Maryland
Department of
the Environment

Combined Heat & Power: Supporting Variable Renewables and the Environment in Maryland

Maryland Commission on Climate Change Mitigation Working Group

July 13, 2017

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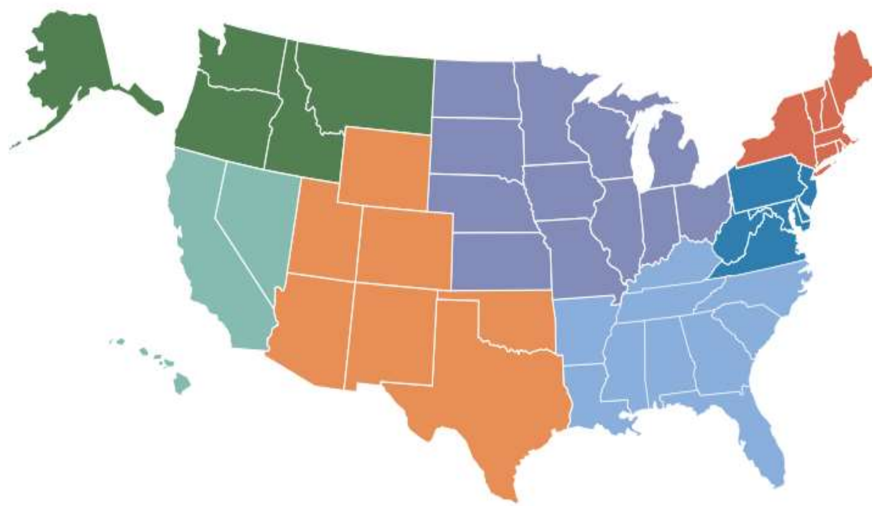
U.S. Department of Energy
CHP Technical Assistance Partnerships

DOE CHP Technical Assistance Partnerships (CHP TAPs)

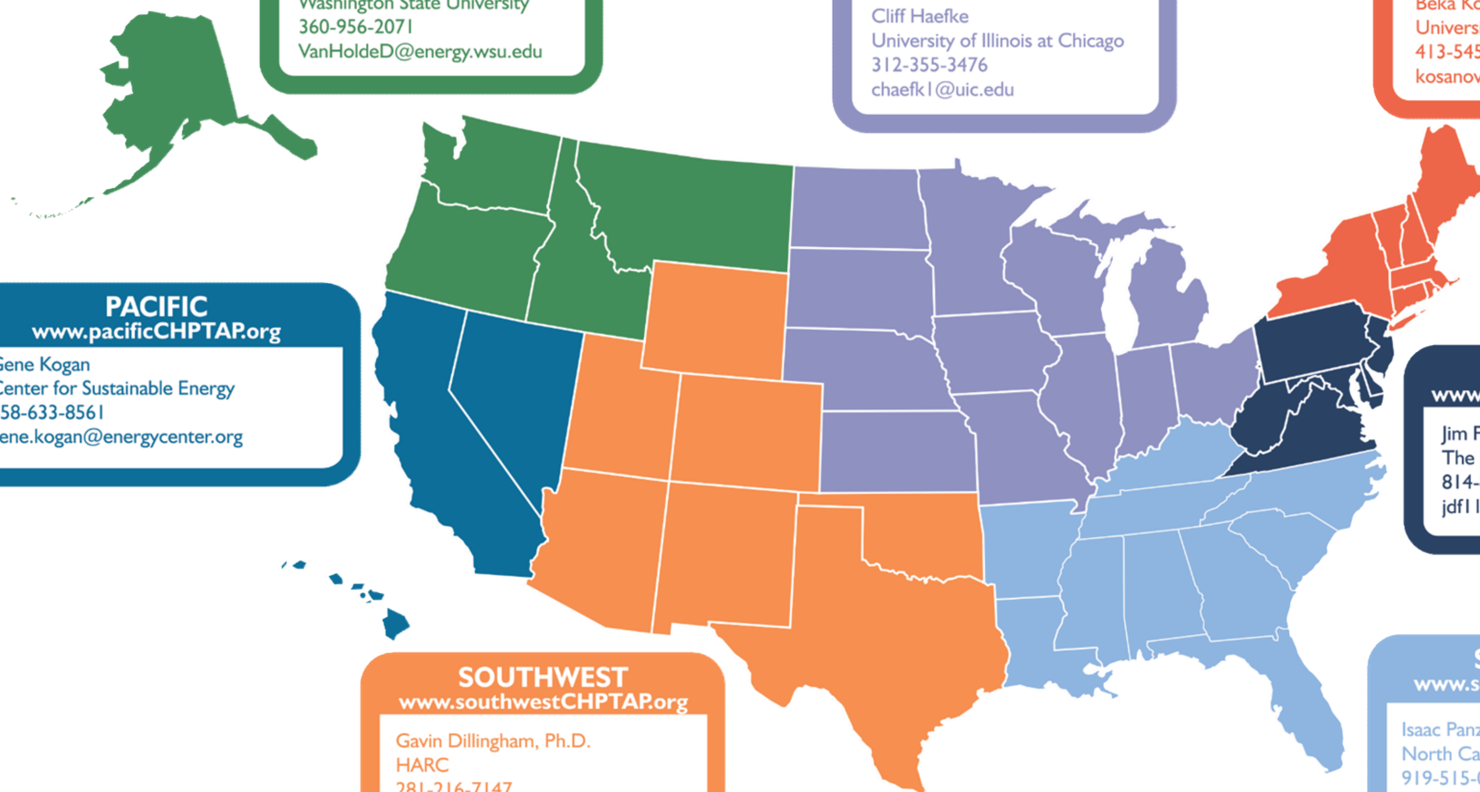
DOE's CHP TAPs promote and assist in transforming the market for CHP, waste heat to power, and district energy or microgrid with CHP throughout the United States. Key services include:

- Market Opportunity Analysis
  Supporting analyses of CHP market opportunities in diverse markets including industrial, federal, institutional, and commercial sectors
- Education and Outreach
  Providing information on the energy and non-energy benefits and applications of CHP to state and local policy makers, regulators, end users, trade associations, and others.
- Technical Assistance
  Providing technical assistance to end-users and stakeholders to help them consider CHP, waste heat to power, and/or district energy or microgrid with CHP in their facility and to help them through the development process from initial CHP screening to installation.



www.energy.gov/chp

DOE CHP Technical Assistance Partnerships (CHP TAPs)



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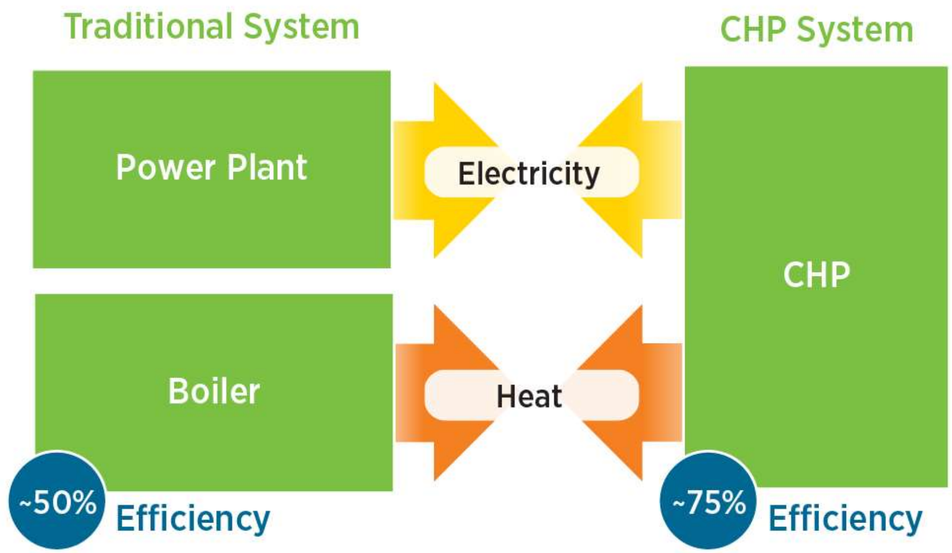
Agenda

- CHP 101
- CHP Potential Benefits to Maryland
- CHP's impact on the current Maryland Air Shed
- Resilient Future: Hybrid Microgrids – CHP supporting Variable Renewable Energy
- CHP in Maryland
- CHP PSC and MEA programs in Maryland
- CHP APS program in Massachusetts
- CHP RPS program in Connecticut
- CHP NYSERDA program in New York
- Potential CHP as a Clean Energy Efficiency Standard program in Maryland

CHP 101

- Form of Distributed Generation (DG)
- An integrated system
- Located at or near a building / facility
- Provides at least a portion of the electrical load and
- Uses thermal energy for:
  - Space Heating / Cooling
  - Process Heating / Cooling
  - Dehumidification



CHP provides efficient, clean, reliable, affordable energy – today and for the future.

Source: www.energy.gov/chp

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CHP Potential Benefits to Maryland

Owner/Host Site Benefits

- Cost Savings
- Environmental Stewardship/Good PR
- Power Quality/Availability
- Reliability – Keep Operations Running

Societal Benefits

- Lower Energy & Infrastructure Costs
- Job Creation/Retention
- Increased Grid Reliability
- Emissions Reductions/Health Care Benefits
- Support for Variable Renewable Energy Sources
- Resource Extension/National Security
- Underpin Expansion of NG Distribution Network

CHP vs Solar PV vs Wind vs NGCC Comparison

Load Factor (Operating Hours) is the key variable in displacing grid (PJM) electricity , saving energy and reducing emissions.

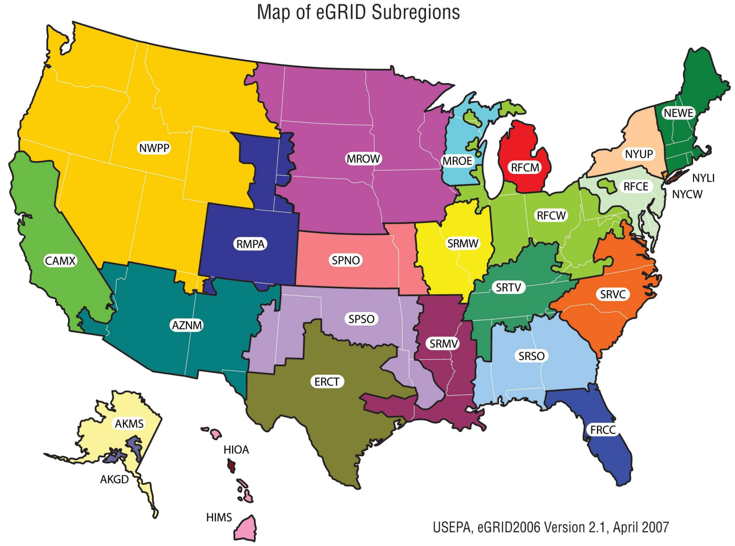
System	CHP	Utility Solar PV	Class IV Land Based Wind	NGCC
System Description				
	10 MW CHP System	Based on 150 MW utility PV systems	Based on 100 MW utility wind project	10 MW portion of 600 MW system
Capacity, kW	10,000	10,000	10,000	10,000
Load Factor	85%	26%	32%	56%
Hours per year	7,446	2,260	2,821	4,897
Net Electric Efficiency, %	28%	N/A	N/A	52%
Power to Heat Ratio	0.70	N/A	N/A	N/A
CHP Efficiency	68.0%	N/A	N/A	N/A

Source: Combined Heat and Power and the Clean Power Plan, NARUC 2015 Winter Meeting February 16, 2015, Dr. Bruce Hedman, Institute for Industrial Productivity – Updated to eGRID 2015 RFCE East fossil average (2014 data) and AEO 2017 by Dr. Hedman.

CHP vs Solar PV vs Wind vs NGCC Comparison: Modeling Assumption

- Wind, PV and NGCC load factors based on 2015 National average (DOE EIA)
- 10 MW Gas Turbine CHP - 28% electric efficiency, 70% total efficiency, 15 PPM NOx
- PV, Wind and NGCC costs based on DOE AEO 2017
- Electricity displaces National All Fossil Average Generation (eGRID 2015-2014 Data eGRID RFCE Region) - 9,539 Btu/kWh, 1,480 lbs CO2/MWh, 1.34 lbs NOx/MWH, 6% T&D losses
- Thermal displaces 80% efficient on-site natural gas boiler with 0.1 lb/MMBtu NOx emissions

Map of eGRID Subregions



USEPA, eGRID2006 Version 2.1, April 2007

Source: Combined Heat and Power and the Clean Power Plan, NARUC 2015 Winter Meeting February 16, 2015, Dr. Bruce Hedman, Institute for Industrial Productivity – Updated to eGRID 2015 RFCE East fossil average (2014 data) and AEO 2017 by Dr. Hedman.

CHP vs Solar PV vs Wind vs NGCC Comparison Data

System	CHP	Utility Solar PV	Class IV Land Based Wind	NGCC
	10 MW CHP System	Based on 150 MW utility PV systems	Based on 100 MW utility wind project	10 MW portion of 600 MW system
System Electric and Thermal Output				
Annual Electric Generation, MWh	74,460	22,601	28,207	48,968
Annual Thermal Output, MWht	106,371	N/A	N/A	N/A
System Capital Cost				
Capital cost per kW	$1,800	$2,277	$1,686	$969
Total Cap Costs	$18,000,000	$22,770,000	$16,860,000	$9,690,000
Footprint, Sq Ft	6,000	1,740,000	76,000	N/A
System Fuel Use and Displacement				
System Fuel Use, MMBtu	907,348	N/A	N/A	323,191
Displaced Boiler Fuel, MMBtu	453,674	N/A	N/A	N/A
System CO_2 and NOx Emissions				
System CO_2, tons/yr	53,035	N/A	N/A	18,891
System NOx, tons/yr	24.9	N/A	N/A	1.6
Displaced Boiler CO_2, tons/yr	26,517	N/A	N/A	N/A
Displaced Boiler NOx, tons/yr	22.7	N/A	N/A	N/A
RFCE 2012 Grid Data				
T&D losses, %	9.2%	0.0%	0.0%	0%
Displaced Central Station Power, MWh	81,977	22,601	28,207	48,968
Central Station Avg Fossil Heat Rate, Btu/kWh	*9,539*	*9,539*	*9,539*	*9,539*
Central Station Avg Fossil CO_2, lbs/MWh	*1,480*	*1,480*	*1,480*	*1,480*
Central Station Avg Fossil NOx, lbs/MWh	*1.3400*	*1.3400*	*1.3400*	*1.3400*
Average Grid Displaced Fuel and Key Emissions				
Displaced Central Station Fuel, MMBtu	781,982	215,589	269,068	467,110
Displaced Central Station CO_2, tons	60,663	16,725	20,873	36,237
Displaced Central Station NOx, tons	54.9	15.1	18.9	32.8

Source: Combined Heat and Power and the Clean Power Plan, NARUC 2015 Winter Meeting February 16, 2015, Dr. Bruce Hedman, Institute for Industrial Productivity – Updated to eGRID 2015 RFCE East fossil average (2014 data) and AEO 2017 by Dr. Hedman.

CHP vs Solar PV vs Wind vs NGCC Comparison Results

The results show that CHP is competitive with Variable Renewable Energy technologies and Clean Central Station Power versus the current PJM Grid.

System	CHP	Utility Solar PV	Class IV Land Based Wind	NGCC
	10 MW CHP System	Based on 150 MW utility PV systems	Based on 100 MW utility wind project	10 MW portion of 600 MW system
Energy and Emissions Savings				
Energy Savings, MMBtu	**328,308**	**215,589**	**269,068**	**143,918**
Energy Savings MMBtu per $1,000 spent	**18.2**	**9.5**	**16.0**	**14.9**
CO2 Savings, Tons/yr	**34,146**	**16,725**	**20,873**	**17,346**
CO2 Savings Tons per $1,000 spent	**1.9**	**0.7**	**1.2**	**1.8**
NOx Savings, Tons/yr	**52.7**	**15.1**	**18.9**	**31.2**
NOx Savings Tons per $1,000 spent	**0.0029**	**0.0007**	**0.0011**	**0.0032**

Source: Combined Heat and Power and the Clean Power Plan, NARUC 2015 Winter Meeting February 16, 2015, Dr. Bruce Hedman, Institute for Industrial Productivity – Updated to eGRID 2015 RFCE East fossil average (2014 data) and AEO 2017 by Dr. Hedman.

Over time all clean energy technology offerings will improve their performance and cost. The PJM Grid will also improve reducing the displaced energy, CO_2 and NOx savings from these energy sources. Note that CHP systems can use renewable fuels like landfill, digester and syngas which would change emission profiles significantly.

The Future of the Macro Grid is not Known

Low-cost solution to the grid reliability problem with 100% penetration of intermittent wind, water, and solar for all purposes

Mark Z. Jacobson, Mark A. Delucchi, Mary A. Cameron, and Bethany A. Frew

Source: https://www.scribd.com/document/311569619/Jacobson-Delucchi-PNAS-2015-Low-cost-solution-to-the-grid-reliability-problem

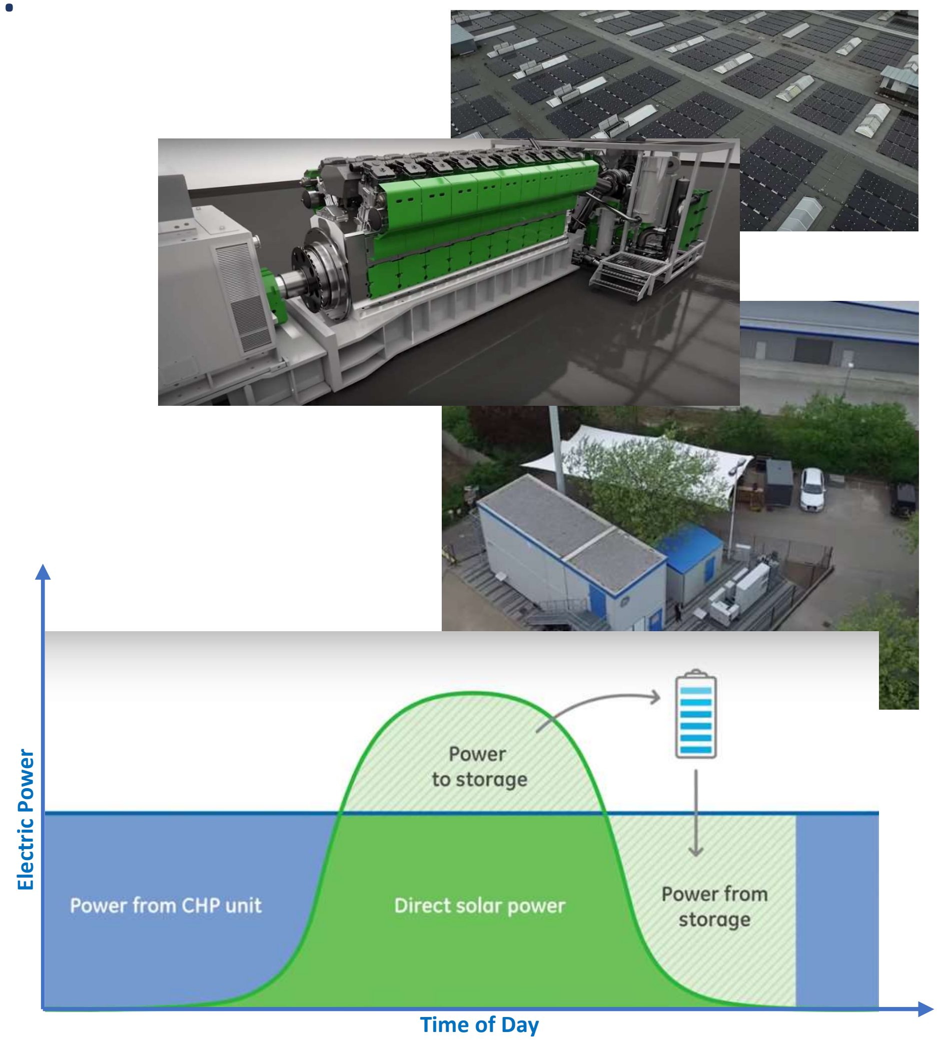
Evaluation of a proposal for reliable low-cost grid power with 100% wind, water, and solar

Source: http://www.pnas.org/content/114/26/6722.full.pdf

Clearly the vision for a 2050 all water, wind and solar (WWS) electric grid is a matter of fierce discussion. A likely mix of WWS, bioenergy and nuclear some natural gas based central station power is emerging as one distinct possibility. In this scenario, CHP would likely emerge as the most energy and economically efficient means to supply the fossil portion of the future energy grid.

The Future of Resiliency: Hybrid Microgrids

Hybrid microgrids (a.k.a. clean microgrids) combine high efficiency CHP systems, renewable energy generators and batteries to provide power and thermal energy.

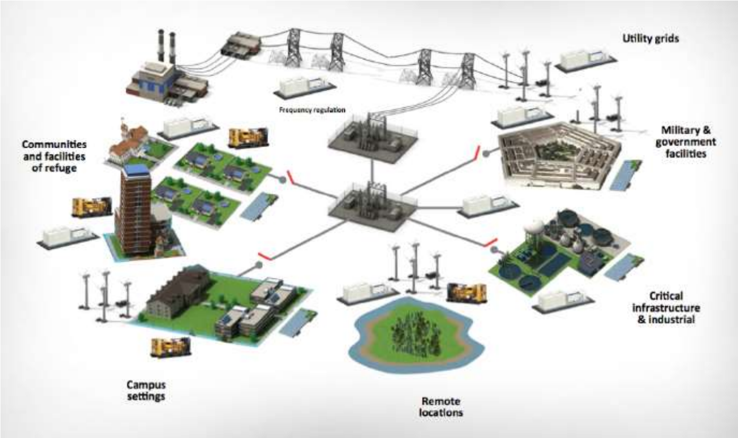


Source: http://microgridmedia.com/ge-berlin-hybrid-power-plant-combines-chp-solar-and-smart-battery-storage/

The Future of Resiliency: Hybrid Microgrids

A Resilient Microgrid consists of many components:

- CHP
- Standby/DR DG
- Solar PV, Wind
- Thermal Storage
- Power Storage
- Smart Switchgear
- Power Distribution (multiple buses)
- Load/Power Management Controls
- Parallel/Island Mode Utility Interconnection



Source: http://www.eaton.com/FTC/healthcare/MicrogridEnergySystems/index.htm

Source: DOE CHP TAP

Energy Cost in Maryland

Maryland Average Gas Prices - 2016

Sector	*MD Price ($/MMBtu)*	*U.S. Price ($/MMBtu)*
Citygate	N/A	3.72
Industrial	8.87	3.51
Commercial	9.06	7.25

Source: U.S. Energy Information Administration, "Natural Gas Prices", https://www.eia.gov/dnav/ng/ng_pri_sum_dcu_SDE_a.htm

- The EIA industrial natural gas price is a full tariff rate, and most large consumers are purchasing gas commodities from marketers at a lower rate.

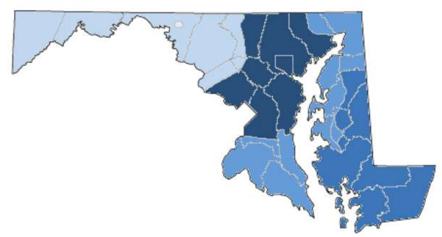
Maryland Average Delivered Electricity Prices by Utility

Utility	*Industrial Price (¢/kWh)*	*Commercial Price (¢/kWh)*	*Average Price* (¢/kWh)*
Baltimore Gas & Electric	11.71	12.99	12.35
Potomac Electric Power	-	12.28	12.28
Choptank Electric Coop	9.99	13.03	11.51
A&N Electric Coop	9.14	12.97	11.05
Delmarva Power	8.84	13.05	10.94
Easton Utilities Comm.	-	10.84	10.84
Southern MD Elec Coop	-	10.52	10.52
Potomac Edison Company	9.02	10.59	9.81
Hagerstown Light Dept.	6.73	8.01	7.37

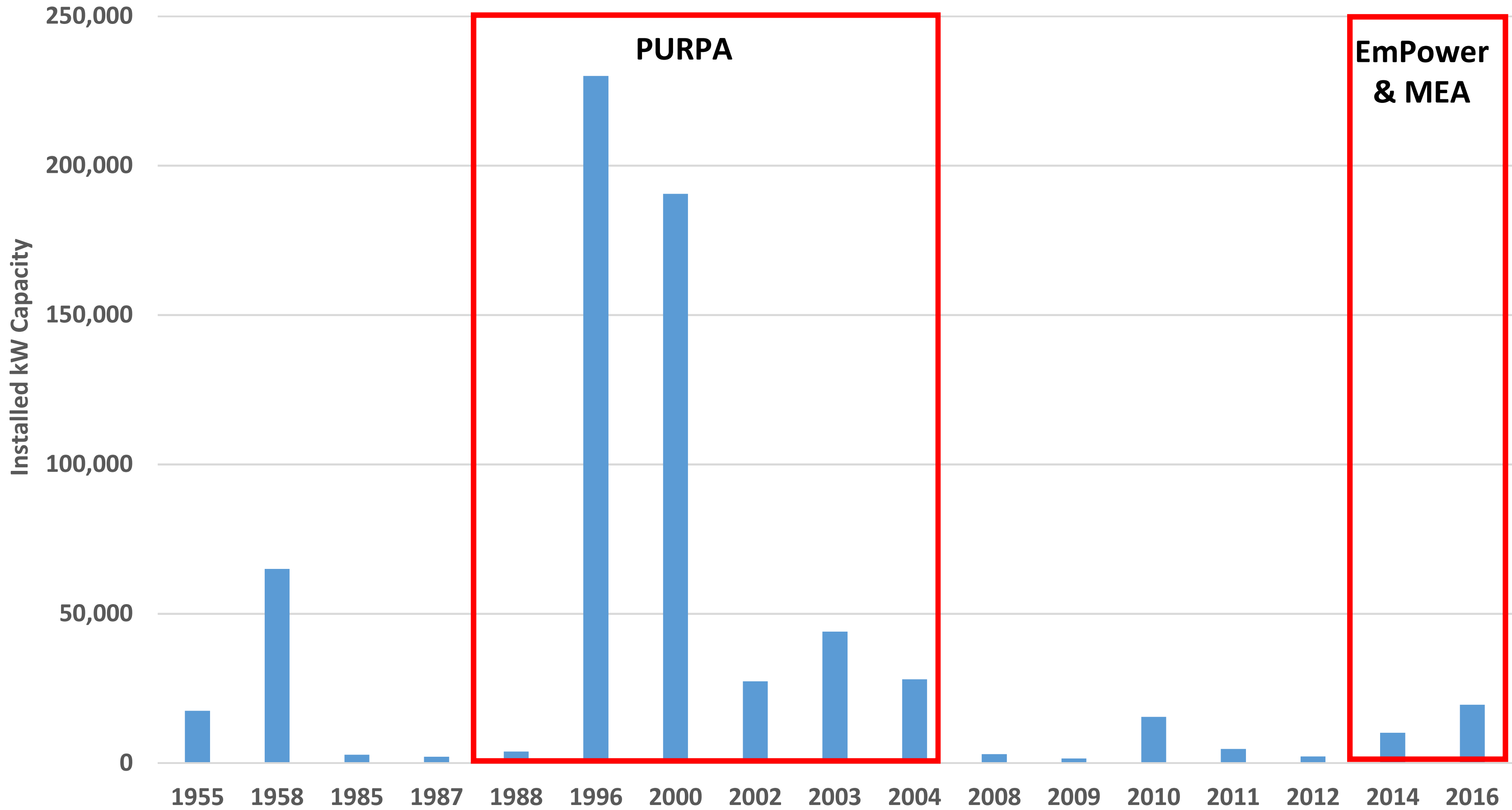
*Average of commercial and industrial electricity prices as reported by EIA.

Source: U.S. Energy Information Administration, "Annual retail price of electricity by utility", https://www.eia.gov/electricity/data.cfm

Maryland Electricity Prices – Heat Map

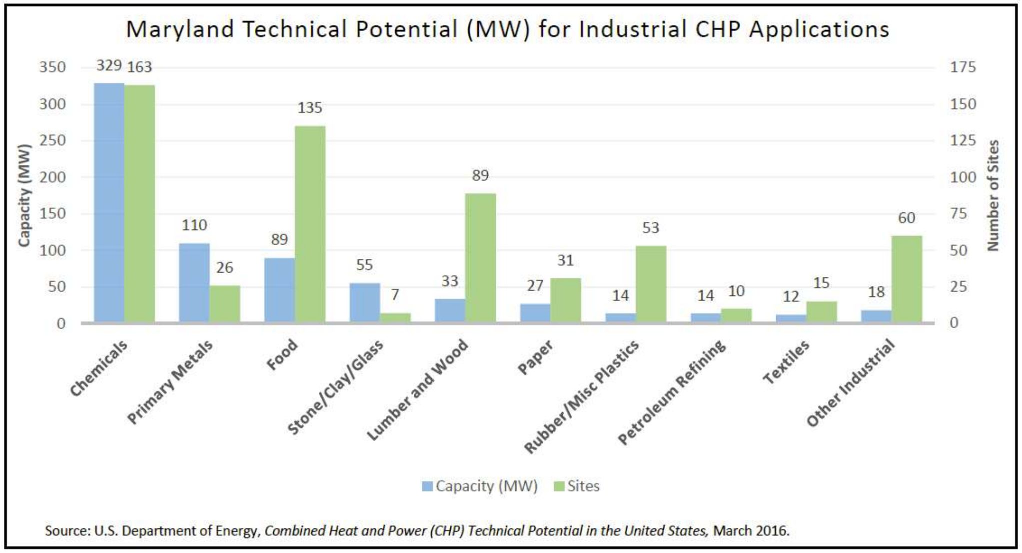


Operating CHP Systems in Maryland

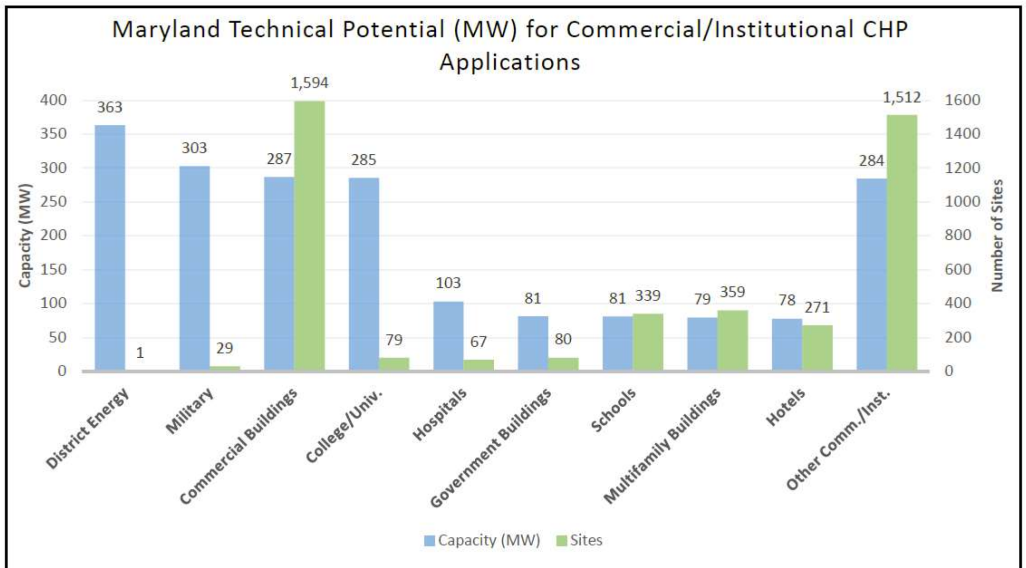


Source: https://doe.icfwebservices.com/chpdb/

CHP Technical Potential by Application



	Number of Sites	Onsite Potential (MW)
Commercial	3,109	1,607.2
Industrial	762	665.5
Total	3,871	2,272.6



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EmPOWER Maryland CHP Programs (BG&E, PEPCO & Potomac Edison) 2015-2017

Eligibility	Eligible CHP projects may be driven by either a reciprocating engine or a gas turbine and must operate at a minimum of 65% efficiency (Higher Heating Value) on an annual basis.
	All qualifying systems must not export electricity to the grid.
	Projects must be pre-approved by December 31, 2017.
Project Incentives	**Design incentive:** $75/kW subsequent to signed commitment letter and acceptance of minimum requirements document.
	Installation incentive: $275/kW for projects under 250kW and $175/kW for projects 250kW and over, subsequent to commissioning of the CHP system and BGE inspection.
	Production incentive: $0.07/kWh for 18 months; three payments subsequent to review of metering data at the end of the 6th,12th and 18th months.
	Project Caps: Capacity and design incentives are capped at $1.25 million and production incentives are capped at $1.25 million.

Source: http://bgesmartenergy.com/business/chp

Maryland MEA CHP Program

- The FY17 MEA CHP grant program will provide grants to encourage the implementation of CHP technologies in eligible industrial facilities, critical infrastructure facilities (including healthcare, wastewater treatment, and essential state and local government facilities), and to encourage the implementation of CHP technologies that leverage biogas/biomass as a fuel source in industrial and critical infrastructure facilities.
- Individual grants range in size from up to $425/kW to up to $575/kW, based on the size of the CHP system, with a maximum per project cap of $500,000, subject to funding availability.

Source: http://energy.maryland.gov/business/Pages/MEACHP.aspx

Clean energy portfolio standards (CEPS)

CEPS are tools states can use to increase the adoption of clean energy technologies, including CHP, by requiring electric utilities and other retail electric providers to meet a specified amount of load through eligible clean energy sources. One of the goals of CEPS is to stimulate market and technology development so that, ultimately, clean energy will be economically competitive with conventional forms of electric power. A number of states have explicitly included some form of CHP as an eligible resource in the CEPS. CEPS, which can be used in both regulated and restructured electricity markets, can be designed in a different ways to meet various objectives.

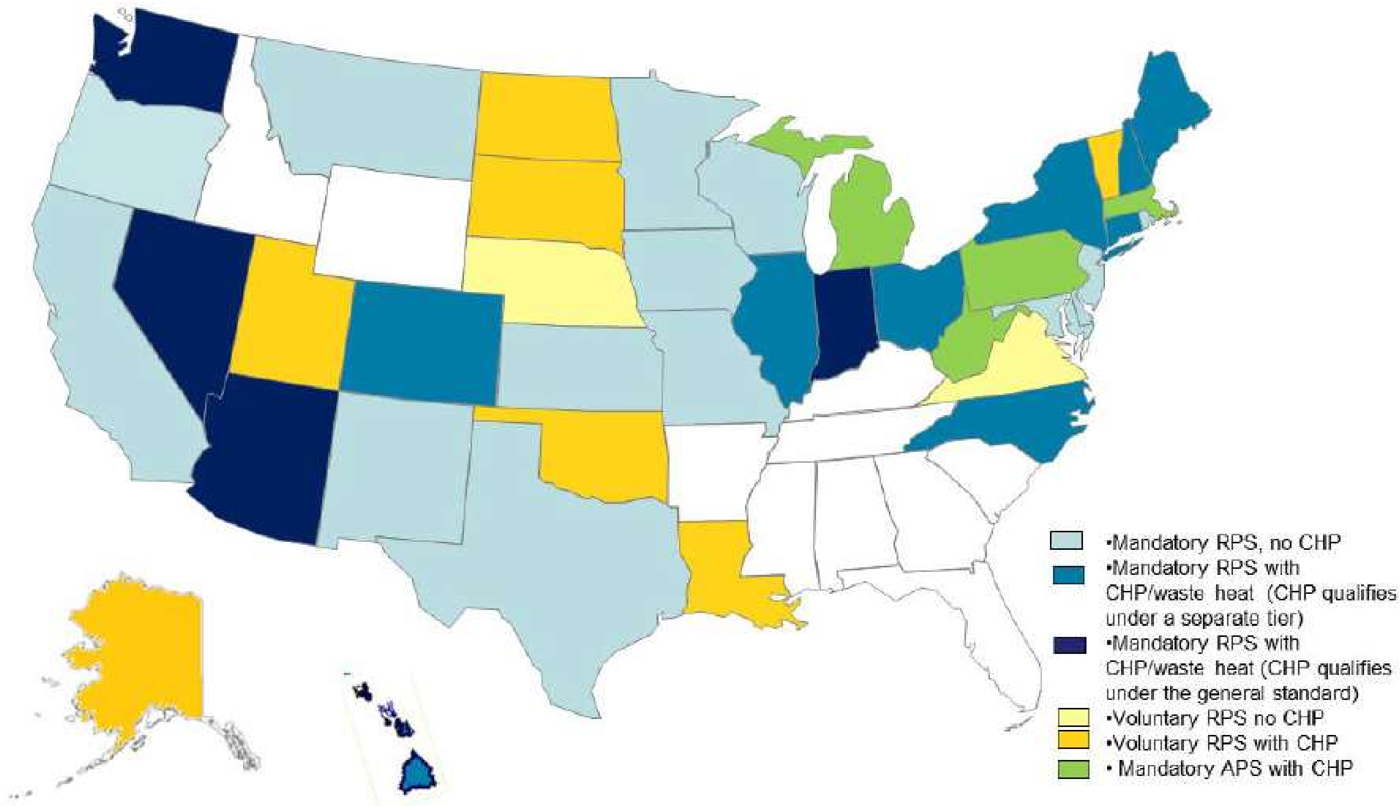
Source: https://www4.eere.energy.gov/seeaction/publication/guide-successful-implementation-state-combined-heat-and-power-policies

Clean energy portfolio standards (CEPS)

- Renewable portfolio standard (RPS) is the most common form of a portfolio standard and is usually focused on traditional renewable energy such as wind, solar, and biomass projects.
- Energy efficiency resource standards (EERS) require utilities to save a certain amount of energy every year. To do this, utilities implement energy efficiency programs to help their customers save energy.
- Alternative energy portfolio standards (APS) often set targets for a certain percentage of a supplier's capacity or generation to come from alternative or advanced energy sources such as CHP.

Source: https://www4.eere.energy.gov/seeaction/publication/guide-successful-implementation-state-combined-heat-and-power-policies

States with CEPS and how CHP qualifies (under RPS or APS)



Source: Map based on ICF International research. December 2012.

Connecticut RPS Class III

In 2005, Connecticut added a third tier to the RPS resource requirements, establishing a new RPS Class III that must be fulfilled with CHP, demand response, and electricity savings from conservation and load management programs.

Policy Initiation Date	7/1/1998
Policy Expiration Date	1/14/2020
Policy Summary	Connecticut's Renewable Portfolio Standard (RPS) requires each electric supplier and electric distribution company wholesale supplier to obtain at least 27% of its electricity load through renewable sources or energy efficiency by January 1, 2020. The RPS has separate standards for energy resources, which are classified as Class I, Class II, or Class III. The RPS requires at least 20% through Class I resources, 3% through Class I or Class II resources, and 4% through Class III resources.
	Customers that install Class III resources on or after January 1, 2008, are entitled to Class III credits equal to at least one cent per kWh. The revenue from these credits must be divided between the customer and the State C&LM fund in various ways depending on when the Class III resources are installed, whether the owner is residential or non-residential, and whether the resources received state support.
Eligibility Requirements	Both fossil-fueled and renewable-fueled CHP systems are eligible under the RPS. Renewable-fueled CHP systems fall under Class I and Class II, which include fuel cells, landfill methane gas, anaerobic digestion, and biomass facilities. Fossil-fueled CHP systems fall under Class III resources. Eligible CHP systems must have been developed on or after January 1, 2006, to qualify under the RPS. Eligible systems that recover waste heat or pressure from commercial and industrial processes must be installed on or after April 1, 2007. Existing units that have been modified on or after January 1, 2006, may earn certificates only for the incremental output gains.
Eligible Project Size (MW)	Does Not Specify
Minimum Efficiency Required (%)	A CHP system must meet an overall efficiency level of at least 50%. The sum of all useful electrical energy output must constitute at least 20% of the system's total usable energy output. The sum of all thermal energy outputs must also constitute at least 20% of the system's usable energy output.

Source: http://www.ct.gov/dpuc/cwp/view.asp?a=3354&q=415186

The influx of Class III RECs produced by Conservation and Load Management resources has flooded the Class III market. The current Class III market is at the floor price (1¢/kWh) and saturated, creating real challenges for CHP developers to sell their Class III RECs.

https://www.cga.ct.gov/2013/ETdata/Tmy/2013HB-06532-R000307-James%20Schneider%20-%20Kimberly-Clark%20Co-TMY.PDF

Massachusetts (Energy Efficiency)

CHP systems using renewable fuels and natural gas qualify. CHP systems must have begun operation (including incremental additions) on or after January 1, 2008. Existing units can receive credit for their added incremental useful thermal energy or useful electrical energy. The APS provides credit for both the electric and thermal output from the CHP system.

Incentive Initiation Date	1/1/2008
Incentive Size and Funding Source	There are three tiers of incentives for utility customers considering energy efficiency measures in conjunction with installing a CHP system: Level 1 - Basic, Level 2 - Moderate, Level 3 - Advanced.
	Level 1: $750 per kW for systems 150 kW or less.
	Level 2: Up to $950 per kW for units larger than 150 kW or $1,000 per kW for units 150 kW or less.
	Level 3: Up to $1,100 per kW for units larger than 150 kW or $1,200 per kW for units 150 kW or less.
Eligible Recipient	All owners of CHP systems are eligible, but the best applications are typically those with high annual hours of operation with near full use of the thermal output, including process industry (24/7) operation, as well as commercial applications such as hotels, hospitals, nursing homes, schools, colleges, laundries, health facilities and multi-unit apartments.
Eligible Fuel	Does Not Specify
Eligible Project Size (MW)	Level 1: Size must not exceed thermal and/ or electrical load of the building assuming implementation of efficiency measures.
	Level 2 and Level 3: Sized to follow thermal loads of the building post implementation of all efficiency measures with a simple payback of 3 years or less.
Minimum Efficiency Required (%)	Level 1: None.
	Level 2: Annual estimated efficiency greater than 60%.
	Level 3: Annual estimated efficiency greater than 65%

Source: http://www.masssave.com/en/business/eligible-equipment/combined-heat-and-power

Massachusetts (APS)

In July 2008, Governor Patrick signed a major energy reform bill, the Green Communities Act (S.B. 2768). As part of that legislation, Massachusetts created the Alternative Energy Portfolio Standard (APS), which requires meeting 5% of the state's electric load with "alternative energy" by 2020, according to the following schedule:

1.00%	by	2009	3.75%	by	2015
1.50%	by	2010	4.00%	by	2016
2.00%	by	2011	4.25%	by	2017
2.50%	by	2012	4.50%	by	2018
3.00%	by	2013	4.75%	by	2019
3.50%	by	2014	5.00%	by	2020

The “alternative energy generating sources” include combined heat and power (CHP) projects, flywheel energy storage, energy efficient steam technology, and renewable technologies that generate useful thermal energy. These projects must be new (start date after January 1, 2008) and must receive a statement of qualification from the Department of Energy Resources to qualify.

From 2009 to 2014, ~99% of compliance was met using efficient CHP technologies.

Source: http://programs.dsireusa.org/system/program/detail/4624

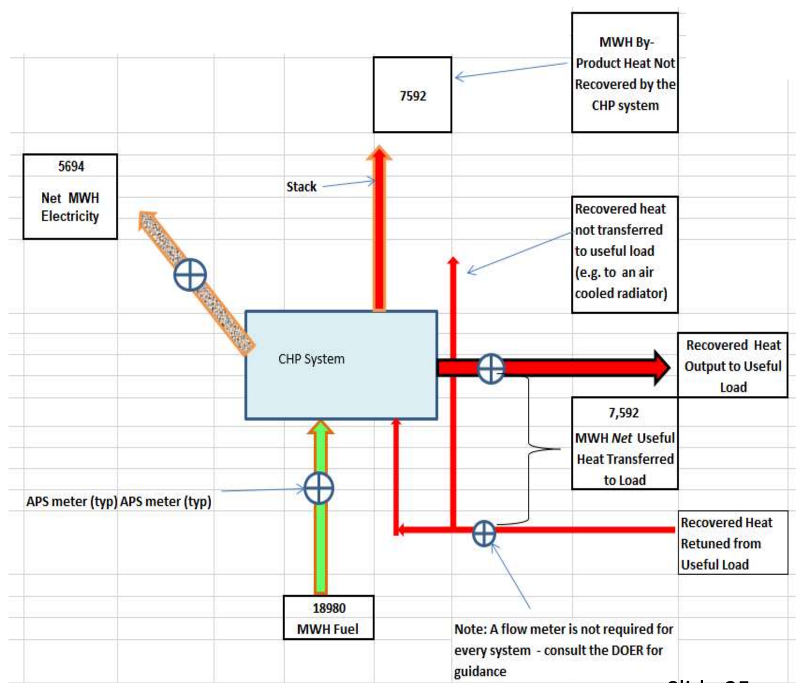
Massachusetts (APS)

A disclaimer: This Estimating Tool is intended for illustrative purposes only. Mass. DOER does not guarantee the accuracy of the results obtained

System Nominal *Net* Electric Generating Capacity	Annual *Net* Electricity Generated	*Net* Useful Heat Generated		*Net* Electric Generation Efficiency	Fuel to CHP		AECs /hr Generated	$/hr (gross)	Equivalent Full Load Run Hours for the Operating Interval Selected Below from Drop Down List	AECs/unit Time	Maximum (ACP) Value for AECs ($)
kW	MWH	MMBTU	MWH		MMBTU	MWH			Year		
1,000	5694	25911	7592	0.30	64779	18980	1.36	$ 26	5694	7765	$ 168,646

Total By-product Heat Generated (MWH)	Useful Heat as a % of Total Heat Output	CHP Overall *Net* Efficiency @Full Load	Value per AEC (from Drop Down List below)	Estimated Value of AECs ($)	Cents /net Kwh
13286	57%	0.70	$ 19.00	$ 147,526	2.59

BAU Fuel (MWH)	CHP Fuel (MWH)	Net Source Fuel Savings %
26745	18980	29%



$$\textbf{AECs} = E_{elec}/0.33 + E_{therm}/0.80 - E_{CHPin}$$

Source: http://www.mass.gov/eea/energy-utilities-clean-tech/renewable-energy/rps-aps/rps-aps-sqa/aps-statement-of-qualification-applications.html

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New York (Energy Efficiency) Program

The Combined Heat and Power (CHP) Program provides incentives for the installation of grid-connected CHP systems at customer sites that pay the System Benefits Charge (SBC) on their electric bill. The CHP Program supports an accelerated procurement process where customers select from a set of pre-engineered CHP modules supplied by approved CHP vendors (the Catalog Approach) or the more traditional design/build procurement process specifically for larger CHP systems where requirements are not adequately met by the Catalog Approach (the Custom Approach).

Incentive Initiation Date	2/15/2013
Incentive Expiration Date	12/31/2018
Incentive Size and Funding Source	Incentive funds will be allocated on a project-by-project, first-come-first-served basis in the order of receipt of full and complete applications for projects up to 3MW until December 31, 2018 or until all funds are committed, whichever comes first. Applications for projects greater than 3MW will be accepted through December 30, 2016. In all instances, the maximum incentive per project, including bonuses, is $2.5M.
Eligible Recipient	Under the Catalog approach, NYSERDA will only accept applications from, and will only contract with, approved CHP vendors.
	Under the Custom Approach, NYSERDA will accept applications from the site owner, the CHP System owner, or any member of the project team that is willing and capable of taking responsibility for the proper design, integration, installation, commissioning and maintenance of the CHP System. NYSERDA will contract only with the applicant.
Eligible Fuel	Does Not Specify
Eligible Project Size (MW)	Systems less than 1 MW, must use the Catalog Approach. The Custom Approach is only available for projects 1MW and larger in size, but these larger projects can also use the Catalog Approach.
Minimum Efficiency Required (%)	60% HHV
Other Incentive Details	Under the Catalog Approach, approved CHP vendors act as a single point of responsibility for the entire project and provide a minimum 5-year maintenance/warranty agreement on the CHP system.

	S/kW Incntive Pachages CHP Systems with Black Start		
	1 MW	100 kW	10 kW
Thru 8/31/2016	$1,350	$1,800	$1,800
9/1/2016-2/28/2017	$1,282	$1,710	$1,800
3/1/2017-8/31/2017	$1,215	$1,620	$1,800
9/1/2017-2/28/2018	$1,147	$1,530	$1,800

Source: http://www.nyserda.ny.gov/PON2568

CHP Installations in Operation

	NY	MA	CT	MD	
2016	19,444	19,318	7,375	19,535	8 MW Fed Govt
2015	82,615	5,358	2,995	0	
2014	18,165	3,635	75	8,641	8 MW Fed Govt
2013	17,832	5,345	2,850	0	
2012	24,824	6,511	1,765	2,200	
2011	46,084	7,039	19,680	4,730	
2010	33,938	4,797	31,010	15,395	15 MW Johns Hopkins
2009	64,030	57,360	16,371	1,500	
2008	9,703	12,597	135,070	3,000	
2007	34119	7,160	39,779	0	
2006	42,323	1,025	458	0	
	393,077	130,145	257,428	55,001	

Source: https://doe.icfwebservices.com/chpdb/

Incentive programs are all designed to reduce capital and operating costs to improve customer payback and reduce risk. PSCs incentivize CHP to reduce peak electric demand and annual grid electricity use. Economic development agencies incentivize CHP to improve energy competitiveness. Environmental agencies incentivize CHP to reduce emissions. The key to a stable and growing CHP market is long term consistency in public policy and the removal of strategic barriers like excessive standby rates, overly complex interconnection procedures or other predatory practices.

Energy Portfolio Standard Example

Environmental agencies incentivize CHP to reduce emissions. The key to a stable and growing CHP market is long term consistency in public. In Maryland there are two modest and relatively new CHP incentive programs that have lead to CHP installations. Clearly, a bit more focus on CHP by the State would increase CHP use within the State. Should the Maryland Commission on Climate Change Mitigation Working Group want to increase the environmental and other benefits that CHP offers, based on other State Clean Energy Portfolio Standards, other states have had success with:

1. Including CHP of a certain efficiency connected to the state's distribution system to the RPS's Tier 1, or
2. A carve out for CHP.

Thanks You for your Kind Attention.
Do You Have any Questions?

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