

Maryland's Competitive Electricity Markets: Where We've Been and Where We're Going



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Where Exactly is Maryland?



Agency Overview

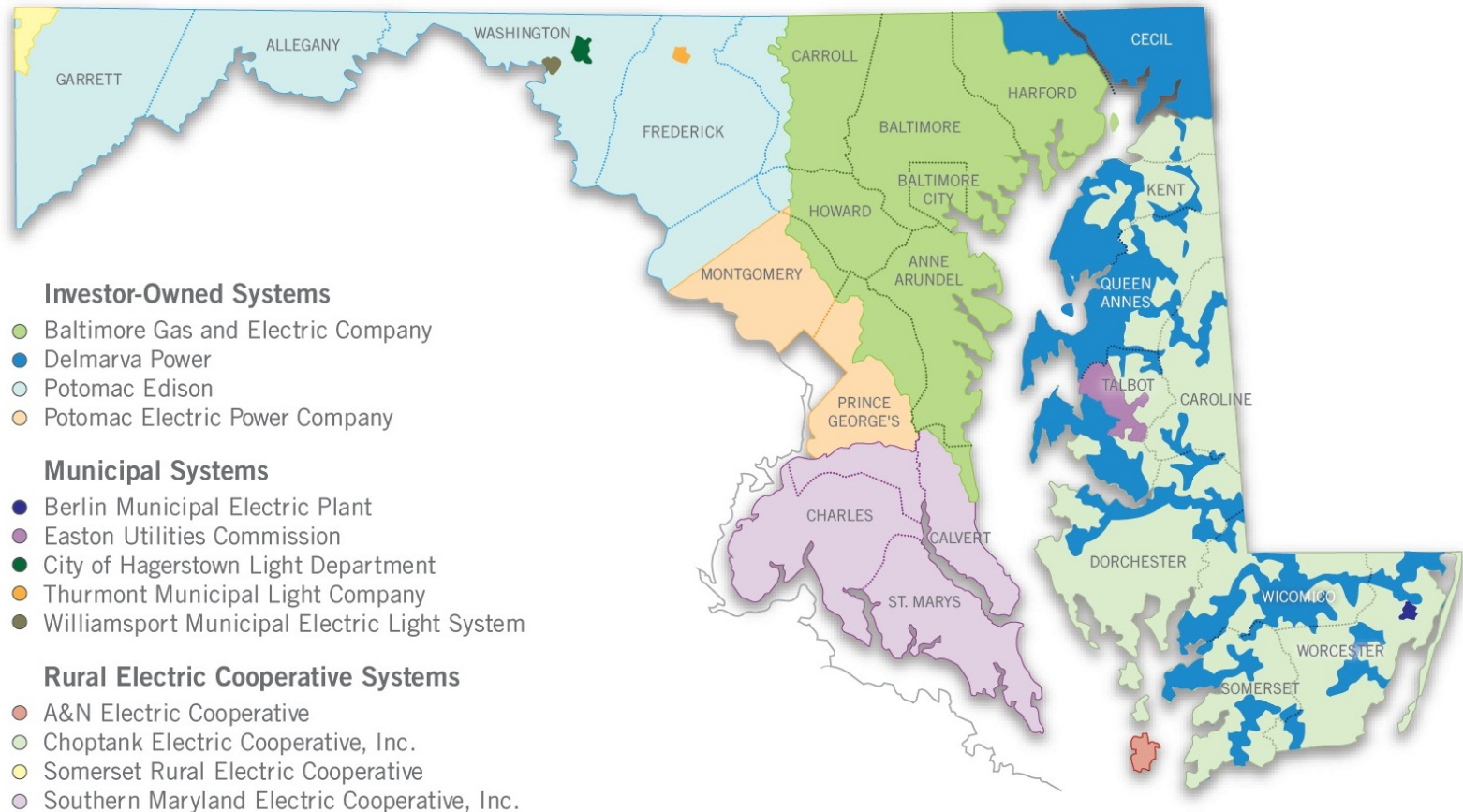
- Established in 1910 as an independent state agency with five appointed commissioners
- Regulates companies to ensure that public services are safe, economical, and reliable:
 - Electric and gas utilities
 - Competitive electric and gas suppliers
 - Telecommunications (landline phones)
 - Passenger Transportation
 - Certain water and sewer companies
 - Hazardous liquid pipelines

Maryland's Electric Industry: An Overview

- Separated into generation & supply, transmission & distribution
- Generation & supply: not regulated; prices set by competitive wholesale and retail markets
- Distribution: regulated monopoly function of utilities; price and quality-of-service regulation by the PSC
- High-voltage electric transmission system: regulated by the Federal Energy Regulatory Commission (FERC)
- Customers who do not choose a competitive supplier receive Standard Offer Service (SOS) through distribution utility. SOS rates established through competitive bidding.

Maryland Electric Utility Service Territories

Figure 11. Maryland Electric Utility Service Territories



The Electric Utility Industry Restructuring Act

- 1999 legislation:
 - Customers could purchase electricity at market rates
 - Utilities divested their generation assets and received stranded cost recovery
 - Residential SOS rates frozen at 3-7.5% below 1999 rates for multi-year period
- Merchant generators, consumer advocates and free-market advocates opposed, arguing stranded cost fees and rate freeze would limit development of competitive market.

Changing Market Conditions Drove Legislative Action

- Merchant SOS contracts prices higher than expected
 - 2004: Pepco raised residential rates 12-16% to cover new SOS contracts
 - 2006: BGE filed for 72% rate increase to cover new SOS contracts
- Significant backlash, deregulation branded a “failure” and “anti-consumer”
- Legislature adopted rate relief plan
- Change in Governors and new Commission appointed
- Prices moderated and efforts to repeal electric restructuring in Maryland lost urgency

Maryland's Competitive Electricity Markets Today

- MD is part of PJM Interconnection (PJM), an RTO responsible for operating regional electricity markets and balancing demand and supply across the Mid-Atlantic.
- IPPs provide about 98% of electricity generation in MD.
- Customers may purchase electricity from competitive suppliers participating in the retail market or receive SOS service from their utility.
- Retail suppliers sell electricity to participating MD customers through local utility distribution systems.

Customers Served by Competitive Electric Suppliers*

Utility	Residen- tial	Small C&I	Mid C&I	Large C&I	All C&I	Total
PE	14.5%	28.1%	53.9%	79.3%	32.9%	17.0%
BGE	29.7%	38.8%	62.9%	93.3%	44.2%	31.2%
DPL	17.3%	35.9%	58.3%	92.2%	39.7%	20.7%
PE	25.1%	37.9%	56.4%	85.1%	44.8%	26.9%
Total	25.8%	36.6%	59.5%	89.0%	42.1%	27.6%

*As of 3/31/14

Wholesale Market Challenges

Electricity prices in MD depend on PJM market.

- Small changes to PJM wholesale rules can have big impacts on customers.
- How will PJM's proposed rule changes to attract and retain generation impact retail rates for customers?
- PJM's emphasis is on reliability and wholesale markets; state PUCs concerned about reliability and rate impacts on retail consumers.
- State efforts to support generation development pre-empted.

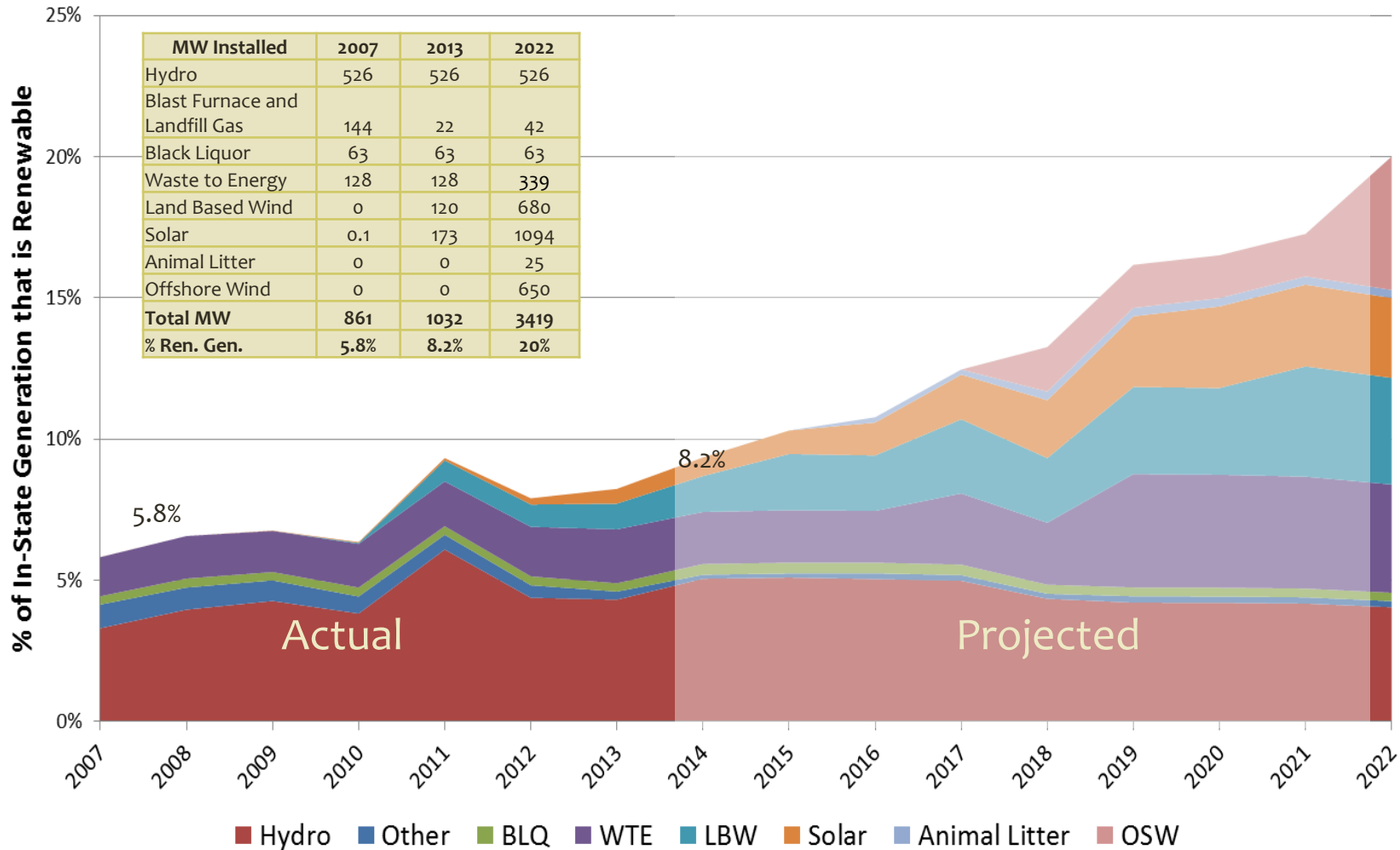
Increasing Reliance on Natural Gas Poses New Challenges

- 80 GW (43% of PJM's installed capacity) is gas-fired
- Marginal gas units typically set market clearing price
- Increasing reliance on gas-fired generators to serve electric loads; most generators rely on non-firm transportation
- Polar Vortex/ frigid weather events in the Northeastern U.S. 2014 → wholesale elec prices hit \$1000+/MW
 - MD retail customers with variable rate contracts saw electric bills skyrocket by as much as 5x

Maryland's Public Policy Goals

- Reduce Greenhouse Gas Emissions 25% by 2020
- Increase renewable energy development
 - Renewable Portfolio Standard: 20% by 2022
 - Offshore Wind Energy Act
 - Net metering for distributed solar
- Increase energy efficiency and demand response
 - EmPOWER Maryland: reduce energy consumption and peak energy demand by 15% by 2015
- Ensure reliable electricity supply at a reasonable cost

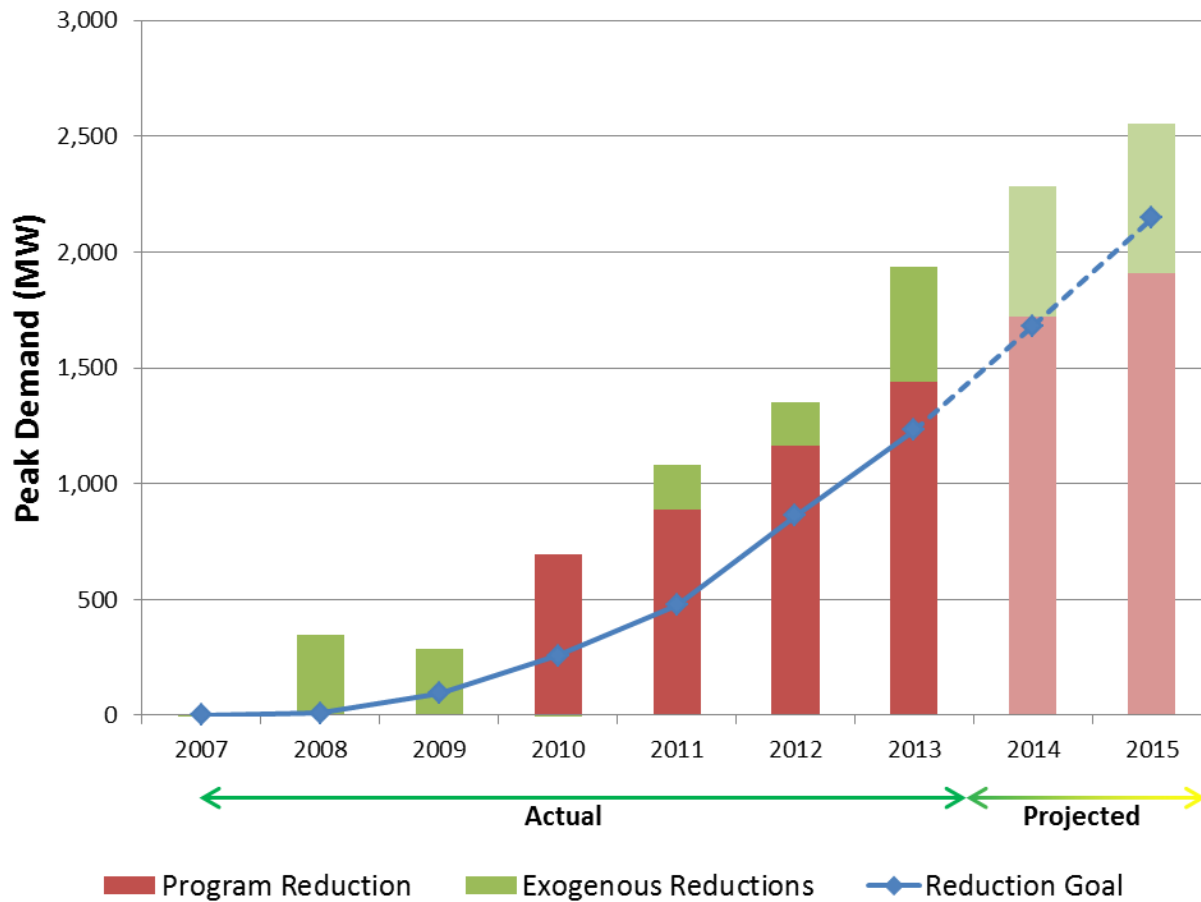
Achieve 20% Renewables by 2022



Net Metering in Maryland

- 1,500 MW limit
- Eligible Customer/Generator 2 MW limit; some aggregation allowed
- Demand and Stand-by Charges prohibited
- Paid based on Generation Value only
- Customer/Generator keeps RECs

EmPOWER Maryland: Peak Demand Reduction



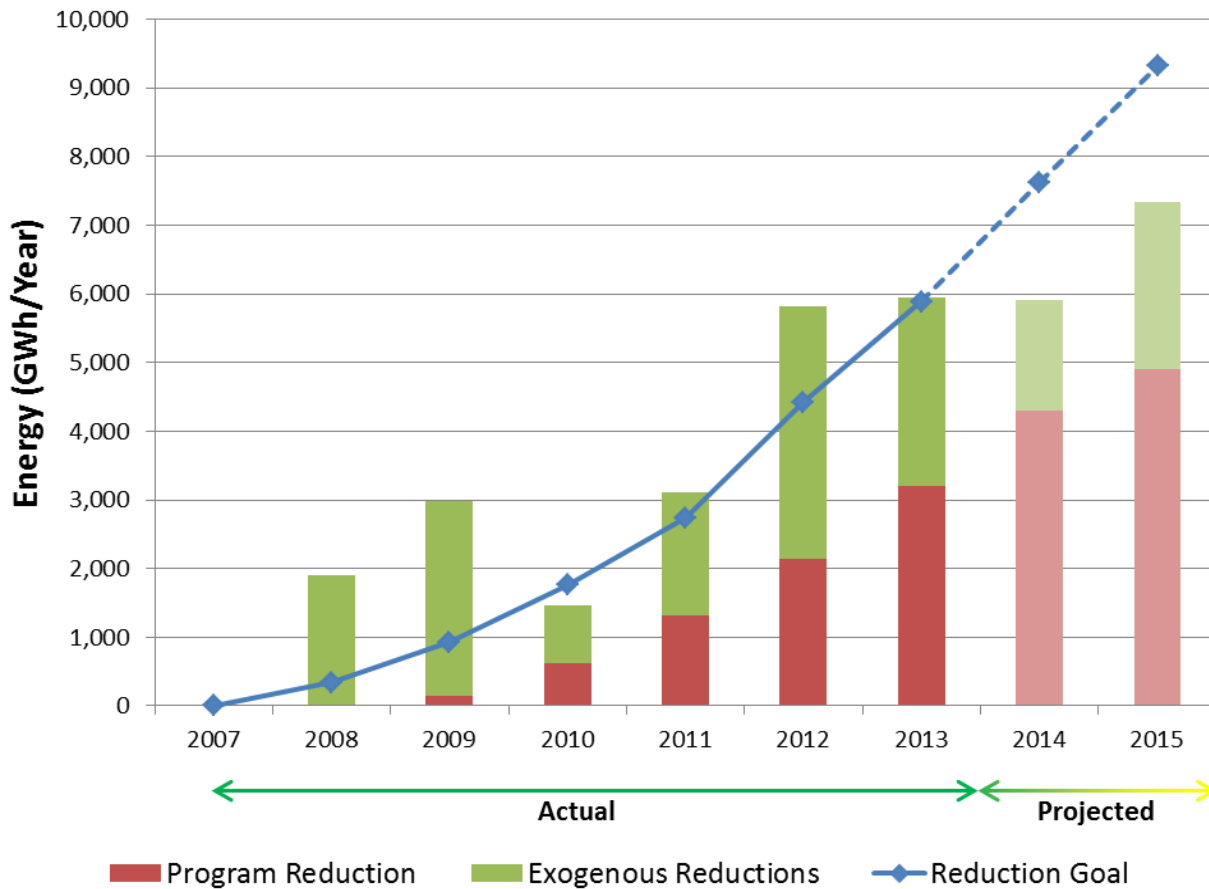
- 14.6% reduction to date

- Equivalent to 8 peaker plants avoided

- Over \$281M in PJM revenue by 2017

- 17.6% reduction projected by 2015

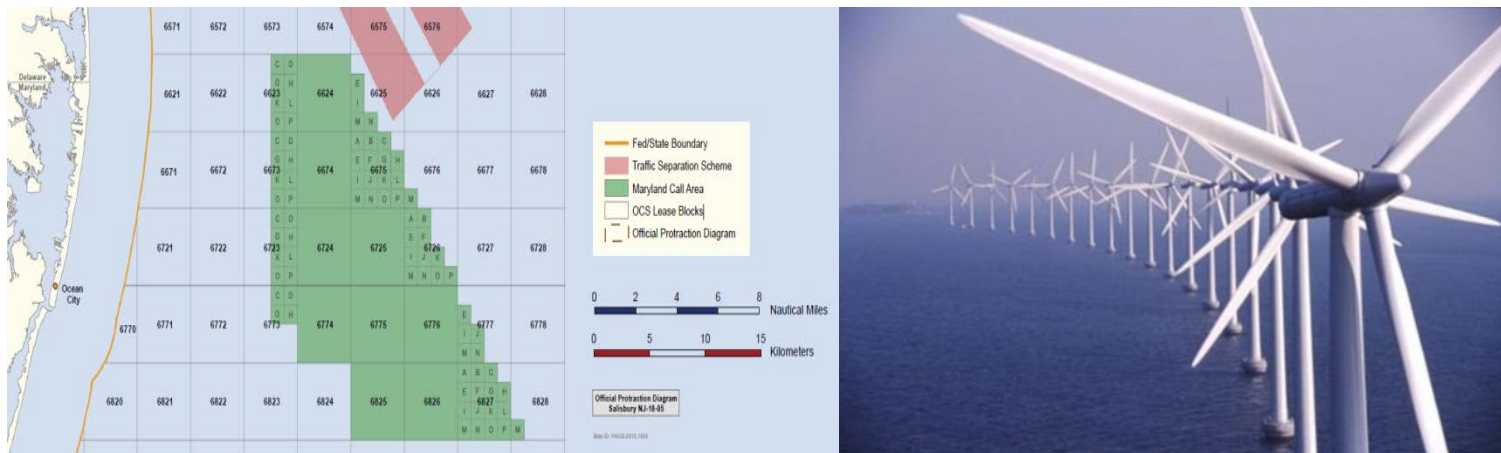
EmPOWER Maryland: Electricity Savings



- 10.1% reduction to date
- Over 1 million residential participants, nearly 37,000 C&I participants, and 25 million light bulbs rebated
- Over \$3.7 B in lifetime energy savings
- 12.3% reduction projected by 2015

Offshore Wind

- 2013 Maryland Offshore Wind Energy Act
- Creates renewable energy credits (“ORECs”) to support 500 MW of wind energy off the MD coast
- PSC developing regulations to implement



Future Challenges

- Improving reliability and resiliency of grid
- Ensuring affordability
- Transitioning to a more distributed system-- next steps beyond net metering
- Evolving roles for distribution utilities; Utility of the Future
- Intersection of public policy goals for sustainable and affordable electricity system with competitive wholesale and retail market systems.
 - A role for integrated resource planning?