

Princeton E-affiliates Partnership
Fourth Annual Meeting
November 20, 2015

*Panel Discussion – The Energy Economics of
Falling Oil Prices, Fracking and Renewables*

Anne E. Hoskins, Commissioner
Maryland Public Service Commission

Historical Context: The 1970s

- High oil prices in the 1970s incentivized “Washington and a bevy of states [to throw] taxpayer subsidies at **then-wacky** ideas like wind and solar power.” *The New Republic*, 2014



Elkton, Maryland, 1973

<https://cecilcounty.wordpress.com/2012/04/08/as-gas-prices-hit-all-time-high-in-cecil-county-the-1970s-energy-crisis-recalled/>



President Carter at the White House, 1979

<http://io9.com/the-sad-fate-of-jimmy-carters-solar-panels-1469104906>

Historical Context: The 1980s and 1990s

- “Historically, lower fossil fuel prices have impacted renewable energy resources like kryptonite . . . in the 1980s and 1990s, when nascent solar, wind and geothermal markets in California keeled over as North America suddenly became awash in cheap oil and natural gas.” *The Guardian, 2014*



1991 Ford Explorer

<http://www.cargurus.com/Cars/1991-Ford-Explorer-Pictures-c288#pictureId:9410531>



Natural Gas Plant

<https://photos.pnewswire.com/prnvar/20150629/226652>

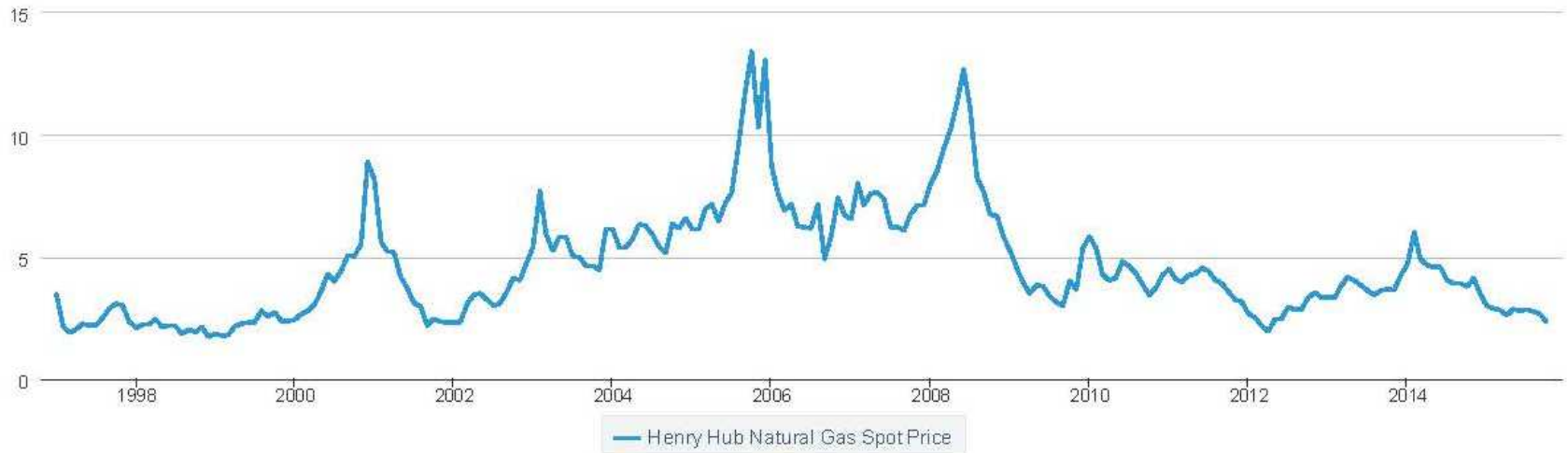
Natural Gas Prices and their Impact on Regulation



U.S. Energy Information
Administration

Henry Hub Natural Gas Spot Price

Dollars per Million Btu



As Gas Prices Decline...

- Increasing Energy Efficiency goals: 2% of gross energy sales from 2013 baseline
- Increasing investments in Transmission and Distribution Systems
- Increasing Renewable Portfolio Standards:

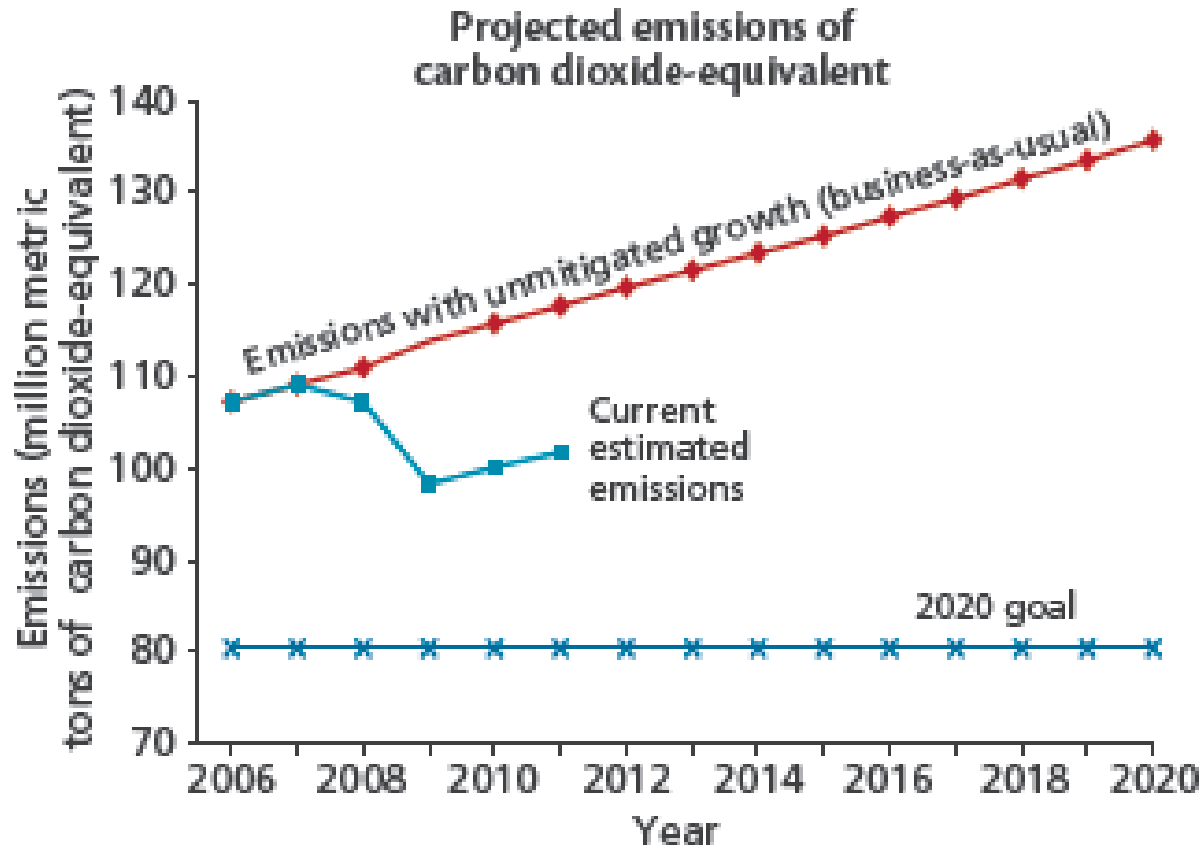
Year	Solar	Other Tier I
2006	0.00%	1.00%
2010	0.025%	3.00%
<u>2015</u>	<u>0.50%</u>	<u>10.00%</u>
2020	2.00%	16.00%
<u>2022+</u>	<u>2.00%</u>	<u>18.00%</u>

- Mixed impacts on competitive generation markets (natural gas vs. nuclear vs. coal). Regulators need to ensure security of supply for reliability.

If gas (and electricity) prices go up . . .

- Customer rates could increase significantly due to continued T&D network investment cost recovery and increasing commodity prices.
 - Will existing safety net programs be sufficient to ensure access to essential electricity and gas services by lower income customers or will new rate-making methods be necessary?
 - Will the increased rates drive customers off the grid and if so, how will the long term T&D maintenance costs be recovered?
- Increased demand for renewables and other DG, including customer-generated energy like solar PV, Combined Heat & Power and Energy Efficiency.
- Potentially mixed impacts on State carbon reduction objectives (gas vs. coal; and gas as a bridge fuel).

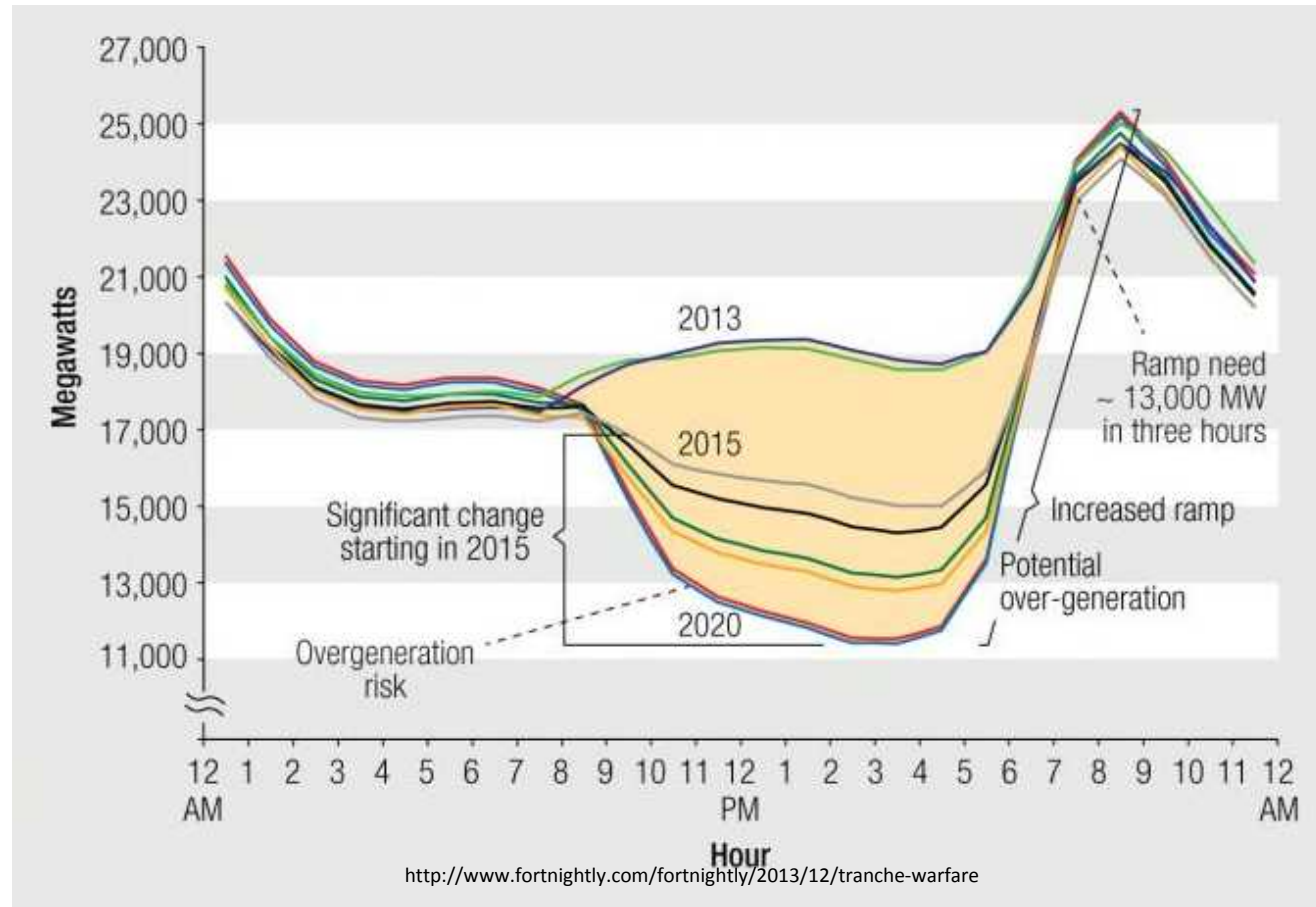
Impact on Maryland's Greenhouse Gas Goals



<http://climatechange.maryland.gov/plan/>

The Maryland Climate Change Commission recently proposed extending the State's Greenhouse Gas goal – from 25% reduction by 2020 to a 40% reduction by 2030 (2006 baseline)

The Interplay between Renewables, Gas and Storage: The “Duck Curve”



In CA the ramp-up in the evening hours – when solar PV fades but load is still high – is a key driver of capacity needs, which is currently being met by natural gas generation facilities. But if battery storage can fill that gap . . .

Renewables + Storage = less natural gas?

- High hopes for energy storage paired with renewables – especially solar PV – where renewable penetration is high (Hawaii or California)
- Battery storage pilots underway in several states, e.g. Hawaii, California, New York, Oregon