

# Allowance Supply & Demand: Implications for Cap & Trade Through 2030

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# Remarks draw upon

“Expecting the Unexpected: Emissions Uncertainty  
and Environmental Market Design”,  
Severin Borenstein, James Bushnell,  
Frank Wolak, and Matthew Zaragoza-Watkins  
and

“(Overly) Great Expectations:  
Disillusion with Cap-and-Trade in California”  
James Bushnell  
and

“California's Cap-and-Trade Market Through 2030:  
A Preliminary Supply/Demand Analysis”  
Severin Borenstein, James Bushnell, and Frank Wolak

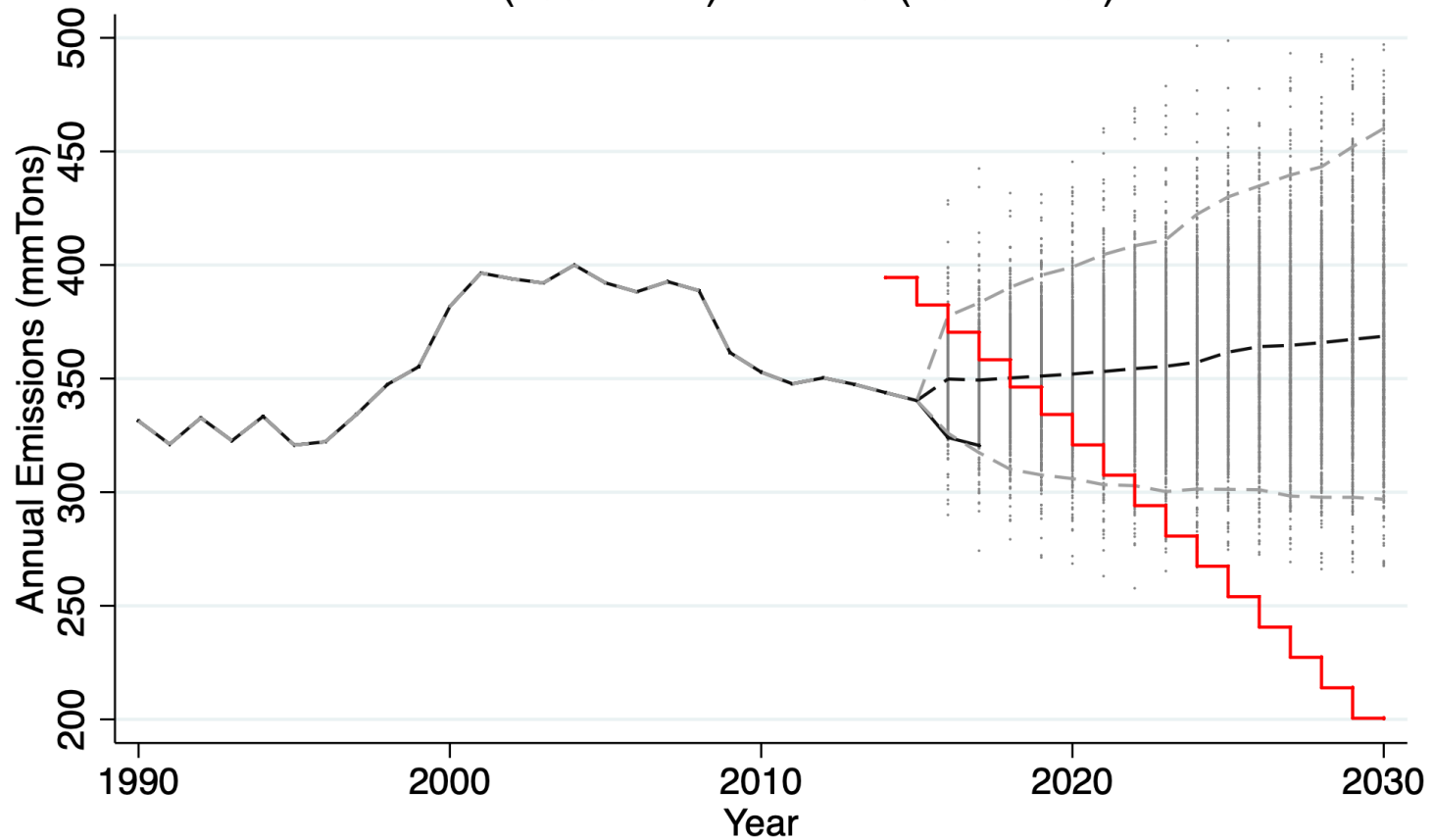
# Framing the “Overallocation” Issue

- Capped emissions through 2017 have been increasingly below caps set for those years
  - Some allowances have been unsold, others unused (or “banked”)
- The system post-2021 introduces a hard cap and two price “Steps” along with a rising floor
  - Analogous to a progressive carbon tax where tax rates rise with higher levels of emissions
- Should we be focused on (just) 2030 emissions? Cumulative emissions through 2030? or expected carbon price?

# BAU Forecast Updated through 2017

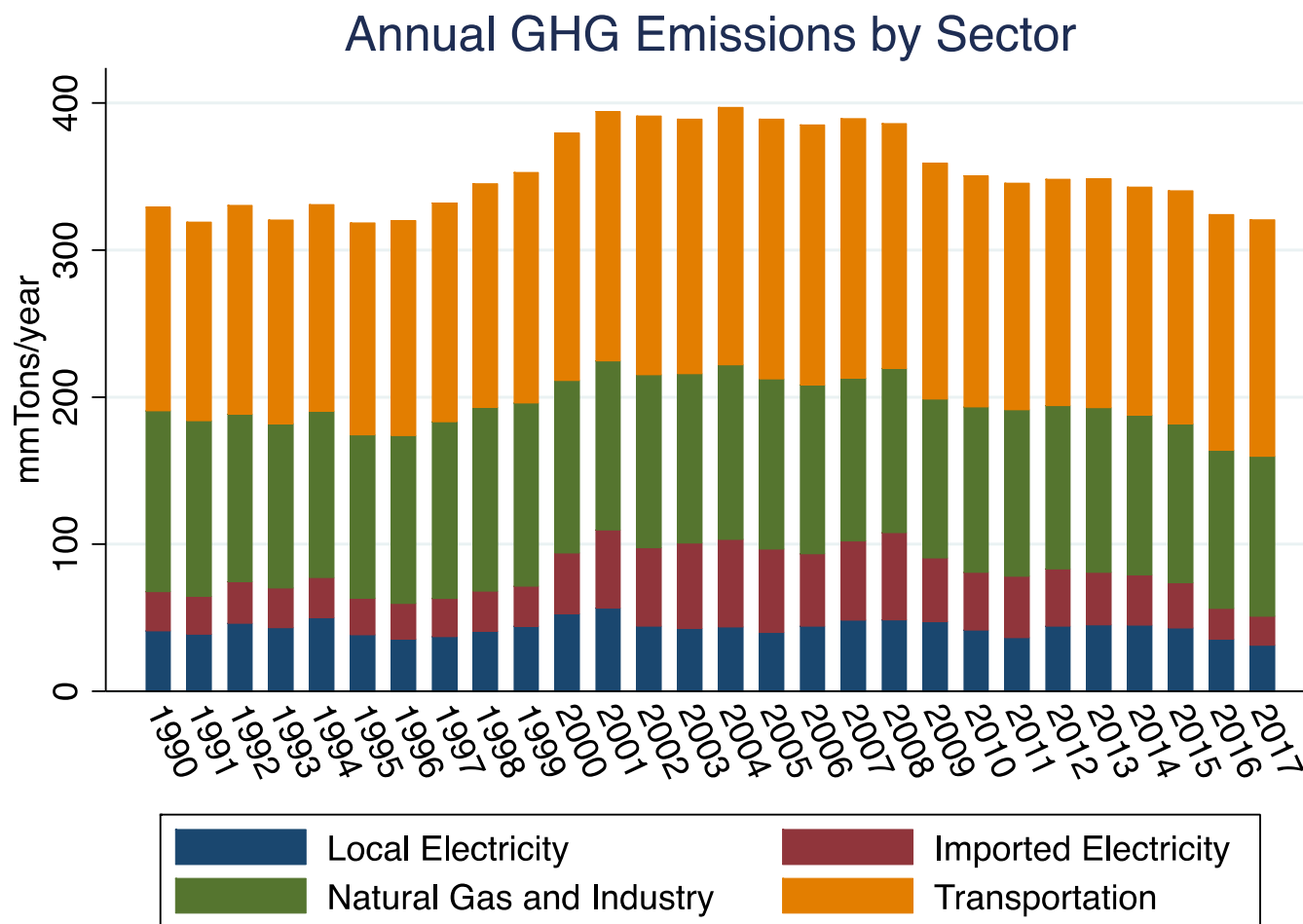
## Broad Scope Emissions

Data (1990-2017) Forecast (2016-2030)



Solid line shows actual values; Stairstep line shows annual broad scope cap level

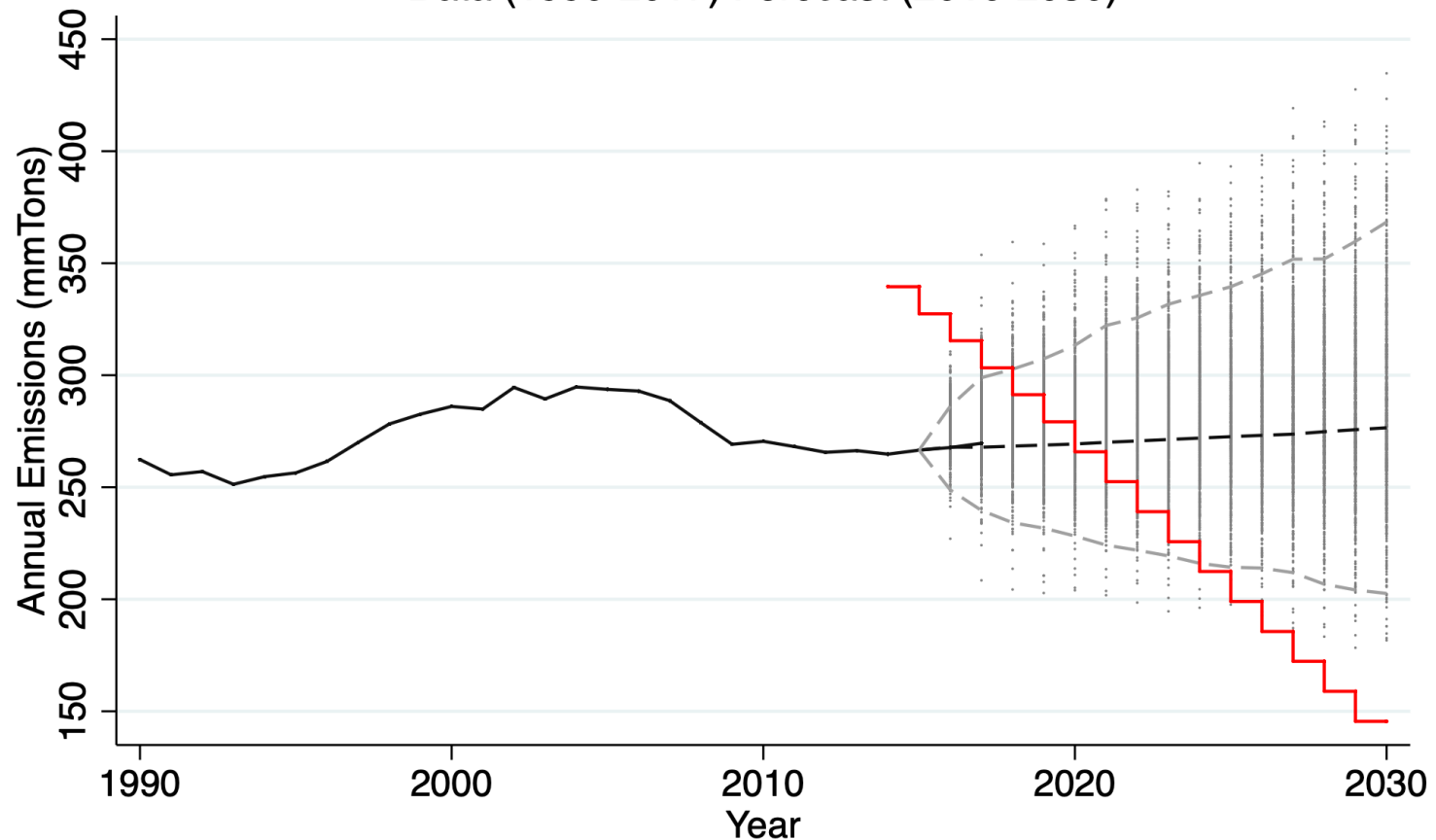
# Reductions Dominated by Electricity



# Emissions Excluding Electricity are Following BAU

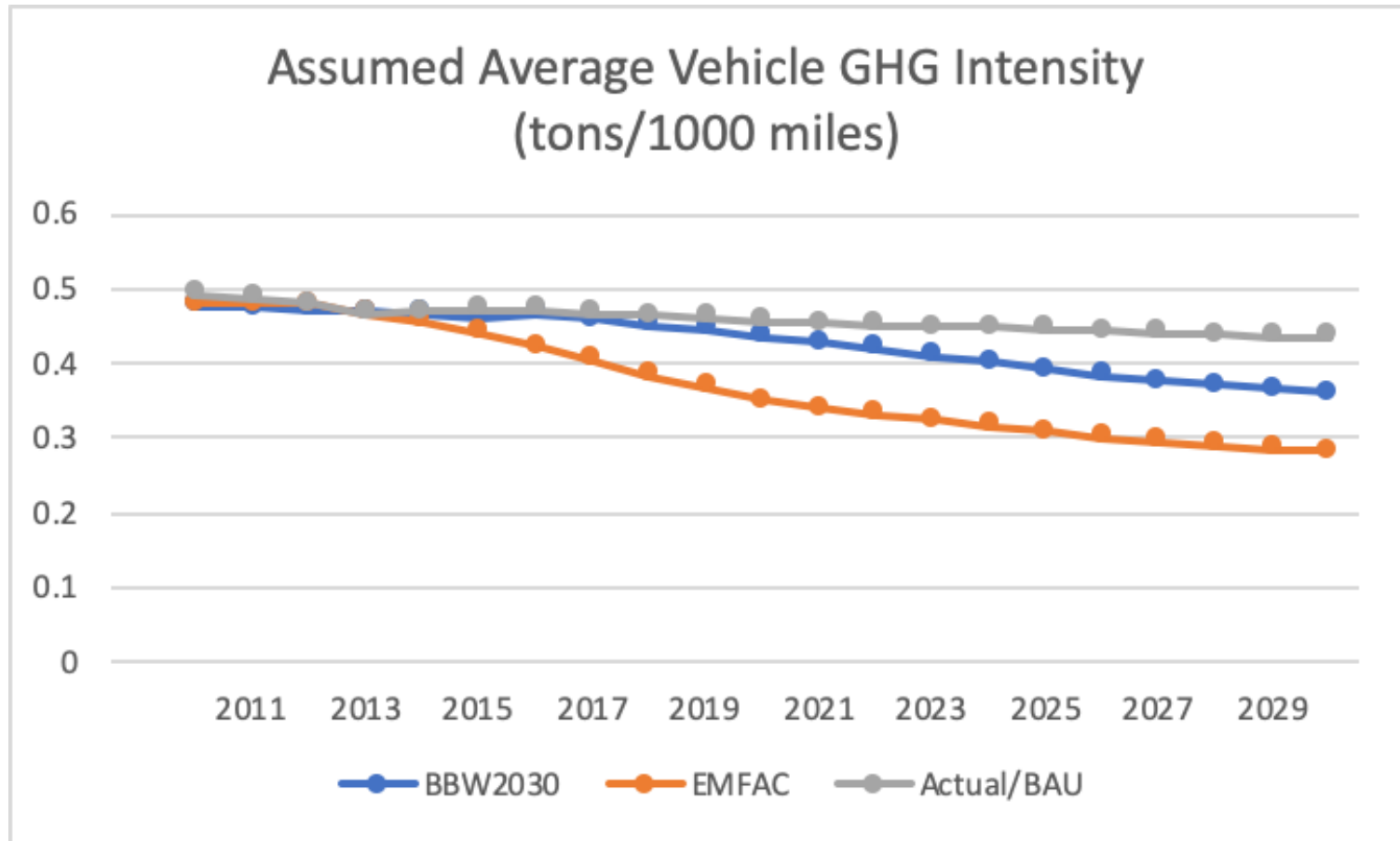
## Broad Scope Emissions Excluding Electricity

Data (1990-2017) Forecast (2016-2030)

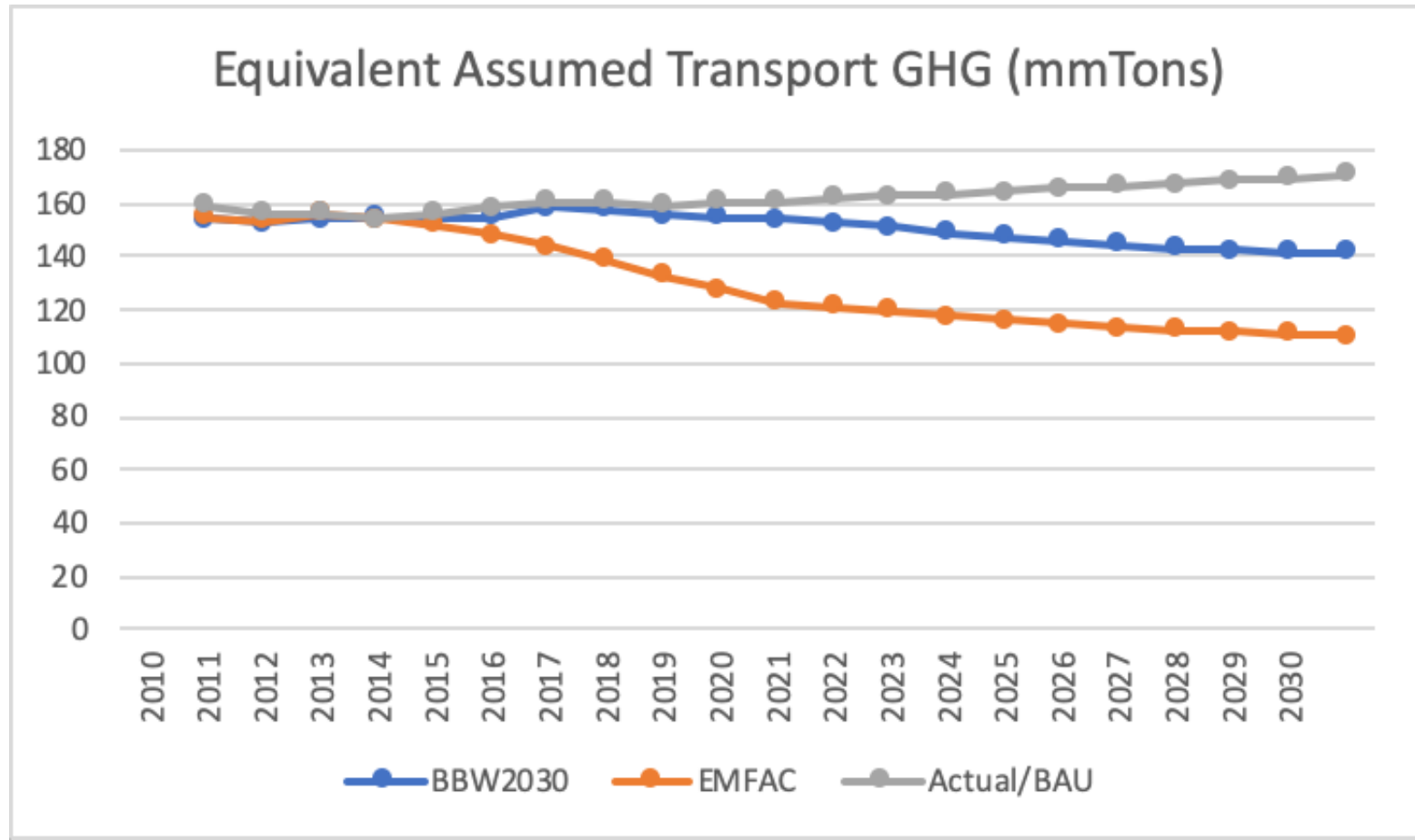


Solid line shows actual values; Stairstep line shows annual broad scope cap level

# Transportation: Scoping Plan Assumes a Stark Break from Trend Starting Now



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# BAU Uncertainty Dominates the 2030 Compliance Outlook

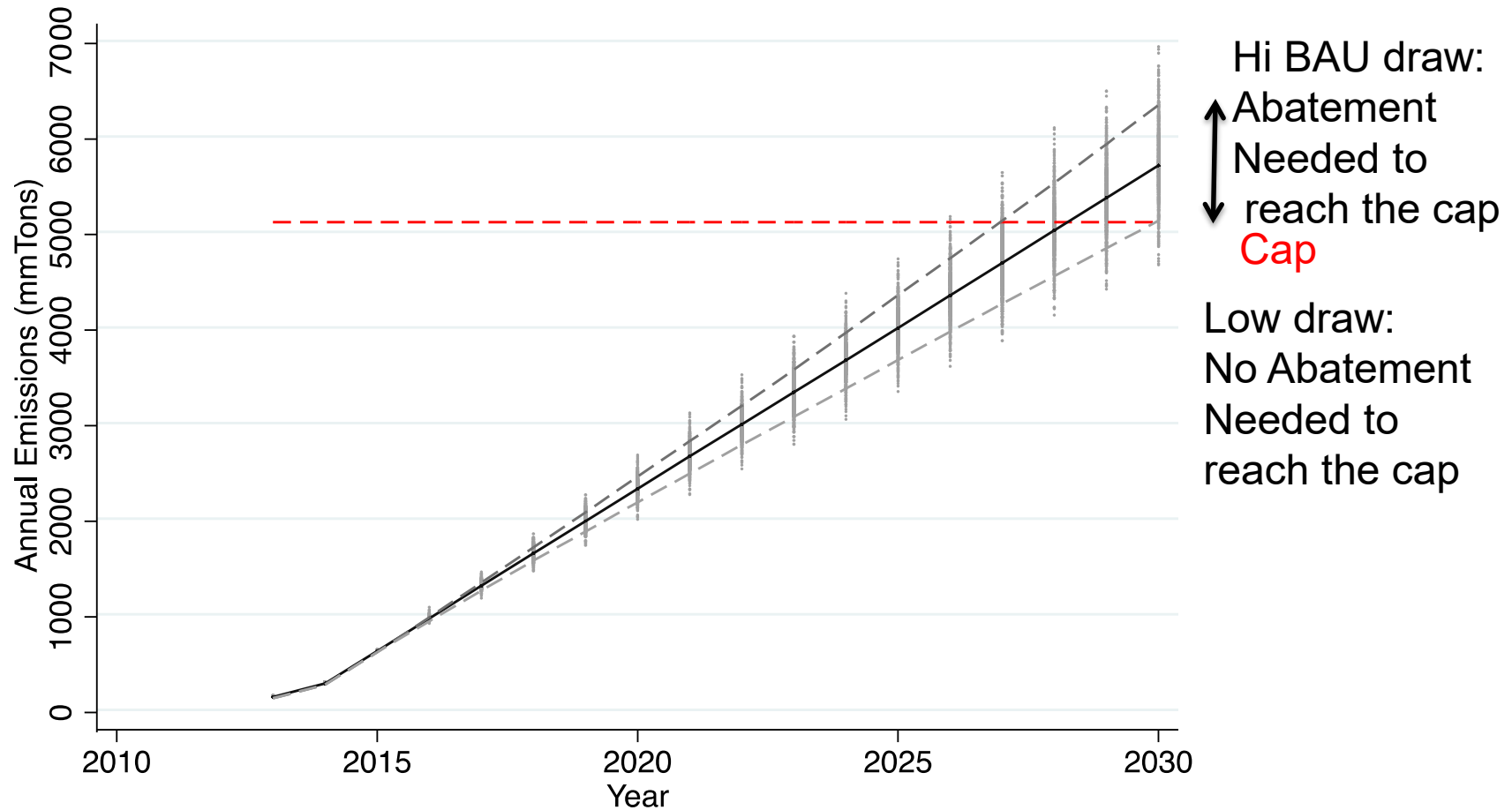
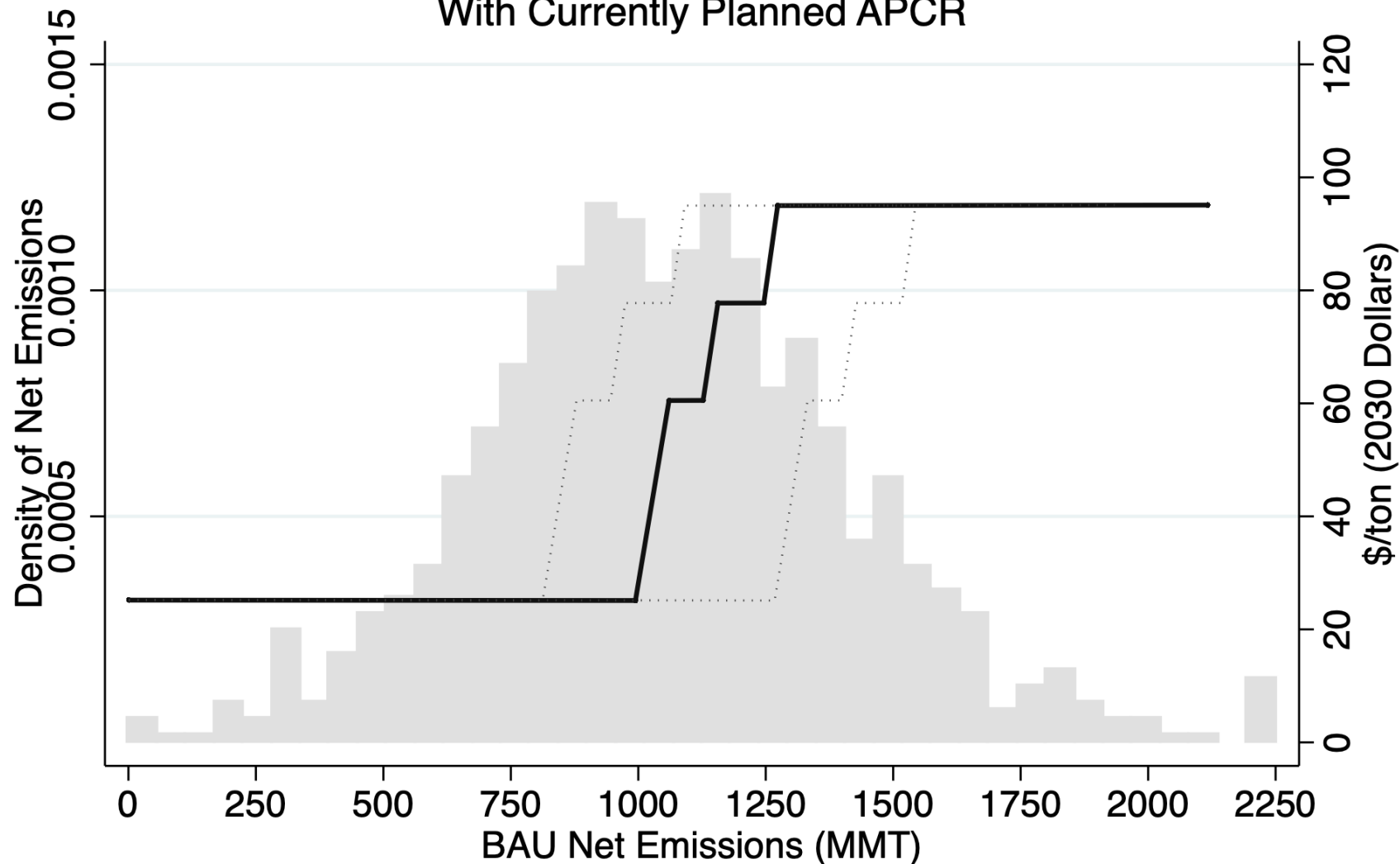


Figure plots BAU emissions with RPS rising to 50% in 2030

# Net Emissions and Abatement Supply 2018-2030

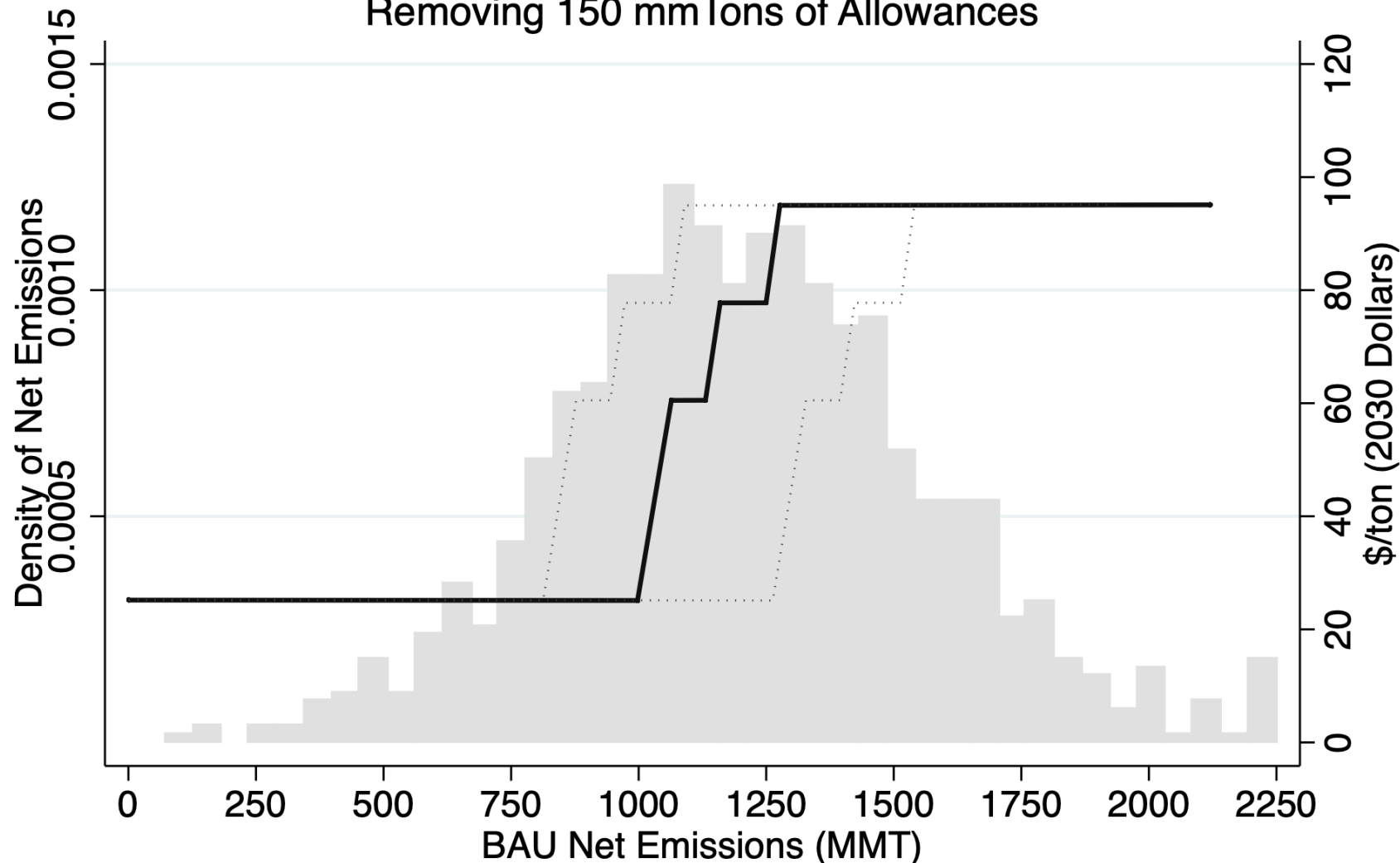
With Currently Planned APCR



BAU net emissions are (2018-2030) BAU emissions less unused allowances not in reserves

# Net Emissions and Abatement Supply 2018-2030

Removing 150 mmTons of Allowances

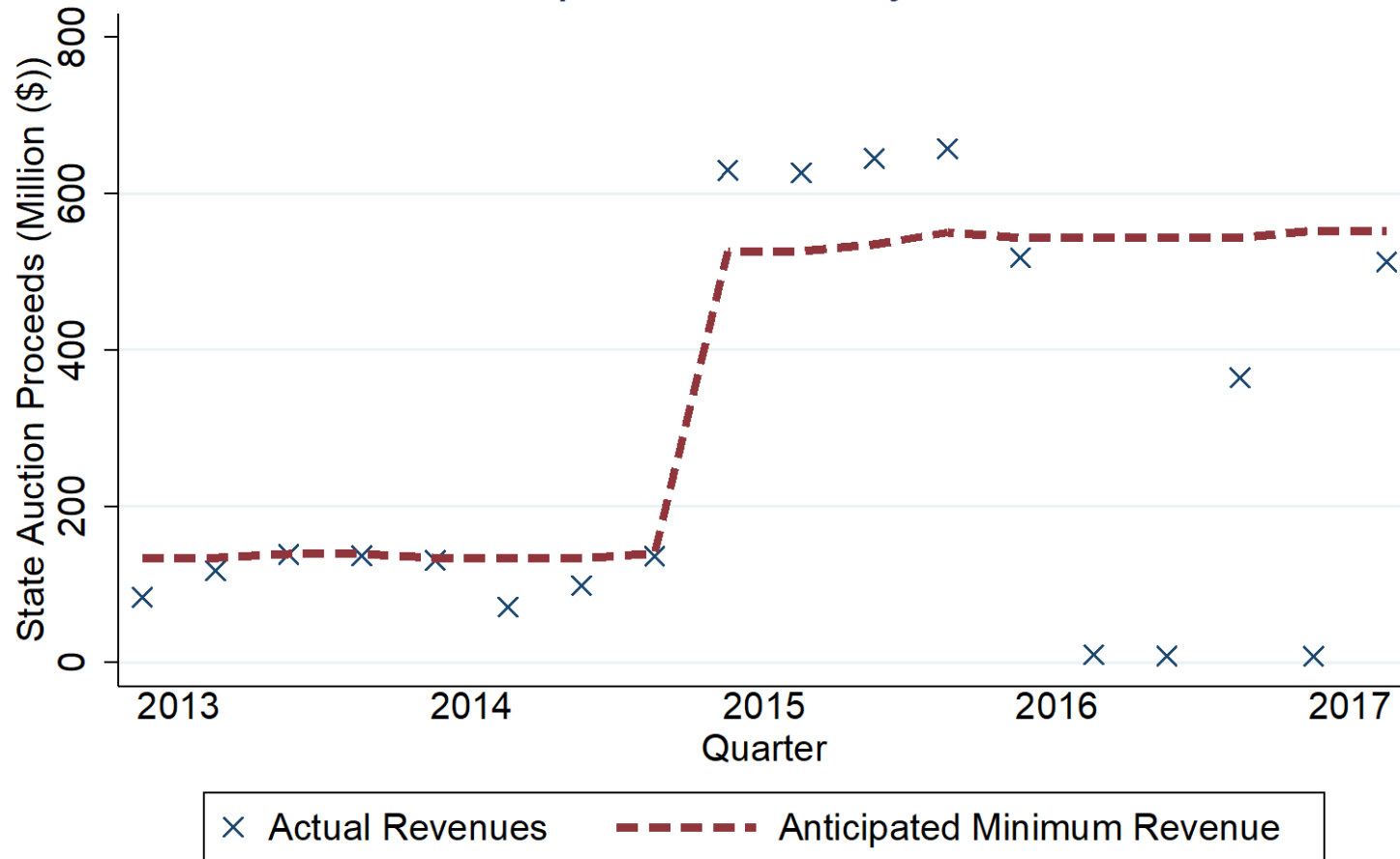


BAU net emissions are (2018-2030) BAU emissions less unused allowances not in reserves

# Supporting the Floor Price (ARP)

- Since 2013 the cost of supporting the floor price has fallen completely on government allowance sales
  - Freely allocated allowances are not adjusted when auctions clear at the floor
  - Reduction in allowance sales come from government shares
- This was a major source of revenue volatility between 2015 and 2017
- An alternative approach would reduce allocations proportionally with unsold government allowances

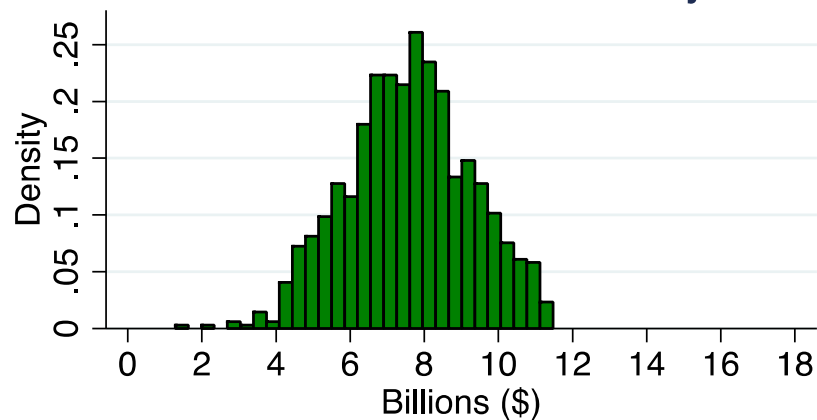
## Actual and Anticipated Quarterly Auction Revenues



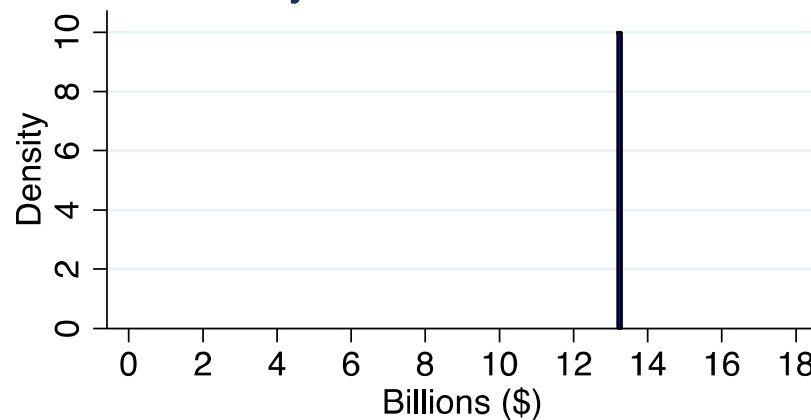
Includes sales of both current and future vintages  
Anticipated revenues assume full sales at price floor

# Expected Revenues by Allocation Policy

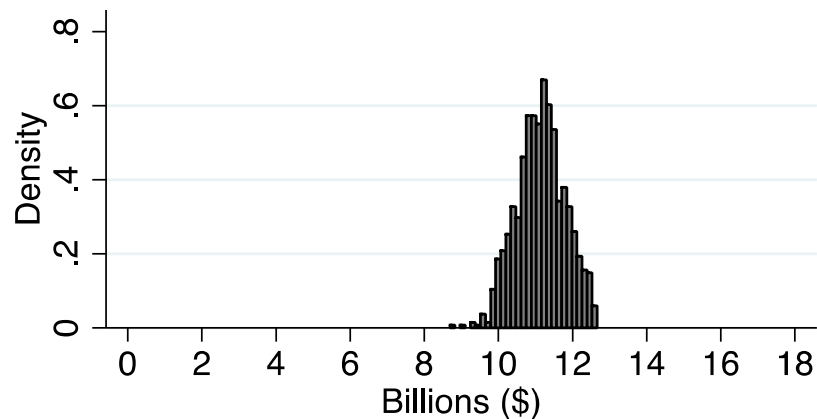
## Actual Allocation Policy



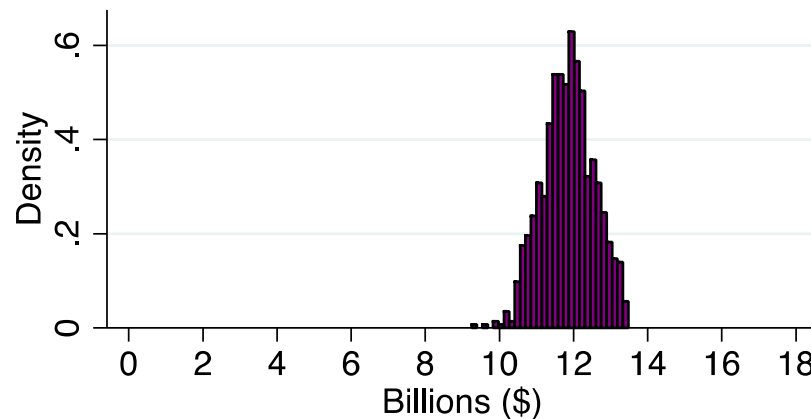
## Priority for State Allowances



## Pro-rata Allocation



## \$14.50 Carbon Tax



Conditional on cap prices being at price floor  
Emissions quantities from Borenstein, et al. (2016)

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# Summary thoughts

- Allowance availability first and foremost impacts the market through price expectations
  - Price step and ceiling *levels* as important as allowance quantity in this sense
- Positioning state planning and policy to prioritize meeting only a 2030 target is bad policy
- Transportation and Industry Sectors need to show dramatic change in trend to support scoping plan assumptions
- If allowance market price is at the Floor, the State will Continue to bear the full cost of supporting the Auction Reserve Price
  - Reducing all allocations pro-rata to unsold amounts would distribute cost of supporting the floor price more evenly amongst stakeholders



# Thank you

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