NARUC Winter Policy Summit

Committee on Energy Resources and the Environment

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New York's Value of Distributed Energy Resources

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Background

- Net metering authorized by statute for residential solar generation in 1997
- Net metering of on-site generation subsequently expanded by statute to include non-residential customers and other clean generation technologies
- Remote net metering for non-residential customers authorized by statute in 2012
- Community Distributed Generation authorized by Commission in 2015
- Initial statutory ceiling of 1% of 2005 electric demand in each utility's territory
  - Increased to 3% by 2013 and 6% in 2014
  - In October 2015, based on pipeline of projects applying for interconnection in certain utility territories approaching 6%, Commission floated ceiling but also directed development of report and recommendations for transition to value-based compensation mechanisms by December 2016
- Projects receive per-Watt incentive from NYSERDA through NY-Sun Program

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Process

- Solicitation of comments and proposals from parties
  - Robust participation; collaboration included joint proposal by a “Solar Progress Partnership” composed of all distribution utilities and several large solar developers

- Informal, staff-led, collaborative process that included more than 10 open public meetings, exchanges of proposals and comments and formal and informal discussions between parties

- Publication of Staff Report and Recommendations in October 2016
  - Dozens of extensive comments and reply comments filed

- Commission issues Order on Net Energy Metering Transition, Phase One of Value of Distributed Energy Resources, and Related Matters (Phase One Order) on March 9, 2017

- Pursuant to Phase One Order, utilities file Implementation Proposals on May 1, 2017, followed by further collaboration and comment process

- Commission issues Order on Phase One Value of Distributed Energy Resources Implementation Proposals, Cost Mitigation Issues, and Related Matters (Implementation Order) on September 14, 2017

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Major Policy Decisions

- Grandfathering
  - All projects interconnected prior to Phase One Order grandfathered into NEM for life of system

- Transition Mechanisms
  - Mass market on-site projects continue to receive Phase One NEM until January 1, 2020
  - Limited availability of Phase One NEM for other projects far along in development
  - Market Transition Credit for mass market customers of CDG projects

- Managing Non-Participant Impacts
  - Capacity allocations for projects that result in potential cost shifts targeted at limiting incremental net revenue impact to 2% or less

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Major Policy Decisions, cont.

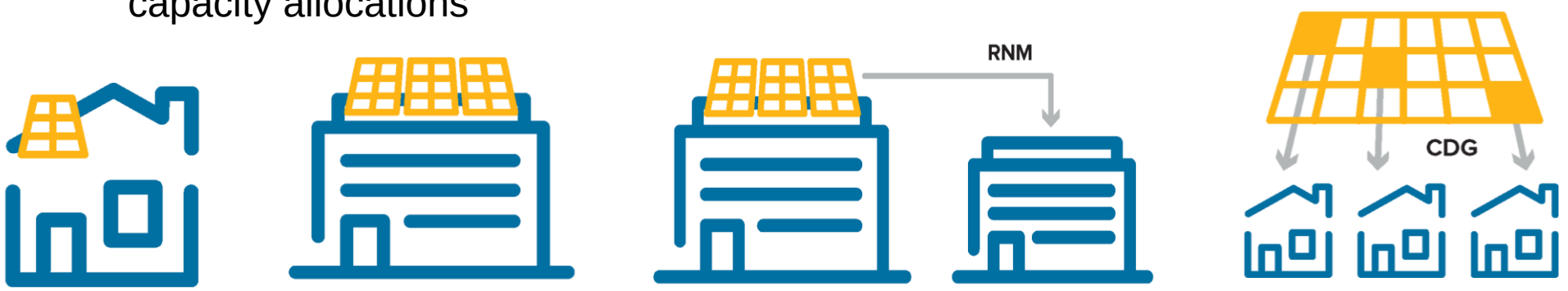
- Cost Allocation Principles
  - Costs of compensation allocated to same ratepayers that receive benefit of avoided utility costs
  - Where costs exceed identified benefits, costs allocated to ratepayers in same service class

- Monetary Crediting Based on Value of Generation
  - Value of generation determined at location and time of generation based on avoided utility costs resulting from generation
  - Credit applied against customer bill based on that value

- Applied to Net Hourly Injections Into Utility System
  - “What happens behind the meter stays behind the meter.”

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
- Eligibility
  - Mass-market on-site projects (e.g., residential rooftop) interconnected before January 1, 2020
  - Large on-site and RNM projects that made payment of 25% of interconnection upgrade costs, or executed an interconnection contract by July 17, 2017
  - CDG projects that met the above requirement and fell within specific, by-utility capacity allocations



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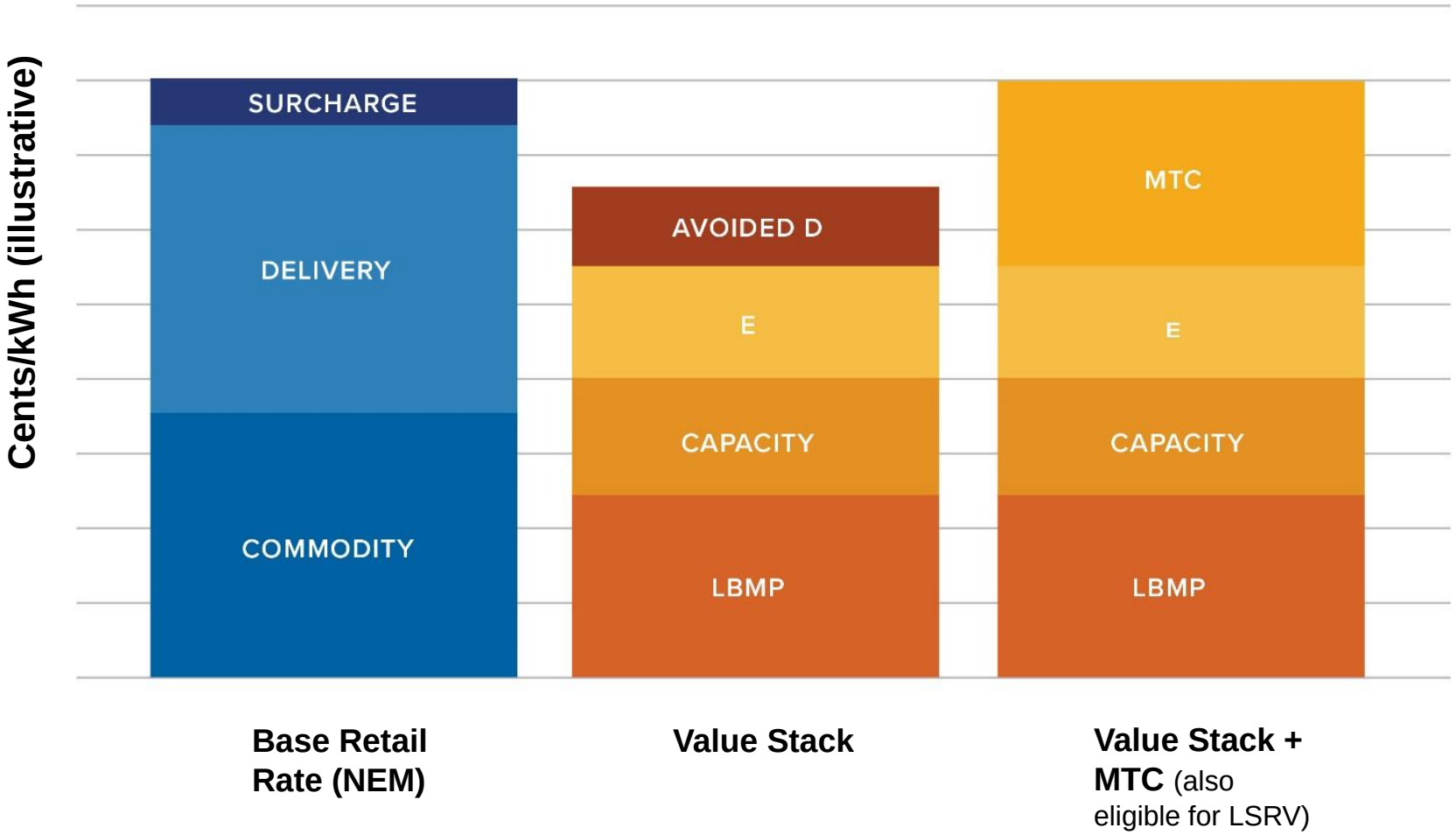
The Value Stack

- 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) for mass market customers to better align compensation with NEM

Value Stack Components



- **Avoided D** – Includes demand reduction value (DRV) & locational system relief value (LSRV)
- **E** – environmental benefit
- **Capacity** – ICAP
- **LBMP** – energy commodity
- **MTC** – market transition credit for mass market portion of CDG projects, non-mass market portion receives DRV

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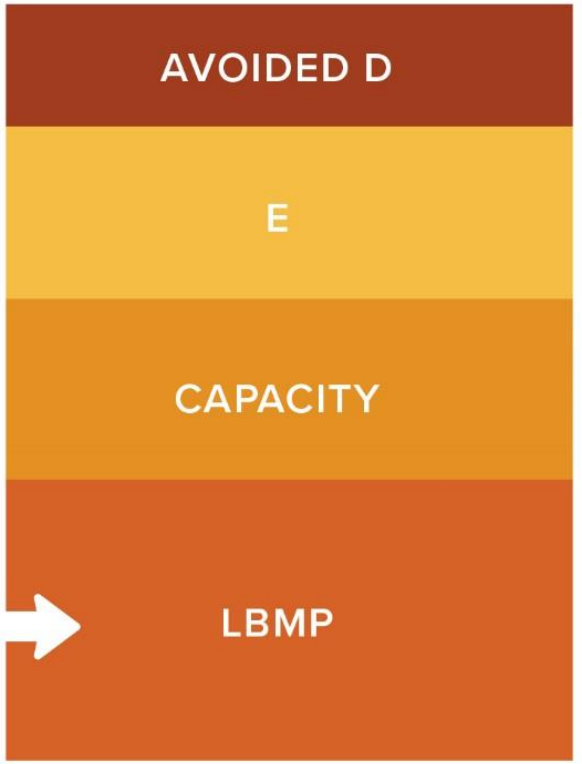
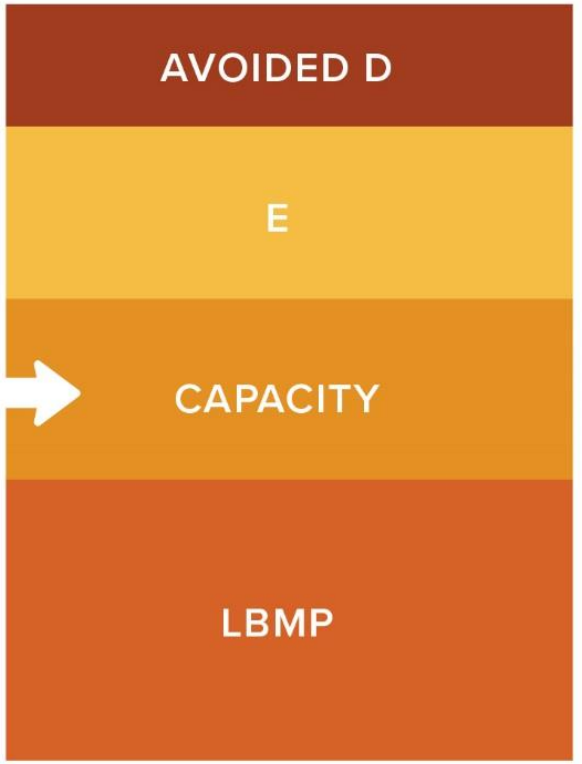
LBMP – Wholesale Cost of Energy

- Day-ahead hourly locational-based marginal pricing (LBMP), inclusive of electrical losses
- Based on NYISO zonal prices
- Fluctuates based on demand for electricity and fuel prices



ICAP - Capacity

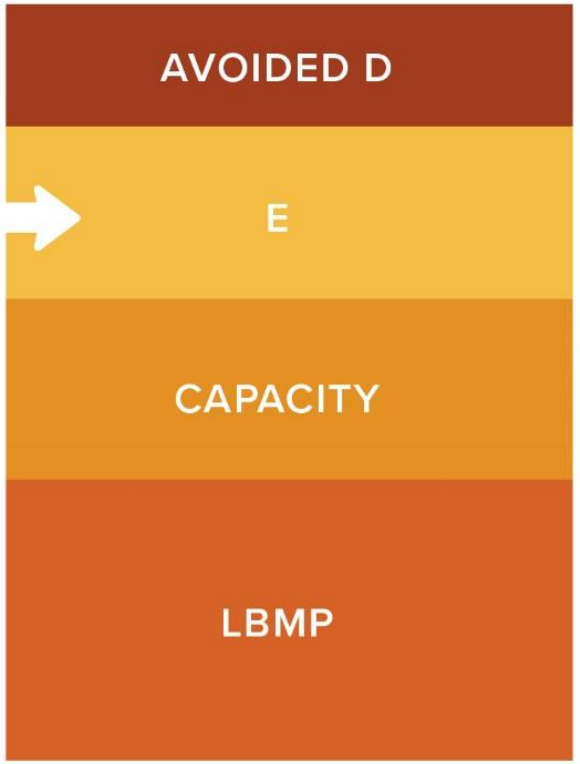
- **PV and other non-dispatchable technologies**
  - Compensation on a per kWh basis, based on the capacity portion of the utility's full service market supply charges (in effect, same value as NEM)
  - Alternative 1 – spread over all hours of the year
  - Alternative 2 – spread over 460 summer hours, resulting in a significantly higher per-kWh rate for those hours, but no compensation for other hours
- **Dispatchable technologies (ADG, fuel cells, CHP)**
  - Alternative 3 – Per kW compensation for grid injections during single highest annual hour of peak grid demand in the previous year



E- Environmental Value

- Environmental compensation is the higher of:
  - The applicable Tier 1 REC price per kWh generated (e.g., per kWh price from auctions for procurement of large renewable generators) (currently $0.02424 per kWh)
  - The social cost of carbon (SCC) per kWh value minus Regional Greenhouse Gas Initiative

- E value is locked in for 25 year project term when a project executes its SIR contract, or makes 25% payment on interconnection costs



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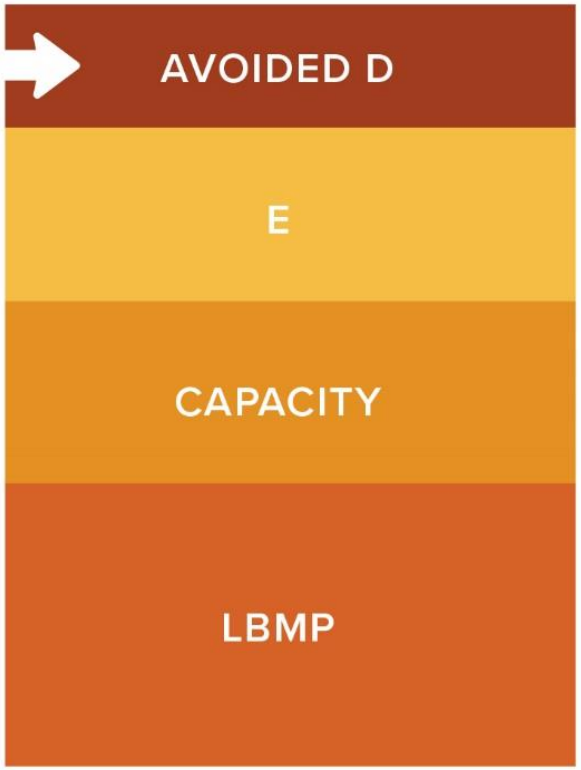
DRV – Demand Reduction Value

- Only for projects that do not receive MTC
  - For any portion of a CDG project that does not receive the MTC (i.e. large customers), that portion will receive the DRV
- Utilities will calculate the $ per kW-year value of demand reduction to the grid
- Compensation is tied to kW injected during the distribution system's 10 highest usage hours in the previous year
- Utilities will recalculate DRV regularly, but it is locked in for 3 years at a time for each project



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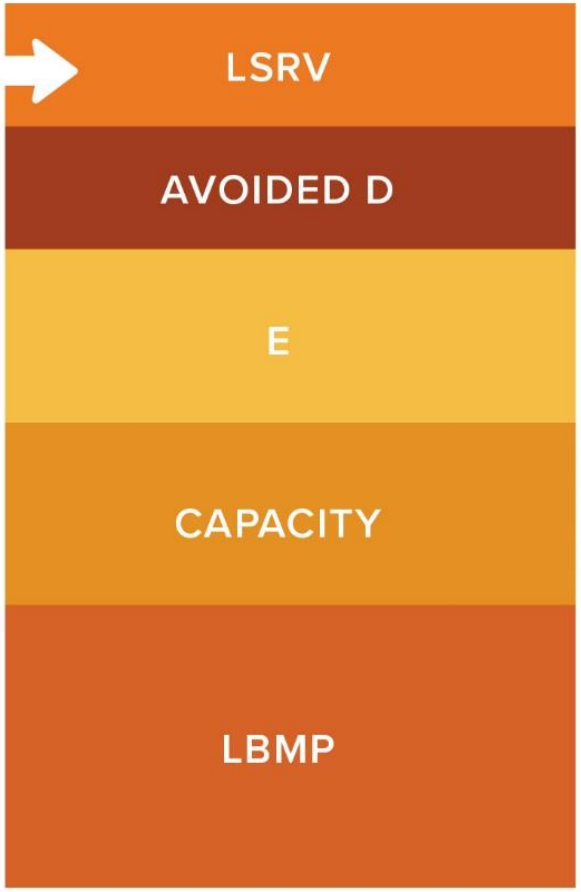
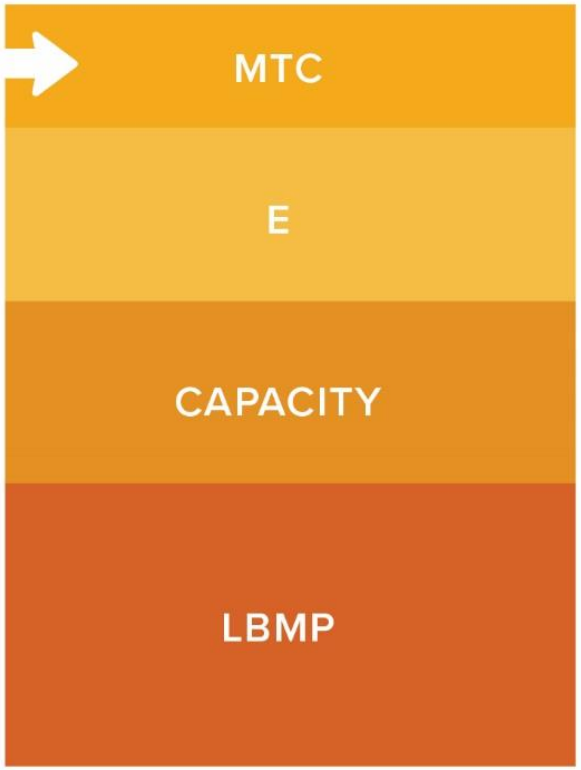
LSRV – Locational Adder

- LSRV is paid for projects located on sections of the grid where DG can relieve congestion or other needs. Each utility has provided maps and MW limits
- Like DRV, compensation is tied to kW injected during the distribution system's 10 highest usage hours in the previous year
- LSRV can be received in addition to DRV & MTC (CDG projects are eligible)
- Paid at a fixed per kW rate for first 10 years of project term
- LSRV rate is locked in when project pays 25% of interconnection upgrade costs or executes SIR

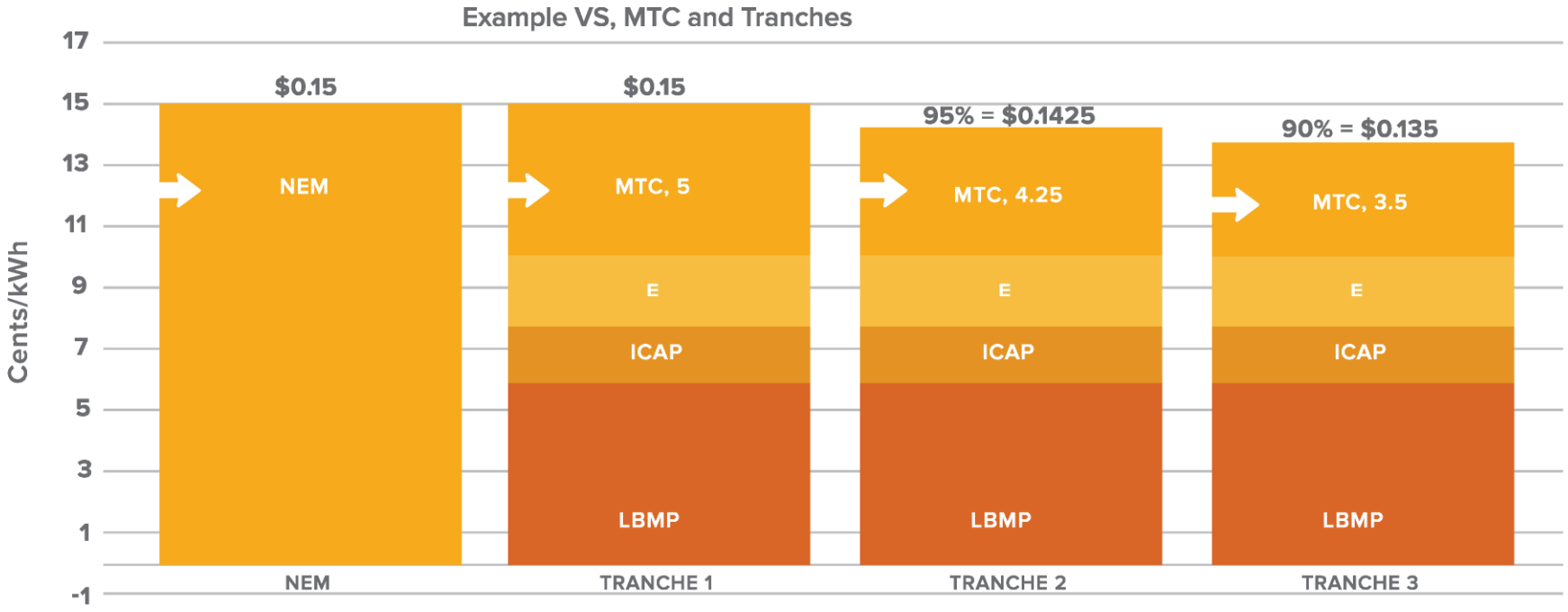


MTC – Market Transition Credit

- For CDG only: MTC is applied to CDG mass market membership proportion
  - Ex., if a project has 70% mass market (non-demand) off-takers and 30% large commercial off-takers, the project will receive MTC on 70% of generation, and DRV on 30% of generation
- MTC is also available for Mass Market projects that opt-in to the Value Stack
- The MTC is fixed and applies to a project's 25-year VDER term
- Projects are locked into MTC tranche when they pay 25% interconnection upgrade costs, or execute SIR



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

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CDG Tranche MW Allocation and Subscription by Utility

Tranche	ConEd	NYSEG	Orange & Rockland	Central Hudson	National Grid	RG&E
01	7.1 of 136 MW	62 of 62 MW CLOSED	24 of 23 MW CLOSED	40.6 of 39 MW CLOSED	75.6 of 119 MW	28 of 28 MW CLOSED
2	0 of 206 MW	84 of 84 MW CLOSED	12 of 12 MW CLOSED	18.3 of 19 MW CLOSED	0 of 178 MW	10 of 42 MW
3	0 of 205 MW	45 of 77 MW	40.2 of 12 MW	33.4 of 19 MW CLOSED	0 of 177 MW	0 of 41 MW
4	N/A	N/A	0 of 15 MW	0 of 20 MW	N/A	N/A

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VDER Implementation Order Highlights

- Utilities are ordered to report on feasibility and timeline for implementing consolidated billing (on-bill payments) for CDG projects

- The Commission is considering increasing of maximum project size from 2MW AC to 5MW AC

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VDER Phase Two

- Value Stack Working Group
  - Expanded Eligibility
  - Enhancement of Value Stack Elements:
    - Offset Distribution and Transmission Values
    - Resiliency Value
    - Environmental Externalities Beyond Carbon

- Rate Design Working Group
  - VDER for On-Site Residential and Small Commercial Projects
  - Rate design changes for better alignment with VDER and REV principles:
    - Increased time and locational variation
    - Improved Standby and Buyback rates

- Low-Income CDG Working Group
  - Use of low-income discounts for CDG subscriptions

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