

The logo for the Massachusetts Department of Energy Resources (DOER). It features the letters "DOER" in a white serif font on a dark blue background. The letter "O" is stylized with a yellow sunburst pattern inside it.

Massachusetts Department
of Energy Resources

Creating A Greener Energy Future For the Commonwealth

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Massachusetts

Department of Energy Resources
(DOER)

Compendium of Programs

- **MA Alternative Energy Portfolio Standard**
- *Gas and Electric Rebates for CHP*
- **Micro-CHP Eligibility for Renewable Trust**
- **Northeast Clean Energy Application Center**
- *The DOER Clean Energy and Industrial Efficiency Program (Stimulus \$\$ for CHP)*

MA Alternative Portfolio Standard

- Year Launched: Emergency regulations; Effective 3/31/09; Finalized 5/29/09
- Primary Goal: To incentivize alternative (non-renewable) energy sources, such as CHP, flywheels, coal gasification, and others TBD by DOER.
- Compliance Goal:

<u>Year</u>	<u>Cumulative Minimum %</u>
2009	1.0
2010	1.5
2011	2.0
2012	2.5
2013	3.0
2014*	3.5

* “After 2014, the Minimum Standard shall increase by 0.25% per Compliance Year.”

MA Alternative Portfolio Standard

- Number of Projects: Depends upon sizes meeting the standard.
- Program Investment: Cap is driven by the ACP: \$20/MWh (equivalent)
- Total Investment:
Max of (\$20 ACP) X (1%) X (47.5 Mill. MWh) = ~\$9.5 Million
- Capacity at Full-Build: Depends upon the useful thermal and development speed of other alt. techs.; An estimated 54.3 MW would meet each 1 percentile of APS (66% efficiency; 7000 hrs); Add ~27 MW per year until 2014 / Add ~13.5 MW each year after 2014.

MA-APS Capacity at Full-Build*

<u>Year</u>	<u>MW</u>
2009	50
2010	75
2011	100
2012	125
2013	150
2014	176
2015	188
2016	201
2017	213
2018	226
2019	238
2020	251

* Estimate based upon APS being met only by CHP.

Administration

- Program Administrator: MA DOER
- Eligible Participants: Any owner in the state installing the eligible technology (slide 7).
- Recipient of Payments: The owner of the certified facility (third party owner can share this benefit as contracted with host site owner).

Payment Stream Details

- **Payment Mechanism:** Certificates traded quarterly using the NEPOOL Generation Information System (NEPOOL-GIS).
- **Frequency of Offering:** Aggregators will likely pay asset owners quarterly after trading.
- **Annual Budget:** NA
- **Payment Structure:** \$20/MWh equivalent; Similar to RPS: Asset owners report certificates are minted and traded at the GIS on a quarterly basis.
- **Reporting Requirements:** Metered power output and useful thermal are reported quarterly with 3rd-party independent verification.

Technologies

- Eligible:
 - **Coal Gasification**, but with environmental standards, including “carbon dioxide capture and permanent sequestration”.
 - **Combined Heat and Power** (a.k.a., cogeneration), which is defined as the concurrent production of both electricity and useful thermal (heat) energy in the same facility. The thermal output of a CHP Unit must be used within Massachusetts.
 - **Flywheel Energy Storage**, a new technology that must participate in the Regulation Market of ISO-NE.
 - **Paper-Derived “Fuel Cubes”**: Displacement of a portion of the coal at a power plant by an equivalent or greater amount of paper-derived “fuel cubes” that have been granted a “beneficial use determination” by the MassDEP.
 - **Energy Efficient Steam Technology**, a technology not yet ready for commercial deployment and for which definitions and provisions are not ready at this time.
- Rationale: Directed by the ***Green Communities Act (July, 2008)***

APS Example Project

- Project/Site Name: TBD (no flagships yet)
- Project Example:
66% efficiency; 49% useful heat; 7000 hrs
- Technology: IC Engine
- System Size: 500 kW
- Estimated Results: ~\$175/kW ... or ...
 - AECs/Yr = 4375 MWh*
 - Revenue Stream = Est. \$87,500/Yr.
(if \$20/MWh ACP)

*AECs = CHP elec. /0.33 + CHP Useful Thermal /0.8 - Fuel to CHP

Summary Impressions

- Working Well: Choosing a performance based certificate incorporating thermal usage (rather than an efficiency requirement) was well received.
- Challenges: Regulation implementation is hard with limited resources! Application delays.
- Proudest of: DOER is very excited to begin seeing performance data; metered electric generation *and* thermal usage (ETA for first data: Dec/2009; First full year of data Oct/2010).

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Gas and Electric Rebates for CHP

- Year Launched: Included in the 2009 EE Plans; Utility Three-Year EE Plans include same program (approval pending)
- Primary Goal: Incentivizes CHP.
- Compliance Goal: The Green Communities Act directs the MA utilities to purchase all cost-effective efficiency and makes CHP eligible as efficiency for *gas and electric* programs.

Gas and Electric Rebates for CHP

- Number of Projects: No limit.
- Program Investment: No longer constrained by SBC collected.
- Total Investment: No Limit.
- Capacity at Full-Build: Efficiency consultants project no more than capacity estimated from the APS: 54.3 MW would meet each percentile (add ~27 MW per year until 2014).

Administration

- Program Administrator: Utility efficiency program administrators (gas and electric integrated programs)
- Eligible Participants: Any owner in IOU territories installing CHP passing cost-effectiveness test.
- Recipient of Payments: The utility customer where the CHP facility is located (third party owner can share this benefit as contracted with host site owner).

Incentive Structure Details

- **Payment Mechanism:** The rebates are rewarded if utility feasibility study finds the project cost-effective (using a “total resource cost test”)
- **Frequency of Offering:** Continuously offered (included in three-year plans to 2012).
- **Annual Budget:** No longer constrained by SBC collected.
- **Payment Structure:** Electric: \$250/kW for feasibility study; Rebate up front of \$750/kW for installation. Gas: Discounts on gas charges; up front rebates (varied).
- **Reporting Requirements:** The CHP EE Programs will seek to integrate with the APS to monitor and verify program success.

Technologies

- Eligible:
Combined Heat and Power defined as the concurrent production of both electricity and useful thermal (heat) energy in the same facility. The CHP Unit must be within Massachusetts IOU gas or electric territory (municipal lighting plants not included).
- Rationale: Directed by the ***MA Green Communities Act (July, 2008)***

Summary Impressions

- Challenges: Electric program administrators need training on the non-traditional conservation approach, e.g., lightbulbs don't derive savings from combustion of fuel.
- Working Well: Electric PA's very open to learning (decoupling and reconciling lost base revenues makes a difference)
- Proudest of: *too soon to tell*

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