is locked in for 25 years. Certain CDG projects can take a non-tradable REC instead
- **Avoided demand (“D” or “DRV”)** – based on amount system will reduce distribution grid’s peak demand
- **LSRV (locational system relief value)** – locational adder for some projects
- **MTC (market transition credit)** – additional element for CDG or mass market opt-in, given in place of “DRV”
- For a deeper examination of these elements, please see the *Value Stack Calculator Overview presentation* at [nyserdera.ny.gov/vder](https://nyserdera.ny.gov/vder)

# Phase One Value Stack - Components



- Avoided D – avoided demand
- E – environmental benefit
- Capacity – ICAP
- LBMP – energy commodity
- MTC – market transition credit for CDG

# CDG Tranche Design



- MTC = Difference between *Base Retail Rate* and *Estimated Value Stack*
- Intended to make estimated CDG compensation...
  - equal to *Base Retail Rates* (NEM) in Tranche 1
  - 5% less than NEM in Tranche 2
  - 10% less than NEM in Tranche 3
- MTC rate locked in when project executes SIR or pays 25% of utility upgrade costs

## CDG Tranche Design – MW Allocation By Utility

	CHGE	O&R	NGRID	NYSEG	ConEd	RG&E
Total Incremental CDG MWs	77	47	474	223	548	111
Tranche 0/1	39	23	119	56	137	28
Tranche 2	19	12	178	84	206	42
Tranche 3	19	12	177	83	205	41

DPS staff will provide available tranche capacity updates on the 1<sup>st</sup> and 15<sup>th</sup> of every month at [nyserder.ny.gov/VDER](https://nyserder.ny.gov/VDER)



# Energy Storage

- Storage is included in Phase One when paired with an eligible technology
- By 12/20/2017, DPS will update SIR to allow interconnection of storage with DER
- NYSERDA is in the process of developing a solar + storage solicitation
- Stand-alone storage and other storage valuation will likely be taken up in VDER Phase Two

# Renewable Energy Certificates (RECs)

**Central Concept:** *No projects receiving Phase 1 NEM or the Value Stack will receive monetizable RECs*

## Details:

- Renewable Energy Standard (RES) Tier 1 differentiates between transferrable (monetizable) and nontransferable (non-monetizable) Renewable Energy Credits (RECs)
- RECs are tracked in NY Generation Attribute Tracking System (NYGATS) database, administered by NYSERDA
- 1 MWh = 1 REC
- NEM customers without an RPS (Renewable Portfolio Standard) or RES contract may still receive non-transferrable RECs
- Phase 1 NEM projects will not be eligible for Tier 1 solicitations or tradable RECs, but can receive non-transferrable RECs
- All rights to any environmental claims, credits, certificates, or attributes for energy produced by any system funded by Customer-Sited Tier or NY-Sun programs have been relinquished by NYSERDA

# Renewable Energy Certificates *cont'd*

- Any VDER project receiving the value stack is ineligible for Tier 1 solicitations or transferrable RECs, but will receive one of two options:
  - A. Default *Interconnecting-LSE-Option*: Utility (LSE) receives non-transferrable RECs, and customers receive environmental value component in Value Stack (“E”)
  - B. Customers may permanently opt into *Customer-Retention-Option* at time of interconnection. The customers forfeit “E” in the Value Stack but receive non-transferrable RECs (not redeemable for monetary value)
- Questions? See <https://www.nyserda.ny.gov/All-Programs/Programs/NYGATS/> or email [attributes@nyserda.ny.gov](mailto:attributes@nyserda.ny.gov)



# Section 2

## Updates from VDER Implementation Order

# VDER Implementation Order Highlights

## Clarification on how a CDG project's unallocated credits are banked

- If a CDG project has unallocated kWh (for instance if a customer dropped out), the excess kWh are converted to dollar credits which appear on a statement to the project sponsor
- These credits do not receive the MTC, but they do receive the DRV
- Project developers will tell utilities how to allocate excess credits, using a standardized form
- Excess credits can be carried forward up to 2 years
- Utility's monthly statement to project developer will show total value of banked credits

# VDER Implementation Order Highlights

## Clarification of how Monetary CDG credits are calculated

- kWh credits are distributed to subscribers based on the kWh percent allocations indicated by the sponsor, and are then converted into dollar credits based on customer type
  - Mass market SC1 & SC2 gets appropriate MTC
  - Demand customer does not get MTC

# VDER Implementation Order Highlights

- Utilities are ordered to report on feasibility and timeline for implementing consolidated billing (on-bill payments) for CDG projects
- DPS is considering increase of maximum interconnection size from 2MW AC to 5MW AC – currently open for comment

# VDER Order Timeline

- 30 days from Order (Oct 2017) Utilities to file detailed explanation of how and when credits appear on customer bills
- 60 days from Order (Nov 2017) Utilities to file automation and billing report – timeline for automation implementation and costs, timeline for implementing consolidated billing within 12 months of Order
- 11/20/2017 Deadline to comment on 5MW AC cap
- 12/20/2017 DPS staff to update SIR to allow PV+Storage
- 1/1/2020 Phase 1 NEM no longer available for new Mass Market projects

# Reporting Requirements

## Utilities

1. Each month, utilities must report certain information to DPS, including monthly ICAP value, average LBMP value, capacity remaining in LSRV zones, etc. Industry can review these reports to calibrate their modeling
2. Utilities must provide monthly breakdown/explanation of bill credits to Value Stack customers – examples below

## CDG Sponsors

1. Each year, CDG sponsors must provide an annual report to subscribers by March 31, showing the total credits the member has received (both kWh and \$) and the amount of fees paid by the subscriber. DPS to develop standardized form

# Reporting: Onsite/RNM

- Each month, utilities must provide the Value Stack customers with detailed breakdown of monthly credits
- Sample report from VDER Implementation Order, Appendix F

## Information to be Contained in Standardized Monthly Sponsors Report - On-Site and Remote Net Metered Projects For Illustration Purposes Only

Utilities to include the following information in monthly bill inserts for projects receiving Value Stack credits.

Customer Name:	John Doe		
Account Number:	12345678		
Start Billing Period:	11/1/2017		
End Billing Period:	11/28/2017		
Metered/Billed Usage (kWh)		500	
Total kWh Injections from DER	(1,000)		
<b>Value Stack Components</b>			
Energy Component (\$/kWh)	\$	0.0400	
Capacity Component (\$/kWh)	\$	0.0100	
Environmental Component (\$/kWh)	\$	0.0200	
Subtotal Credit per kWh	\$	0.0700	
Demand Reduction Value (DRV) (monthly lump sum)		\$	10.00
Locational System Relief Value (LSRV) (monthly lump sum)		\$	5.00
Total credit from per-kWh elements	\$	(70.00)	
Total credit from DRV + LSRV		\$	(15.00)
<b>Total Dollar Credit from DER this Billing Period</b>		<b>(\$85.00)</b>	<b>(Total Value Stack Credit per kWh x Monthly kWh Injections)+DRV &amp; LSRV amounts</b>
Dollar Credits Carried Over from Previous Billing Period (if any)	\$	-	
<b>Credit Applied to Customer Bill</b>			
Total Delivery Charges	\$	100.00	
Total Supply Charges	\$	50.00	
Total Miscellaneous Charges	\$	5.00	
Total Charges	\$	155.00	
<b>DER Credit</b>		<b>(\$85.00)</b>	
<b>Remit to Utility</b>	\$	<b>70.00</b>	
Dollar Credits Applied to Satellite Site(s), if any	\$	-	
Excess Dollar Credits Carrying Over to Next Billing Period	\$	-	

# Reporting: CDG

- Each month, utilities must provide CDG Sponsors with detailed breakdown of monthly credits
- Sample report from VDER Implementation Order, Appendix F

APPENDIX F.

INFORMATION TO BE CONTAINED IN STANDARDIZED

## MONTHLY SPONSORS' REPORT

Information to be Contained in Standardized Monthly Sponsors Report - CDG Projects  
For Illustration Purposes Only

Utilities to include the following information in monthly bill inserts for projects receiving Value Stack credits.

Customer Name:		CDG Project ABC
Account Number:		12345678
Start Billing Period:		11/1/2017
End Billing Period:		11/28/2017
<b>Total Net Generation this billing period (kWh)</b>		100,000
Net generation allocated to SC1 satellite accounts		50,000
Net generation allocated to SC2 satellite accounts		10,000
Net generation allocated to demand-metered satellite accounts		35,000
Net generation not allocated to a satellite account (banked)		5,000
<b>Value Stack Components</b>		
Energy Component (\$/kWh)	\$	0.0400
Capacity Component (\$/kWh)	\$	0.0100
Environmental Component (\$/kWh)	\$	0.0200
Subtotal Credit per kWh	\$	0.0700
<b>Market Transition Credit (MTC) (if applicable)</b>		
MTC SC1 (\$/kWh)	\$	0.0100
MTC SC2 (\$/kWh)	\$	0.0125
<b>DRV and LSRV (if applicable)</b>		
Demand Reduction Value (DRV) (monthly lump sum)	\$	50.00
Locational System Relief Value (LSRV) (monthly lump sum)	\$	500.00
Total dollar credit from per-kWh Value Stack elements	\$	7,000.00
Total dollar credit from MTC	\$	625.00
Total dollar credit from DRV + LSRV	\$	550.00
<b>Total dollar credit applied to satellite accounts</b>	<b>\$</b>	<b>7,750.00</b>
<b>Total dollar credit banked on host account this billing period</b>	<b>\$</b>	<b>425.00</b>
Dollar Credit Carried Over from Previous Billing Period (if any)	\$	-



# Glossary

- **CDG/Community Distributed Generation/Community Solar/Shared Solar:** A PV project that remotely supplies energy to multiple off-takers
- **Distributed Energy Resources (DER):** Non-centralized energy generators, such as PV
- **LSE (Load Serving Entity):** One of the electric utility companies
- **Net Energy Metering (NEM):** Net metering
- **NYGATS (New York Generation Attribute Tracking System):** Used to track RECs
- **MTC (Market Transition Credit):** An element of the value stack, available for CDG projects only
- **REC:** A renewable energy credit. Sometimes redeemable or tradable for monetary value, but not under Phase One order
- **Tier 1:** The Clean Energy Standard mandate on Load Serving Entities to procure RECs
- **MCOS:** Marginal costs of services

# Links and Resources

- NY-Sun VDER Resources, including Value Stack Calculator:  
[nysersda.ny.gov/VDER](https://nysersda.ny.gov/VDER)
- VDER Phase 1 Order and related documents:  
<http://www.dps.ny.gov/VDER>
- VDER questions: [vder@nysersda.ny.gov](mailto:vder@nysersda.ny.gov)
- REC questions: [attributes@nysersda.ny.gov](mailto:attributes@nysersda.ny.gov)