## MASSACHUSETTS Interconnection Standards

### Snapshots

<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does Massachusetts have interconnection rules and requirements?</td>
<td>YES. They require utilities to have interconnection tariffs.</td>
</tr>
<tr>
<td>Does it explicitly include energy storage in the definition of eligible projects for interconnection?</td>
<td>No</td>
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<tr>
<td>What standard is referenced for setting technical requirements?</td>
<td>UL 1741&lt;br&gt;IEEE 1547&lt;br&gt;IEEE 1453 for Voltage fluctuation limits</td>
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<tr>
<td>Is there any System Capacity Limit?</td>
<td>No Limit specified</td>
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<tr>
<td>Is there a “Fast Track” option for application?</td>
<td>YES! (the simplified process)</td>
</tr>
<tr>
<td>What are the eligible Technologies that can be Interconnected</td>
<td>Solar, Wind, Hydro, Diesel, Natural gas, Fuel Oil</td>
</tr>
<tr>
<td>What sectors are eligible to participate</td>
<td>Commercial, Industrial, Local Government, Nonprofit, Residential, Schools, State Government, Federal Government, Agricultural, Multifamily Residential</td>
</tr>
<tr>
<td>Is net metering required for interconnection?</td>
<td>Net metering is available but not required</td>
</tr>
<tr>
<td>What are the associated fees with interconnection in Massachusetts?</td>
<td><strong>Simplified</strong>&lt;br&gt;Application Fee (Covers Screens) &lt;br&gt;0&lt;br&gt;<strong>Expedited</strong>&lt;br&gt;$4.50/kW, minimum $300&lt;br&gt;Maximum $7,500&lt;br&gt;For Supplemental Review: Up to 30 engineering hours at $150/hr ($4,500 maximum)&lt;br&gt;<strong>Standard</strong>&lt;br&gt;$4.50/kW, minimum $300&lt;br&gt;Maximum $7,500&lt;br&gt;<strong>Simplified Spot &amp; Area Network</strong>&lt;br&gt;≤3kW $100, &gt;3kW $300</td>
</tr>
<tr>
<td>Is an external disconnect switch required for interconnected technologies?</td>
<td>At the discretion of the Utilities</td>
</tr>
<tr>
<td>Is liability insurance required for homes and/or small business seeking to interconnect?</td>
<td>YES. General Liability insurance is required.</td>
</tr>
</tbody>
</table>
### SUMMARY

- The Massachusetts Department of Public utilities (DPU) regulates the interconnection process in the state and requires utilities to have interconnection Tariffs.
- In August 2011, the Department of Energy Resources (DEOR) submitted the Massachusetts Distributed Generation Interconnection Report to the DPU outlining its recommendations for improved interconnection policies and processes.
- The DPU opened an investigation into the interconnection of distributed generation in MA.
- On January 23, 2012, the Massachusetts Distributed Generation Interconnection Working group was initiated at the request of the DPU through Order 11-75.
- The Working Group was tasked with determining what issues should be resolved regarding the interconnection standard and application procedure to ensure an effective and efficient interconnection process.
- The participants of the Working Group were
  - UTILITIES:
    - National Grid
    - NSTAR
    - WMECO
    - Unitil
  - DG PROVIDERS
    - DG Solar
      - Borrego Solar
      - Blue Wave Capital
      - Spire Solar Systems
      - DG Cleanpower
      - SEBANE/SEIA
      - Exelon/Constellation Energy
      - My Generation Energy
    - DG CHP
      - Source One/Veolia Energy
      - Northeast Clean Heat and Power Initiative
      - US Clean Heat & Power Association,
      - The E-Cubed Company,
      - Prime Solutions,
      - Havard
  - STATE AGENCIES
    - Dept. of Energy resources
    - MA Clean Energy center
  - Customers/Cities
CLC/CVEC

- On September 14, 2012, the working group issued its final report, and the DPU adopted the report in March 2013.

INTERCONNECTION PROCESS SUMMARY

- Prior to connecting, the distributed generation system owner must obtain written approval from the local utility in the form of an Interconnection Service Agreement and subsequent Authorization to Connect.
- There are three (3) basic path to Interconnection
  - Simplified Process (fastest and least costly path)
  - Expedited Process
  - Standard process (longest time period and highest potential cost)
- **Simplified Process**: for interconnecting customers using
  - listed single-phase inverter-based facilities with power rating of 15 kW or less OR
  - listed three-phase inverter-based facilities with power rating of 25 kW and requesting an interconnection on radial EPS where the capacity is less than 15% of feeder annual peak load.
- **Expedited Process**: for customers that pass certain pre-specified screens on a radial EPS (See Figure 1)
- **Standard Process**: for all facilities not qualifying for either the simplified or expedited interconnection processes on radial and spot network EPS, and for all facilities on area network EPS.
Figure 1 - Schematic of Massachusetts DG Interconnection Process

Interconnecting Customers with Facilities that are 500 kW or greater shall request a Pre-Application Report.

Interconnecting Customer submits complete Simplified Interconnection Application (Exhibit A and attachments)

Interconnecting Customer submits complete Expedited/Standard Interconnection Application (Exhibit C and attachments) and Application Fee

Interconnecting Customer opts to forego the Expedited Process and have application reviewed under Standard Process

1. Is the Point of Common Coupling on a radial distribution system?
   Yes
   No
   Go to Figure 2

2. Is the aggregate generating Facility capacity less than 15% of feeder/circuit annual peak load and, if available, line segment? (Note 1)
   Yes
   No
   Expedited Process
   Company performs Supplemental Review
   Does the Facility pass all the following Screens?* (Note 8)
   A. Penetration test
   B. Power quality & voltage test
   C. Safety & reliability test

   Yes
   No
   Standard Process
   Initial Review

   Are System Modification requirements determined without further study?
   Yes
   No
   Simplified Process
   Does the Facility pass all the following Screens?
   5. Is the Service Type Screen met? (Note 2)
   6. Is the Facility Listed per (Note 3)?
   7. Is the Starting Voltage Drop Screen met? (Note 4)
   8. Is the Fault Current Contribution Screen met? (Note 5)
   9. Is the Service Configuration Screen met? (Note 6)
   10. Is the Transient Stability Screen met? (Note 7)

   Yes
   No
   System Modification Check*

   Are System Modifications required?
   Yes
   No
   Interconnection Service Agreement

   *Conditional Approval to Interconnect

   **Only if required

   [Company provides cost estimate and schedule for Detailed Study*]

   Company performs Detailed Study*
Figure 2 – Simplified Interconnection to Networks

1. Does the Facility use a Listed Inverter (UL 1741)? (Note N1)
   - Yes
   - No

2. Is the aggregate generating Facility capacity less than 1/15 of Customer’s minimum load (daytime load in the case of solar)? (Note N2)
   - Yes
   - No, exceeds relative threshold

3. FOR AREA NETWORK ONLY (Skip screen if Spot Network)
   Is the power rating of the Listed Inverter \( \leq 15 \text{ kW} \)? (Note N3)
   - Yes
   - No (Note N4)

   System Modifications Required
   - Yes
   - Simplified Interconnection

Standard Process