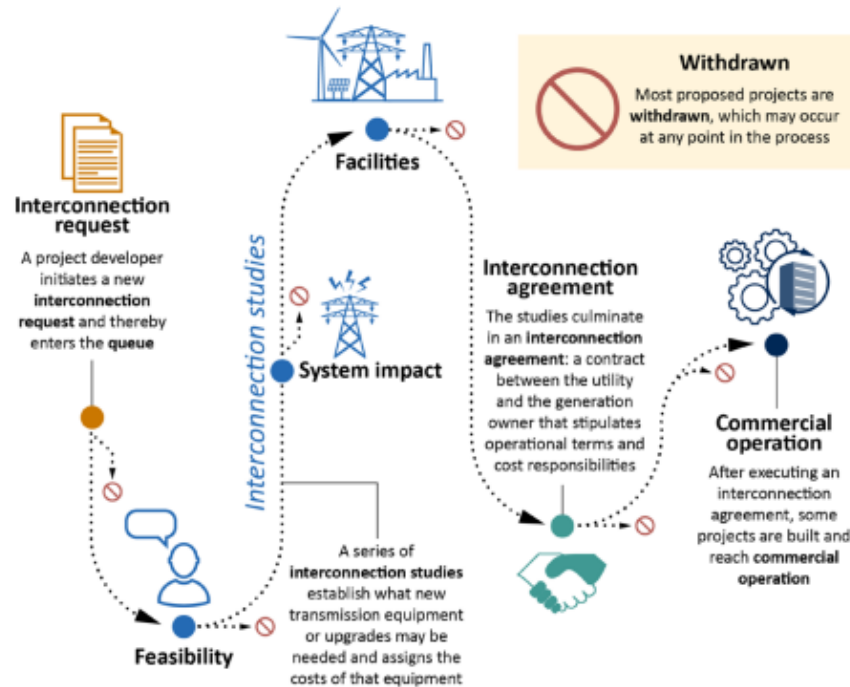


# New Hampshire Department of Energy

## Grid Modernization Advisory Committee (GMAG)

### Customer-Generator Interconnection Cost Allocation



Source: Lawrence Berkeley National Laboratory, U.S. Government Accountability Office

# Overview of Cost Allocation Options

Type	aka	Description	State(s)	Cost Allocation	Cost Recovery	Pro's	Con's
Cost Causation		Entity causing costs to be incurred are responsible for payment of costs.	All	Interconnecting customer	Interconnecting customer	Ratepayers not burdened by cost.	Does not encourage DER, especially as DER penetration increases. DER's sometimes pay for more capacity than they require, effectively subsidizing others.
Limited Generation Profile (LGP)	Flexible IX	Schedules limit DER energy and microgrids can send based on grid constraints.	CA			Lowers capital investment requirements for interconnections	Requires robust monitoring and control infrastructure. Continually changing schedules.
Multi-Beneficiary Cost Sharing	Provisional System Planning Program for Capital Improvement Projects (CIP) in MA. System Planning and Group Studies Integrated Distribution Planning (IDP)	Utilities forecast where DERs will be sited and plan upgrades for those locations. Locations shown on hosting capacity maps. Market driven studies can also identify projects.	MD, MA, NM, NY	Proportionally allocate costs (typically \$/kW of nameplate) to new customers after first interconnection customer pays fair share of cost.	Portion of interconnection costs recovered from all customers in rate base.	Utilities can apply portions of costs that benefit all customers to their rate base. Market driven studies and projects also considered.	Substantial cost tracking and crediting efforts needed. Individual dockets for each CIP in the case of MA.
Market Based Grid Access Fee	Grid Access Charge (GAC)	Utility and Stakeholder process, overseen by state regulators, develop fees and rate structures.		Access fees paid by interconnecting customers. Fees vary by need as determined by utility, stakeholders and regulators.	Access fees and presumably utility rate base	Creates market price signals to drive developers to appropriate locations. Effective at recovering utility costs. Easy to understand.	Potentially regressive effects.

# Massachusetts

## Provisional System Planning Program:

- The provisional framework allows the electric distribution companies to file certain electric power system (EPS) infrastructure upgrade proposals (capital investment projects “CIPs”) with the Department of Public Utilities (DPU) that limit the interconnection costs allocated to each DG facility enabled by a specific CIP.
- Under the provisional design, ratepayers will help fund the initial construction of these EPS upgrades but will be reimbursed over time from fees charged to future DG facilities that are able to interconnect due to the prior upgrades.
- This new pathway should help facilitate an equitable allocation of costs and remove barriers to the Commonwealth’s progress to a clean energy future.
- Establishment of the Provisional Program does not mandate or pre-authorize any CIPs. The DPU will review each CIP on ***a case-by-case basis for approval***, denial, or modification.

# Massachusetts

## Provisional Program Summary:

- Following the completion of a distribution and transmission (if applicable) impact study for an Affected Group Study, a Distribution Company must notify all Group Study members and the Department of study completion.
- A Distribution Company has 10 business days from the Completion Date (a) to determine if any EPS upgrades identified for a Group Study will be the subject of a CIP in the Provisional Program and (b) to inform the Group Study members.
- A Distribution Company shall have 40 business days from Completion Date to file a CIP for DPU review and approval.
- A CIP shall consist of all EPS upgrades identified for an Affected Group Study that are eligible for the Provisional Program.
- Each CIP shall be filed in a separate docket; however, the Department may review multiple CIPs in one proceeding if it determines that such review is appropriate based on such factors as time of submission, geographical region, and factual similarities of the filings.
- The DPU will review CIPs through an adjudicatory proceeding.

# Massachusetts

## Distribution Company Must Meet the Following Criteria:

- Upgrade identified through a distribution or transmission impact study for an Affected Group Study.
- Upgrade will enable the interconnection of multiple DG facilities.
- Upgrade will result in a cost to interconnecting customers of ***\$500/kW or less.***
- Distribution Company can demonstrate that the amount of enabled DG likely will be interconnected in the associated geographic area within the proposed Rate Recovery Period.
- Distribution Company can demonstrate that the aspects of the construction timeline within their control can be completed within a maximum of four years from the conclusion of the Department's adjudicatory process.

# Massachusetts

## CIP Minimum Filing Requirements:

- Description of the CIP, including expected cost, equipment, permitting and licensing requirements, and construction timeline.
- Demonstration that the CIP meets all eligibility criteria.
- Detailed cost allocation proposal based on the Straw Proposal that includes a proposed rate recovery period for the CIP through the Reconciling Charge.
- Expected bill impacts.
- Description of how the CIP will benefit ratepayers and aligns with cost-efficiently meeting the Commonwealth's clean energy policies.
- Explanation of how the CIP will or will not affect low-income and environmental justice populations, including describing any projects in the CIP that will be constructed in an environmental justice neighborhood.

# Massachusetts

## **CIP Cost Allocation:**

- The DPU has not made a determination on whether any CIP costs should be borne solely by distribution customers but will investigate CIPs that include such cost assignment proposals.
- Any Distribution Company that makes such a proposal must provide:
  - Detailed descriptions of each component of a CIP that it proposes to recover solely from ratepayers.
  - Justification for why the costs of the CIP should be recovered from ratepayers and not from Interconnecting Customers.

## **Links to source information:**

- <https://www.mass.gov/guides/provisional-system-planning-program-guide>
- <https://www.mass.gov/doc/provisional-system-planning-summary-0/download>

# New York State

## The cost-sharing provisions apply to two categories of system modifications:

- **Utility-Initiated Upgrades**
- **Market-Initiated Upgrades**
- Both utilize a pro rata approach whereby the applicant pays only for the specific distribution hosting capacity assigned to its project for these types of system modifications.
- A 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:
  - ***Creating a dollar per kW cost*** which will then be multiplied by an individual project's AC nameplate rating in kW to determine the applicant's pro rata cost share.



# **New York State – Utility Initiated Upgrades**

## **Utility-Initiated Upgrades**

**Consists of substation transformer bank (bank) installations or replacements and proactive zero sequence voltage (3V0) installations:**

- Each utility shall identify its proposed Utility-Initiated Upgrades in its annual Capital Investment Plan (CIP).
- Each year the utility will publish a link to the CIP on its system data portal and a list of those substations included in the CIP that are eligible for cost sharing as Utility-Initiated Upgrades where the utility plans to complete engineering within the next twenty-four (24) months
- The utility shall determine a pro rata cost per kW for the upgrade at each relevant substation.

# New York State – Utility Initiated Upgrades

- **Bank Upgrades** (Proposed Multi-value Distribution Projects)
  - In the course of its planning process, at the time when 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.*
- **Proactive 3V0 Upgrades**
  - The CIP will identify substations at which the utility plans to install 3V0 upgrades. *Following the utility's filing of the CIP, additional applicants may apply for interconnection at the identified substations.* The utility will accept applications at a substation designated for a 3V0 upgrade up to the maximum capacity available at the site for reliable and safe operation. The utility will have the discretion to proceed where 3V0 upgrades are feasible.

# New York State – Market Initiated Upgrades

- **Cost-sharing for qualifying upgrades identified in the course of the interconnection application process.**
  - Whenever the utility determines that a substation Qualifying Upgrade is required to interconnect a Triggering Project, the utility will promptly discuss its finding with the applicant.
  - If the applicant decides to continue with the application, then the utility will proceed with a more detailed study to develop a cost estimate and initial construction schedule for the Qualifying Upgrade.
  - The utility will determine the Qualifying Upgrade Cost and the net increase in Hosting Capacity that would result from the construction of that modification.
  - *The utility shall have up to forty (40) Business Days to conduct the additional study* to assess the Qualifying Upgrade and complete the Coordinated Electric System Interconnection Review (CESIR).

## **New York State – Market Initiated Upgrades *continued***

- The utility will present the Qualifying Upgrade use case and supporting details in the Qualifying Upgrade Disclosure, which will include the following items:
  - The technology option(s) considered to address the electric system impacts
  - The Qualifying Upgrade selected by the utility
  - The estimated Qualifying Upgrade Cost and increase in Hosting Capacity
  - The estimated Capacity Increase Shared Cost (per kW AC)
  - A Preliminary Milestone schedule for the Qualifying Upgrade
- ***The utility will also publish the Qualifying Upgrade Disclosure with the next monthly update to the utility's system data portal after the CESIR is delivered to the Triggering Project applicant.***
- The CESIR will assign the Triggering Project and any Sharing Project its Qualifying Upgrade Charge.
  - Each applicant shall pay the Qualifying Upgrade Charge 90 Business Days following the CESIR delivery, and 25% of the project specific costs.

# New York State – Utility Mobilization Thresholds

*The utility shall proceed to construct a Qualifying Upgrade*, other than a distribution/sub-transmission line upgrade or underground secondary network upgrade, *once it has collected sufficient funds from the Triggering and Sharing Project(s)* in accordance with the following:

- For all substation upgrades other than a transformer installation/upgrade, *the utility shall proceed once Participating Project payments total at least 25% of the estimated Qualifying Upgrade Cost.*
- For a substation *transformer* installation/upgrade and associated work, construction shall begin once payments made by Participating Projects equal at *least 75% of the estimated Qualifying Upgrade Cost.* If the 75% threshold is not collected within twelve (12) months of an applicant paying its full construction contribution, then the applicant may request a refund, which the utility shall process within sixty (60) Business Days of the request.
- If Triggering Project and Sharing Project(s) Hosting Capacity needs are below the minimum subscription threshold, the Triggering Project, or the Triggering Project and any Sharing Project(s), may agree to fund shares beyond their capacity needs so that the minimum subscription threshold criterion is met.
- *To mitigate the risk to utility customers, unrecovered costs shall be capped at 2% of a utility's distribution/sub-transmission electric capital investment budget per fiscal year*, after which any Qualifying Upgrades would require full (100%) funding from Triggering Projects and Sharing Projects prior to utility mobilization for such projects' construction work.

# New York State – Capital Project Queues

- The utility will create a Capital Project Queue at the substation or feeder level for each Utility-Initiated Upgrade and Market-Initiated Upgrade identified under these rules where utility construction will take longer than twenty-four (24) months.
- *The utility will note on its Hosting Capacity map that the station/feeder is impacted by the Capital Project Queue due to future work.*
- Applications pending at the time a Capital Project Queue is created will be placed into the queue if the applicant consents. New applications will be placed into a Capital Project Queue following the Preliminary Screening Analysis.
- The payment timelines in Section 1-D will be suspended for applications assigned to a Capital Project Queue, except as provided otherwise in this Section.
- When the upgrade for a given substation is within eighteen (18) months of the expected completion date, applications will be removed from in the Capital Project Queue and will advance through the remaining SIR steps based on their original application completion date.
- Any project that was placed in the Capital Project Queue after the CESIR was complete will need to go through the CESIR process again due to potential changes to the utility's electric power system, unless the utility determines that a restudy is not needed.

# New York State – Unsubscribed Capacity

- **Utilities will continue to collect contributions from Participating Projects up to five (5) years** after a Qualifying Upgrade is placed in service, or all available Hosting Capacity from a Qualifying Upgrade is used, whichever occurs first.
- If the Triggering Project and initial Sharing Project(s) have met the minimum threshold to begin the upgrade, but the available Hosting Capacity has not been completely filled and thus utility customers contribute to the unassigned costs (either through the establishment of a deferred regulatory asset or in base rates), then any additional Sharing Projects that use available Hosting Capacity **up to five (5) years** after the upgraded asset is placed in service will be required to fund their pro rata share prior to interconnection, and utility customers shall receive the benefit provided by those additional Sharing Project(s).
- At the time additional Sharing Project(s) provide contributions for Qualifying Upgrades under this scenario, the following utility customer protections shall apply:
  - For Qualifying Upgrades that are in service but NOT included in base rates, **the utility shall cease deferring the return on, and return of, investment associated with contributions from subsequent Sharing Projects.** Additionally, the **Qualifying Upgrade is to be excluded from the utility's net plant, or capital expenditure, tracking mechanism until it is included in base rates.**
  - **For Qualifying Upgrades that are in service AND included in base rates, the utility is required to reduce plant in service by the funds provided by additional Sharing Project(s).** The utility's net plant, or capital expenditure, tracking mechanism will provide utility customers with the benefit of funds received from the additional Sharing Project(s).

# New York State – Cost Reimbursement

- The Utility will reimburse Participating Projects for the costs of Qualifying Upgrades in advance of the final project cost reconciliation process established in section of the SIR, as provided in this section. These reimbursements will be based on the cost estimates provided by the utility.
- For upgrades involving the DG Encumbered Line mechanism, *Triggering Projects and previously paid Sharing Projects shall be reimbursed by the utility when later Sharing Projects make their full payments, with contributions to be calculated based on project size and footage utilized.*
- Once the Triggering Project and Sharing Project(s) have paid 100% of their respective payments, the utility will reimburse Sharing Projects' estimated costs to the Triggering Project within sixty (60) Business Days.
- When the final utility costs for all participating projects on a DG Encumbered Line are known, both the Triggering Project and any Sharing Projects will be billed or refunded by the utility as provided in the SIR.



# New York State

## COST SHARING FOR SYSTEM MODIFICATIONS & COST RESPONSIBILITY FOR DEDICATED TRANSFORMER(S) AND OTHER SAFETY EQUIPMENT FOR NET METERED CUSTOMERS

Generator Type	Generator Size	Equipment Cost to Residential Net Metered Customers	Equipment Cost to Non-Residential Net Metered Customers****
Micro-CHP	Less than or equal to 10 kW	\$350 maximum	N/A
Fuel Cell	Less than or equal to 10 kW	\$350 maximum	As determined by Utility*
Fuel Cell****	Over 10 kW up to 2 MW	N/A	As determined by Utility*
Solar	Less than or equal to 25 kW	\$350 maximum	\$350 maximum
Solar****	Over 25 kW up to 2 MW	N/A	As determined by Utility*
Micro-hydroelectric	Less than or equal to 25 kW	\$350 maximum	As determined by Utility*
Micro-hydroelectric****	Over 25 kW up to 2 MW	N/A	As determined by Utility*
Wind **	Less than or equal to 25 kW	\$750 maximum	\$750 maximum
Wind****	Over 25 kW up to 2 MW	N/A	As determined by Utility*
Farm Wind ***	Over 25 kW up to 500 kW	N/A	\$5,000 maximum***
Farm Waste ***	Up to 2 MW	N/A	\$5,000 maximum***

# New York State

## Market-Initiated Cost Sharing 2.0 Mechanisms

Market-Initiated Qualifying Upgrade	CESIR Cost Responsibility		Mobilization Threshold	Refundability and Reconciliation
	Triggering Project	Sharing Project		
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	<p>Qualifying Upgrade Costs are non-refundable for the Triggering Project until a Sharing Project provides payment such that the utility has receipt of 100% of Qualifying Upgrade Cost.</p> <p>Upon receipt of additional payments by Sharing Projects the utility shall reconcile with the Triggering Project based on a calculated estimated pro-rata share. Remaining reconciliation for Qualifying Upgrade Cost to occur pursuant to Section I-C of the SIR.</p>
Transformer Bank	Pro-Rata Share of	Pro-Rata Share of	Upon payment of 75% of	

# New York State

## Market-Initiated Cost Sharing Mechanisms - Continued

Market-Initiated Qualifying Upgrade	CESIR Cost Responsibility		Mobilization Threshold	Refundability and Reconciliation
	Qualifying Upgrade Cost based on kW Capacity	Qualifying Upgrade Cost based on kW Capacity	Qualifying Upgrade Cost by Triggering Project and Sharing Project(s)	<p>Qualifying Upgrade Costs are non-refundable until another Sharing Project provides payment such that the utility has received payments equal to the pro-rata share of the Qualifying Upgrade.</p> <p>Remaining reconciliation for Qualifying Upgrade Cost to occur pursuant to Section I-C of the SIR.</p>
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)	<p>Qualifying Upgrade Costs are non-refundable until another Sharing Project provides payment such that the utility has received payments equal to the pro-rata share of the Qualifying Upgrade.</p> <p>Remaining reconciliation for Qualifying Upgrade Costs to occur pursuant to Section I-C of the SIR.</p>

Source: <https://dps.ny.gov/nys-standardized-interconnection-requirements>

## **Other thoughts for discussion presentation:**

- Include NHEC Net Metering discussion?
- Additional states such as MD, MN, others?
- Discussion of Grid Access Charge state(s)?

# Discussion

Please send comments regarding this draft to:

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