DG Cost Allocation: National Review and Pro Rata Methodology

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Why are we having this conversation?

- The electric distribution system was built to do what its name entails……distribute energy from the transmission system
- With the growing need for alternative energy resources, we are now asking our distribution system to act contrary to its initial purpose
- As such, the electric utilities must conduct a distribution system impact study for every distributed generation ("DG") interconnection to ensure the generation can be distributed safely
- As we bring on more DG we must modernize our distribution system to allow it to redistribute energy within the existing system
- For the first wave of DG facilities in each state we saw only minimal impact to the distribution system, thus cost causation was an equitable interconnection solution
- As more DG comes online we are seeing larger common system modifications triggered, resulting in inequitable situations where one DG customer is required to pay for an upgrade that benefits many DG and distribution customers
- Simultaneously we are modernizing our electric power system to accommodate electrification, increasingly complex load (such as electric vehicles, heat pumps, energy storage, etc.) and advanced technologies
- We must coordinate to strategically modernize the electric power system and equitably share costs

Proactive vs Reactive Interconnection

Reactive State

- Currently DG interconnection is reactive → infrastructure upgrades are triggered by existing interconnection applications
- Cost causation → the facility that triggers the need for an upgrade pays the cost 100%
- Reactive processing results in timeline delays, lack of regulatory certainty and reactive infrastructure development driven by DG interconnection applications

Proactive State

- Modeling/forecasting to proactively upgrade the EPS to meet clean energy goals
- Proactively identify and construct infrastructure upgrades to enable DG hosting capacity in advance of interconnection applications triggering a need
- Proactive upgrades would provide regulatory certainty of timing and costs, cost sharing over time and service territory, siting signals driven by benefits to the state vs interconnecting customers

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DG Interconnection: Cost Types

- Point of interconnection ("POI")/Location Specific Costs → infrastructure upgrades that are only required for one DG facility to interconnect and are not required for the larger electric power system ("EPS") to maintain reliability (e.g. poles and lines to connect a new site to existing infrastructure)

- **Common system modifications → Infrastructure upgrades to the EPS that may benefit more than one interconnecting facility or distribution customers and are required to maintain the integrity of the EPS**

- Common neighborhood modifications → infrastructure upgrades that may benefit more than one interconnecting customer but are close to a point of interconnection (such as neighborhood transformers)

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Cost Allocation: Levels of Complexity

- **Level 1:** Cost Causation → Costs related to infrastructure modifications needed to interconnect a DG facility are allocated based on the principle that the DG facility causing the need for a modification must pay for that modification
- **Level 2:** Equitable cost sharing/increased DG saturation
  - Equitable cost sharing → Customers pay for their pro rata share of infrastructure upgrades constructed that enable their interconnection instead of one customer paying for an upgrade and other customers connecting at little to no cost
  - Increasing saturation levels → as DG saturation levels increase, infrastructure upgrades triggered become larger and more costly, making interconnection unfinanceable for only one interconnecting customer
    - Group Study → multiple interconnection applications submitted in a common study area during a common window of time are studied together and share in the cost of the interconnection solution
    - Pro rata share amongst DG interconnecting customers → DG interconnecting customers that are enabled to interconnect by an infrastructure upgrade pay only their pro rata share of the cost of the upgrade ($/kW) at the time of interconnection, for a set period of time or until the entire cost is recovered
- **Level 3**: High DG saturation
  - As saturation levels continue to increase, infrastructure upgrades triggered also increase in size and cost, leading to a situation where infrastructure upgrades benefit distribution customers and are too costly for enabled DG interconnecting customers to finance alone
  - Multi-beneficiary pays → When an infrastructure upgrade is a common benefit to the state or enables load capacity, all beneficiaries share in the upgrade costs

Cost Allocation Approaches

Approach	Description	Reactive vs. Proactive	Example
Cost Causation	Cost causer pays 100% of upgrade costs.	Federal standard; Status quo in most states; Reactive	Most states
Cost Causer Post-Upgrade Cost Sharing	All upfront mitigation costs are paid for by the initial cost causer who is subsequently reimbursed by future projects that interconnect to the upgrade.	Reactive; typically limited to certain types of upgrades due to recoup risk	NY “Cost Sharing 1.0”
Group Study	Upfront interconnection costs are spread among a group of interconnection applications that opt-in to be studied at the same time. Costs are recovered proportionally to each project’s relative size or need for the upgrade.	Reactive; may still be cost prohibitive depending on upgrade; significant concerns with timelines and process	CA Rule 21 Interconnection Tariff
Reactive Prorated Cost Sharing	An upgrade is triggered by an interconnection request. Utility recovers prorated costs from interconnecting customers that share capacity enabled by the upgrade.	Reactive; still results in regulatory uncertainty and timeline delays for construction and studies	MA Provisional Program, “NY Cost Share 2.0”
Proactive Prorated Cost Sharing	The utility preemptively upgrades to accommodate anticipated DG growth and recovers prorated costs from future interconnecting customers that share capacity enabled by the upgrade.	Proactive; necessary alignment with transmission level upgrades	NY Utility-Driven Upgrade; MD Hosting Capacity Upgrade Plans
Holistic Proactive Cost Sharing	Same as proactive prorated cost sharing but forecasts are conducted based on holistic view of distribution and generation upgrade needs to meet state clean energy goals.	Proactive; challenge to ensure DG is not lost in the big picture; elongated preparation and approval timelines	MA Electric Sector Modernization Plans
Multi-Beneficiary Cost Sharing	When an upgrade benefits both DG and distribution customers, costs are shared pro rata amongst beneficiaries based on a benefits analysis.	Can be paired with all other approaches	MA Provisional Program

Reactive Cost Allocation: Methodologies Across the Country

- **New York:** "Cost Share 2.0" (SIR, Appendix E)→ DG interconnecting customers pay for pro rata share of infrastructure upgrade enabling interconnection over time
- **Massachusetts:** "Provisional Program" → reactive multi-beneficiary cost sharing for infrastructure investments triggered by existing group studies; Proactive long-term planning and cost sharing under investigation D.P.U. 25-20
- **Maryland:** "MCAM" (COMAR 20.50.09.06(R)) → Infrastructure upgrade costs are shared amongst DG interconnecting customers across the state by a $/kW charge intended to act as a locational price signal, calculated based on the amount of capacity being utilized by the customer compared to the scarcity of hosting capacity
- **Connecticut:** Under investigation → has implemented small facility reactive cost sharing via a fixed cost at the time of interconnection, directed reactive cost sharing akin to group study and the MA provisional program for medium and large facilities but conducting further process re: cost recovery
- **California** → Rule 21 Group Study → allocates upgrade costs for electrically interrelated projects based on nameplate capacity
- **Minnesota** → Has some cost sharing for small facilities (<40kW) and a working group underway to implement larger scale cost sharing legislation (based on pro rata method)
- **Early stage/variable**: Michigan, Colorado, Virginia, Hawaii, Maine (small facility only)

New York Cost Sharing 2.0

- Two categories of system modifications:
  - **Market-Initiated Upgrades** and
  - **Utility-Initiated Upgrades**

- Both utilize a pro rata approach whereby the applicant pays only for the specific distribution hosting capacity assigned to its project for system modification

- This pro rata approach consists of taking the estimated cost of an upgrade and dividing that cost by the total increased hosting capacity created by the upgrade, thereby creating a dollar per kW cost which is then multiplied by an individual project's AC nameplate rating in kW to determine the applicant's pro rata cost share

New York Cost Sharing 2.0: Market-Initiated Upgrades

Market-Initiated Upgrades

- When the result of an interconnecting customer's distribution system impact study triggers the need for an infrastructure upgrade that would increase the distribution system's hosting capacity beyond the capacity needed for that interconnecting customer, the upgrade qualifies for cost sharing
  i. In the case of most substation-level upgrades, the customer that triggers the upgrade and each interconnecting customer that comes online in the following five years pay for their pro rata share of the upgrade ($/kW). Construction of the upgrade does not commence until a certain percentage of the upgrade cost is met. Any unpaid costs after five years is recovered from distribution customers
  ii. For distribution/subtransmission line upgrades and underground secondary network upgrades, the Triggering Project pays for 100% of the upgrade and is reimbursed over the next five years using a pro rata mechanism as more DG comes online. The Triggering Project will no longer receive refunds after five years from the first project interconnection, or when its contribution after reimbursement becomes less than $100,000, whichever occurs first
- Qualifying Upgrade: System modifications which result in an increase to the Hosting Capacity of the utility's distribution system beyond that required to interconnect a Triggering Project that can be shared by multiple Distributed Generation/Energy Storage System projects and whose costs are greater than $250,000.

New York Cost Sharing 2.0 Matrix

Market- Initiated Qualifying Upgrade	CESIR Cost Responsibility		Mobilization Threshold
	Triggering Project	Sharing Project(s)	
Distribution and Sub- Transmission Lines and Underground Secondary Network Upgrades	100% of Qualifying Upgrade Cost	Pro-Rata Share based on kW Capacity and Footage	Upon payment of 100% of Qualifying Upgrade Cost by Triggering Project
Transformer Bank	Pro-Rata Share of Qualifying Upgrade Cost based on kW Capacity	Pro-Rata Share of Qualifying Upgrade Cost based on kW Capacity	Upon payment of 75% of Qualifying Upgrade Cost by Triggering Project and Sharing Project(s)
Other Qualifying Substation Upgrades	Pro-Rata Share of Qualifying Upgrade Cost based on kW Capacity	Pro-Rata Share of Qualifying Upgrade Cost based on kW Capacity	Upon payment of 25% of Qualifying Upgrade Cost by Triggering Project and Sharing Project(s)

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*Refundability is tied to the type of upgrade and mobilization threshold

New York Cost Sharing 2.0: Utility-Initiated Upgrades

Utility-Initiated Upgrades

- Utilities can identify two types of upgrades and file annually for pro rata cost sharing
  i. Substation transformer bank (bank) installations or replacements (multi-value distribution projects)
     - If the utility identifies the need to install or replace a bank due to asset condition, reliability, safety, resiliency, or capacity requirements, the utility shall consider options for designing the new bank equipment to create greater DG/ESS hosting capacity than the baseline installation would create. If the bank can be upgraded to increase hosting capacity while solving a pre-existing issue, and if there is market interest that indicates DG/ESS growth above the capacity of the baseline equipment, the utility will identify the enhanced installation or replacement in the next published CIP as a Multi-value Distribution ("MVD") project. The utility funds the cost of the baseline project. Participating Projects fund the difference between the baseline and the MVD project cost. (available application process if utility determines sufficient time)
  ii. Proactive zero sequence voltage (3V0) installations

Minnesota Reactive Cost Share Framework

- The Minnesota PUC established a DER Cost Sharing Workgroup in docket CI-24-288, to develop standards for distribution system cost sharing for interconnection in constrained areas, in accordance with Minnesota Session Laws – 2024, Regular Session, Chapter 126, Article 6, Section 53.
- The MN statute directs establishment of a reactive cost share program similar to the pro rata model in NY.
- Members of the workgroup collaboratively drafted Standards over a series of 11 meetings. The workgroup came to a consensus on several sections of the Standards and where there was not consensus, the parties provided alternatives for the Commission to choose from.
- September 2025, a Notice was issued in CI-24-288 attaching the draft Standards and opening a comment period.
- The draft Standards differ from those in NY in a number of ways, including:
  i. Mobilization threshold and refundability
  ii. Annual rolling cap
  iii. Potential cost certainty measures
  iv. Prioritization of first round of infrastructure upgrades

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Thank You

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