



**NYSERDA**

# **Summary of** ***Value of Distributed Energy Resources*** ***Phase 1 Order***

# Context of Order

- As part of Reforming the Energy Vision (REV), NYS is transitioning away from net energy metering (NEM)
- NYS' Public Service Commission (PSC) recently released an order to start this transition
  - *Phase One* (issued March 9, 2017)
  - *Phase Two* (to come)

# Introduction

- NEM has been effective at growing NYS' PV market
  - Policy in place since 1997
  - However, it's a blunt method for valuing distributed energy resources (VDER). Time and location of generation are not considered in compensation structure
- NYS PSC has begun to develop a more precise approach to VDER

# Phase One

## What's Impacted

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

# 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 see a dollar credit on their energy bill (rather than 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, PV kWh consumed on-site is a kWh not purchased from the utility. It reduces the customer's bill like energy efficiency.*

# Definition of Project Types

## Mass Market

- PV system is located at off-taker site
- Residential or small commercial solar electric systems where customer has non-demand billing



# Definition of Project Types

## Large-scale onsite

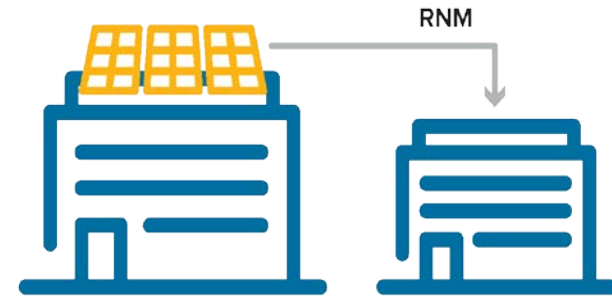
- Onsite projects for commercial customers with demand billing or mandatory hourly pricing (MHP)



# 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 compensation. These projects must be installed by the end of 2017

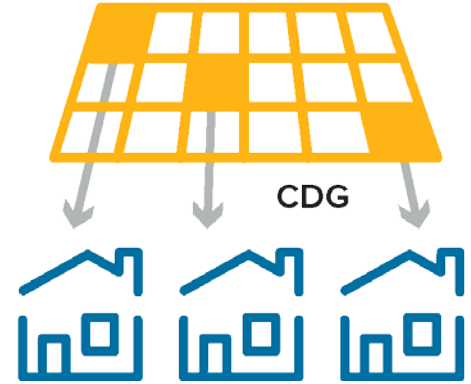




# Definition of Project Types

## 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



# Phase One - Tariff Categories

1. **Net Energy Metering (NEM)** – no longer available for new projects
2. **VDER Phase One NEM** – temporarily available based on project criteria
3. **Value Stack** – available for most commercial/industrial projects moving forward

# Phase One - Tariff Categories

## Net Energy Metering (NEM)

- Volumetric crediting
- Compensation for life of the system
- Annual true-up for net excess production

# Phase One - Tariff Categories

## VDER Phase One Net Energy Metering

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, except those held by CDG sponsors
- Projects must have utility metering capabilities for recording net hourly use and delivery, except mass market
- After a 20-year period, projects will receive compensation structure in effect

# Phase One - Tariff Categories

## Value Stack - Overview

- The Value Stack consists of several elements representing the value of a clean 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 align compensation with NEM

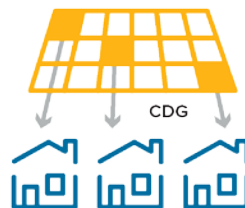
# Phase One - Tariff Categories

## 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 on site) on an hourly basis
- Projects receiving the Value Stack will have a compensation term of 25 years, then receive compensation structure in effect
- Credits will carry over to next billing periods, except those held by CDG sponsors
- CDG sponsors have two years to allocate annual excess credits not assigned to members

# Net Energy Metering - *How to Qualify*

- All projects already interconnected or completed as of 3/9/2017 will retain NEM for the life of the system
  - Must have notified utilities of finished projects by 3/17/2017
- No action is required for already-interconnected projects to keep NEM



# Phase One Net Energy Metering – *How to Qualify*

## Mass Market

- Projects installed between 3/9/2017 and 1/1/2020 are eligible for Phase One NEM
- Subject to MW allocation, 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 Net Energy Metering - *How to Qualify*

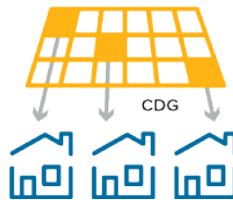
## Non-CDG Commercial



- To qualify for Phase one NEM a project must have made payment of at least 25% of interconnection upgrade costs, or have executed an interconnection contract (SIR) if no upgrade payments are required by July 17<sup>th</sup> 2017.
- Non-grandfathered RNM and large-scale, onsite projects are eligible
- CDG project eligibility is also subject to capacity limits

# Phase One Value Stack - *How to Qualify*

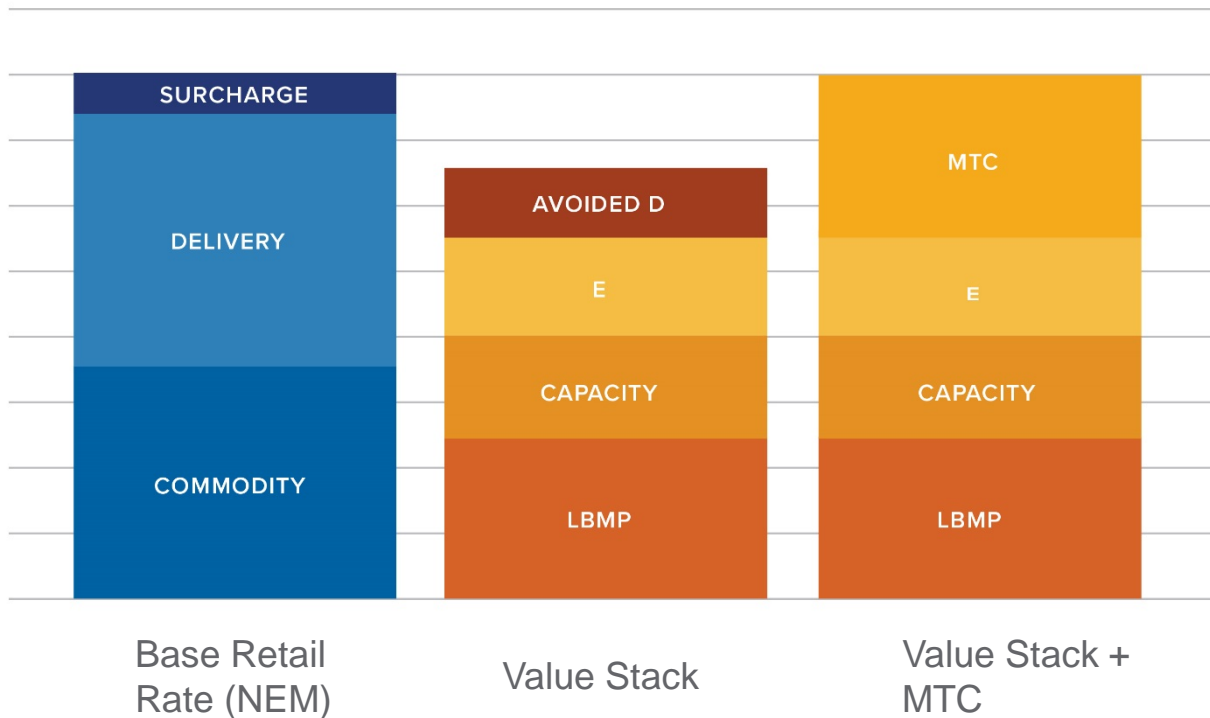
- Projects that do not receive NEM or Phase One NEM will receive the Value Stack
- Projects receiving NEM or Phase One NEM may opt into Value Stack
- All projects receiving the Value Stack must have advanced utility meter capable of measuring hourly electric exports and imports



# Phase One Value Stack - Components

- **Energy (LBMP)** – the current wholesale energy price, changes hourly
- **Capacity (ICAP)** – mirrors the capacity credit currently provided under NEM, changes over time
- **Environmental benefits (“E”)** – project’s rate is locked in at interconnection. Certain CDG projects can take a non-tradable REC instead
- **Avoided demand (“D”)** – based on amount system will reduce distribution grid’s peak demand
- **LSRV (locational system relief value)** – additional value for location-specific congestion relief in distribution network
- **MTC (market transition credit)** – additional element for CDG or mass market opt-in, given in place of “D”

# Phase One Value Stack - Components



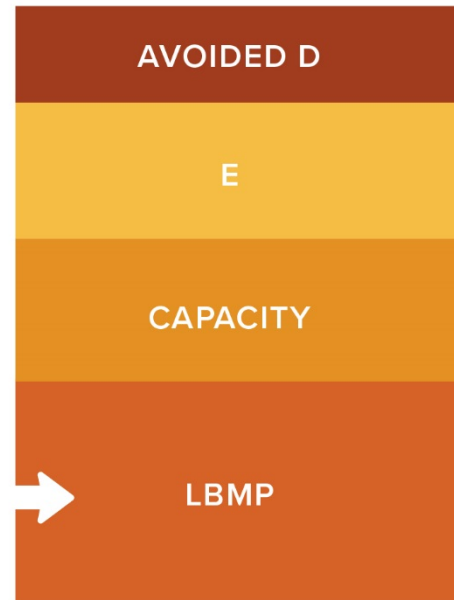
- Avoided D – avoided demand
- E – environmental benefit
- Capacity – ICAP
- LBMP – energy commodity
- MTC – market transition credit for CDG

## Phase One Value Stack Components – Energy Value (LBMP)

### *The wholesale cost of energy:*

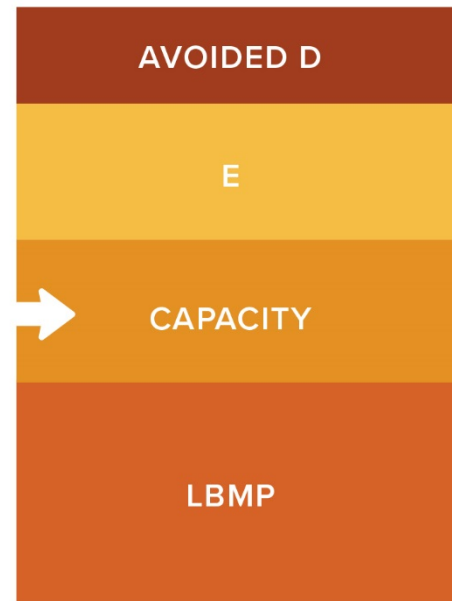
Day ahead Locational-based marginal pricing (LBMP) on an hourly basis inclusive of electrical losses.

Compensation only for electricity exported into the grid at the time of generation.



## Phase One Value Stack Components – Installed Capacity (ICAP)

- Compensation per kWh, based on the capacity portion of the utility's full service market supply charges (same value as NEM)\*
- Option 1 – spread across all hours of the year
- Option 2 – spread across 460 summer hours

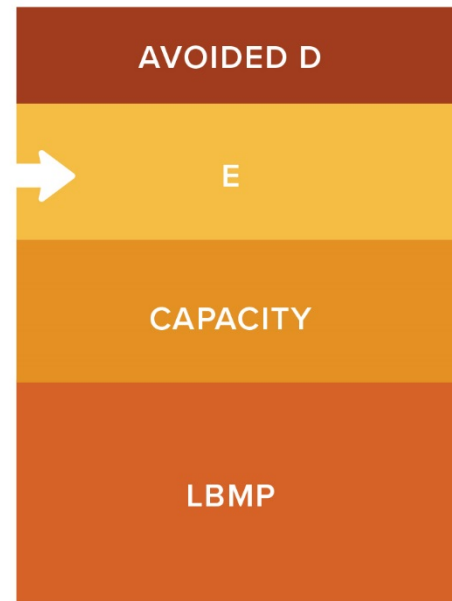


\*For intermittent technologies

## Phase One Value Stack Components – Environmental Value (interconnecting-LSE option)

### *A fixed value representing environmental benefits*

- Environmental compensation is the higher of:
  - The applicable Tier 1 REC price per kWh generated delivered (currently \$0.02424 per kWh)
  - The social cost of carbon (SCC) per kWh value minus Regional Greenhouse Gas Initiative
- This value will be fixed for the Value Stack term and is locked in at interconnection



## Phase One Value Stack Components – Value of “D” (DRV) - Demand Reduction Value

### *Value of PV System’s Reduction of Peak Grid Distribution Demand*

- Only for projects, or portions of projects, that do not receive MTC
- Compensation is tied to PV system performance over the grid’s 10 highest usage hours per year
- Details of calculation are available starting page 111 of Order

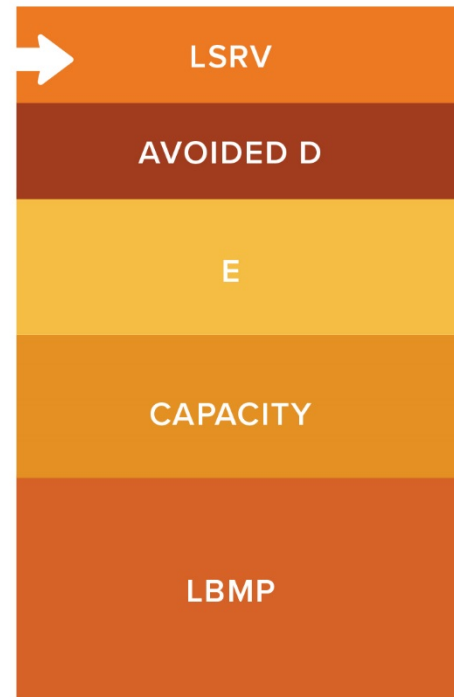




## Phase One Value Stack Components – Locational System Relief Value

### *A locational adder*

- Utilities are required to identify high-value locations and any limits on the MW needed in those areas
- \$ per kW-year value identified by utility, locked in, and paid for first 10 years of project
- LSRV can be received in addition to MTC, CDG projects are eligible
- Utilities have not yet identified LSRVs



## Phase One Value Stack Components – Market Transition Credit (MTC)

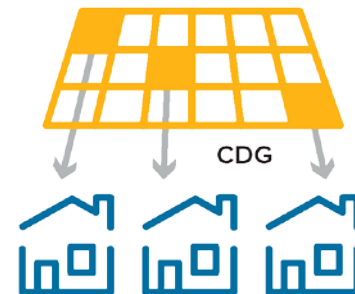
### *Additional Value Stack component for CDG*

- Provided to avoid market disturbances in the transition away from NEM
- MTC is also available for Mass Market and CDG NEM projects that opt-in to the Value Stack
- MTC is applied to CDG mass market membership proportion
  - If a project has 70% mass market (residential or nondemand commercial) offtakers and 30% large commercial offtakers, project gets MTC on 70% of capacity, and “D” on 30% of capacity
- The MTC will be calculated by each utility and set once following the Phase One Order, applies for full 25 years

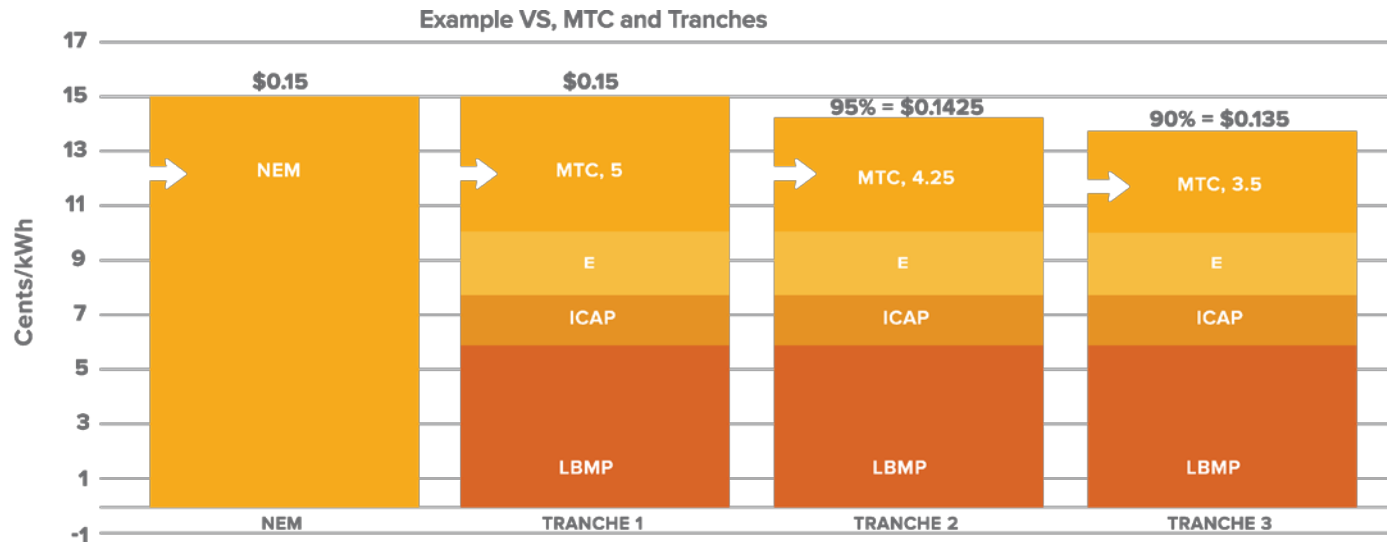


# CDG Tranche Design

- Tranche design applies to CDG projects only
- Phase 1 NEM projects (Tranche 0) receive 20-year NEM compensation (volumetric)
  - Open for 90 business days after the order, or until capacity full
  - Any remaining capacity moves into Tranche 1
- Tranche 1: 25-year, NEM equivalent, incorporates Value Stack (monetary)
- Tranche 2: 25-year, 95% NEM equivalent, incorporates Value Stack (monetary)
- Tranche 3: 25-year, 90% NEM equivalent, incorporates Value Stack (monetary)
- To enter a tranche, 25% utility upgrade payment **or** an executed utility interconnection agreement is required



# 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 reflects values not yet identified or calculable, especially value of D

## 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 updates and available tranche capacity at <http://www.dps.ny.gov/VDER>



# Energy Storage

- Storage is included in Phase One when paired with an eligible technology. Details on compensation will be determined in future orders
- Storage is also permitted under NEM and Phase One NEM
- NYSERDA is in the process of developing a solar + storage solicitation
- Stand-alone storage and other storage valuation will be taken up in 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)
- NYGATS can create RECs retroactively to 1/1/16, but only if the system owner completes the registration process and provides the associated generation data by 5/31/17.
- Questions? Email [attributes@nyserda.ny.gov](mailto:attributes@nyserda.ny.gov)



# Utility Action Items

- **Immediate** – Utilities to develop a method of providing real-time update on tranche capacity, and file letters when tranches are filled
- **3/23:** Utilities file existing MCOS studies with work papers
- **4/24:** Utility work plans and timelines due for locational granular prices to reflect full value to DER additions
- **5/1:** Utility implementation proposals for VDER due (for public review and comment)

# Implications for PV Contractors

- Mass Market – projects installed before 2020 will receive 20-year NEM. No more annual true-up
- Remote Net Metering
  - Projects that met grandfathering deadline for monetary RNM will still receive it, but must be completed by end of 2017.
  - Other RNM projects will receive NEM if they pay 25% utility upgrade cost or execute SIR within 90 days of order. If not, they will receive value stack
- CDG projects will receive Phase 1 NEM (Tranche 0), or Tranches 1-3 depending on tranche capacity and when they pay for 25% utility upgrade cost or execute SIR. Check available Tranche capacity on DPS website <http://www.dps.ny.gov/VDER>
- Exact values for value stack components will be set this summer

# 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

- PSC order and related documents:  
<http://www.dps.ny.gov/VDER>
- REC questions: [attributes@nyserda.ny.gov](mailto:attributes@nyserda.ny.gov)