



**Synapse**  
Energy Economics, Inc.

# Productive and Unproductive Costs of CO<sub>2</sub> Cap-and-Trade

Ezra D. Hausman, Jeremy I. Fisher, Lauri A. Mancinelli, and Bruce E. Biewald

NARUC Summer Meeting, Seattle, WA  
July 19, 2009



## Study Sponsors...

The National Association of Regulatory Utility  
Commissioners (NARUC)

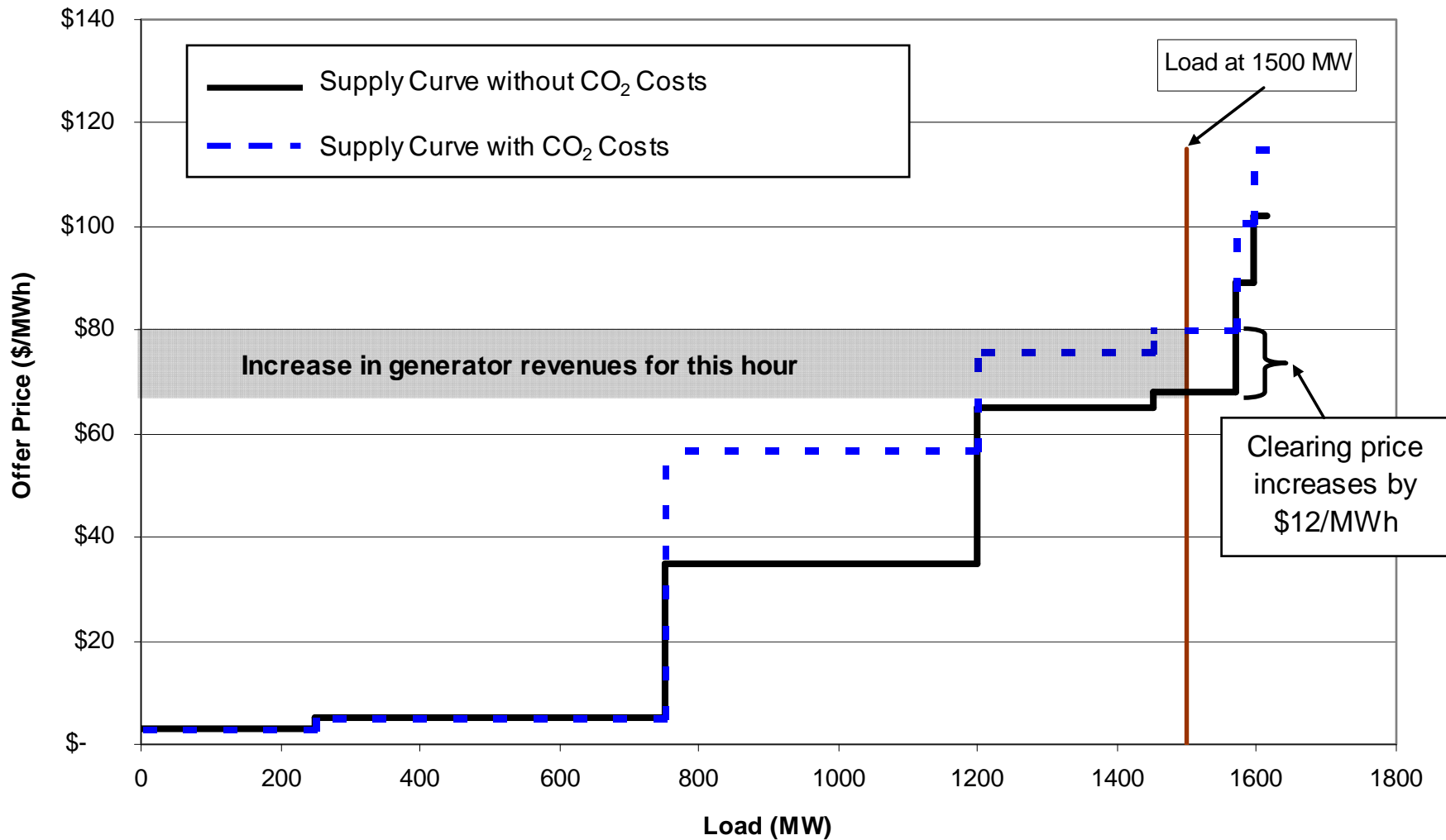
The National Association of State Utility  
Consumer Advocates (NASUCA)

The National Rural Electric Cooperative  
Association (NRECA)

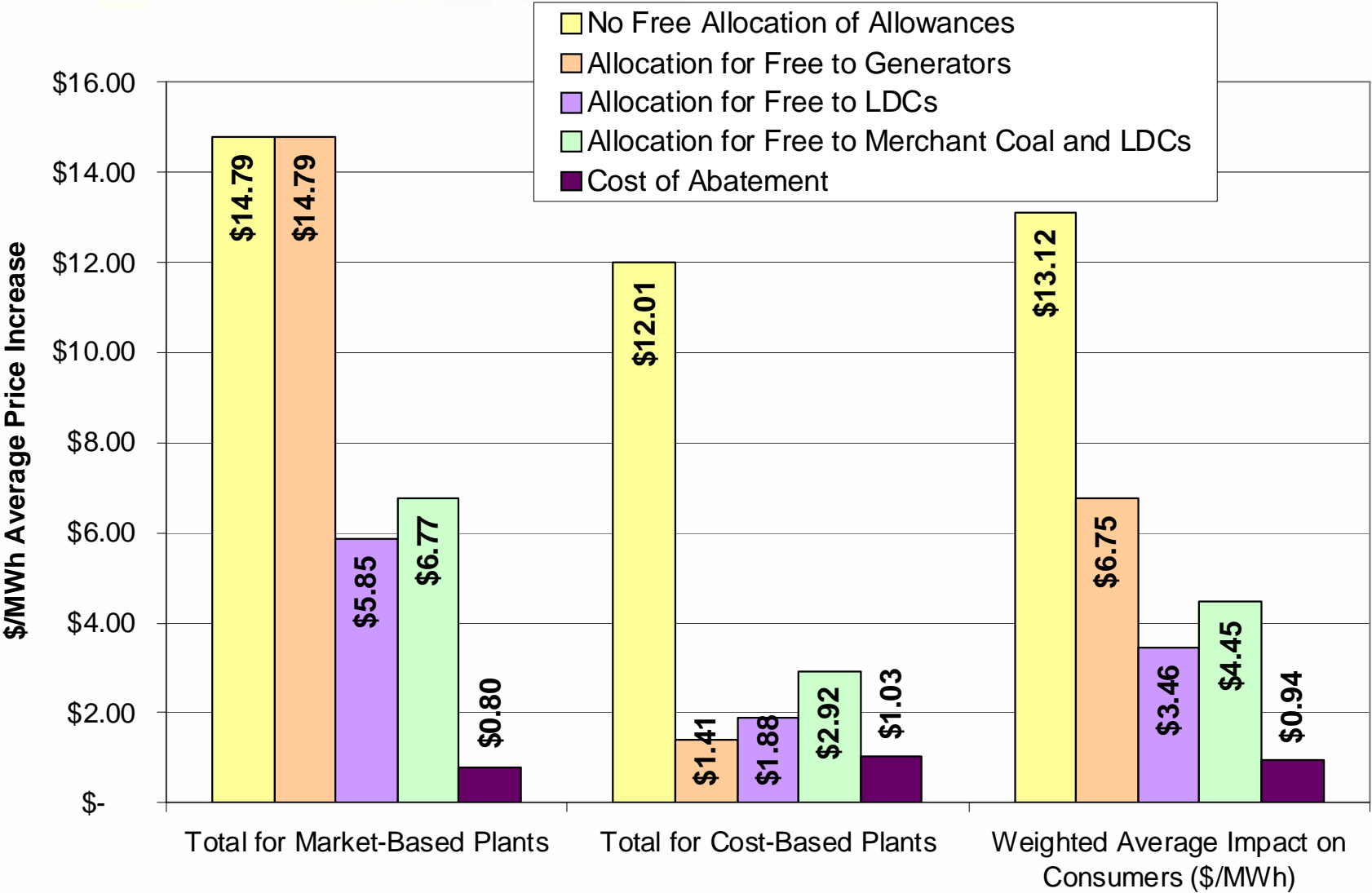
The American Public Power Association  
(APPA)

- Productive vs. Unproductive Costs
- Cap-and-trade in deregulated electricity markets
- Allowance allocation schemes considered
- Impact on Consumers (regional)
- Impact on Generators (by state)

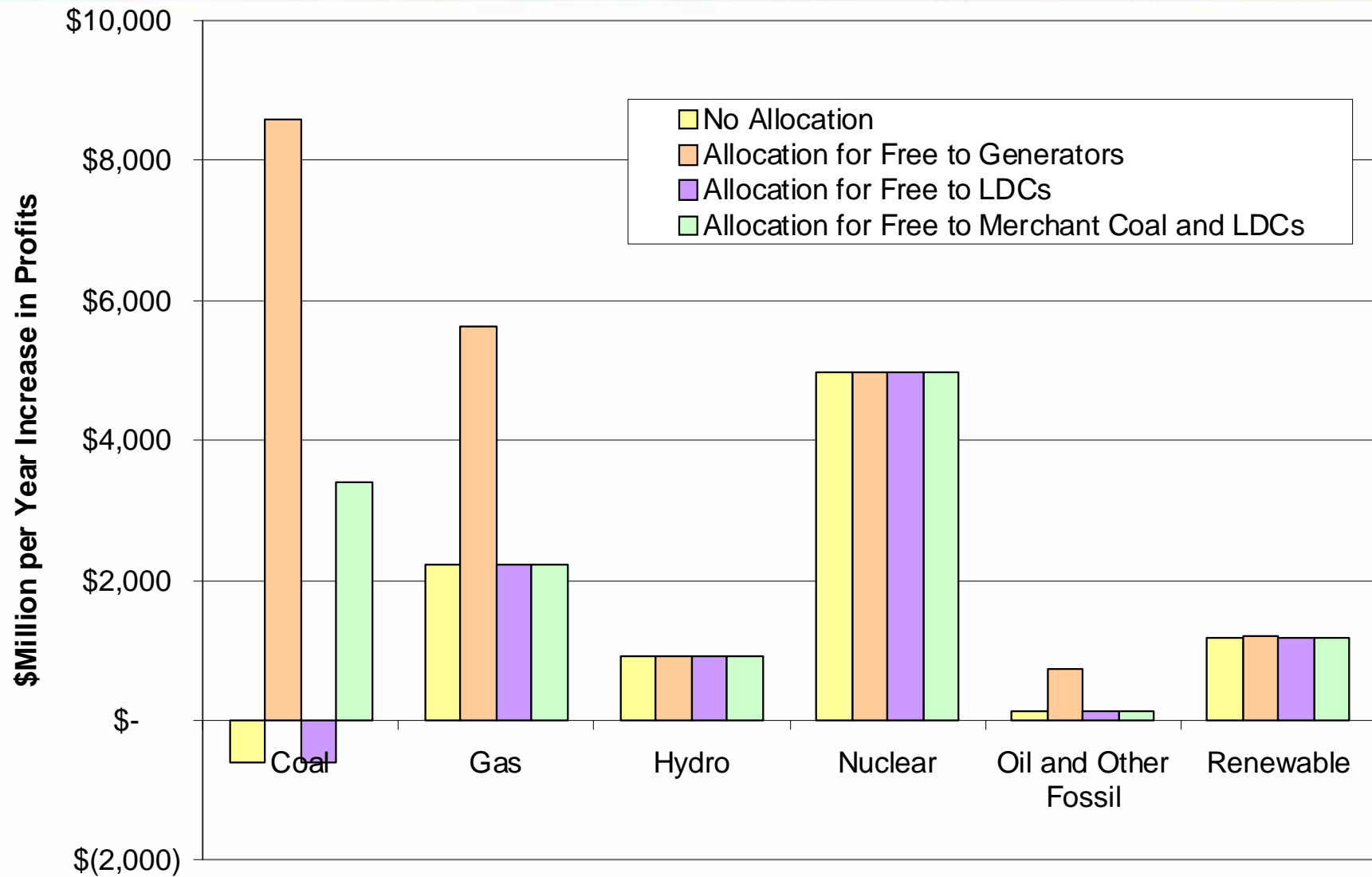
# Emissions Costs in a Deregulated Market



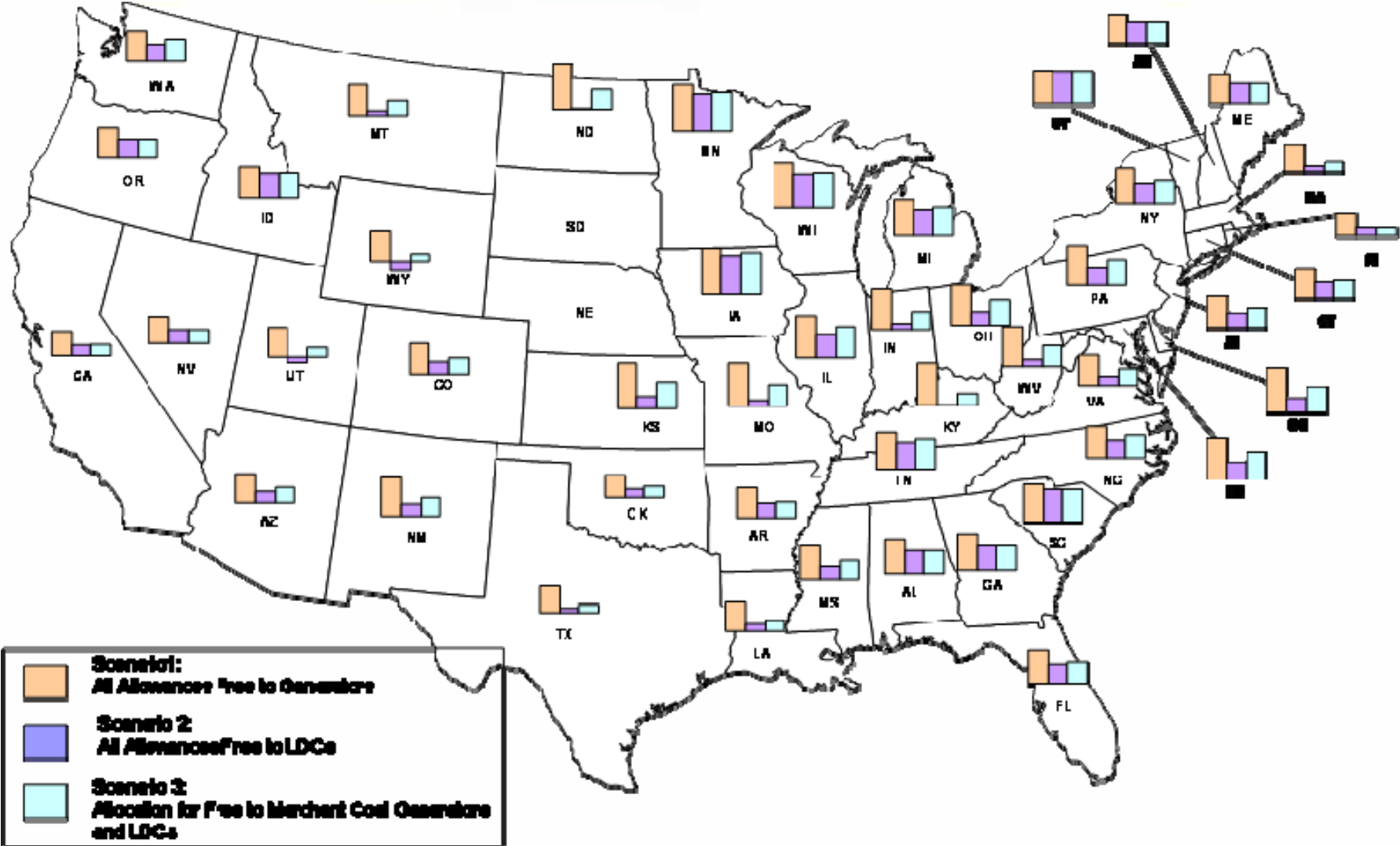
# Impact of Allocation Approach



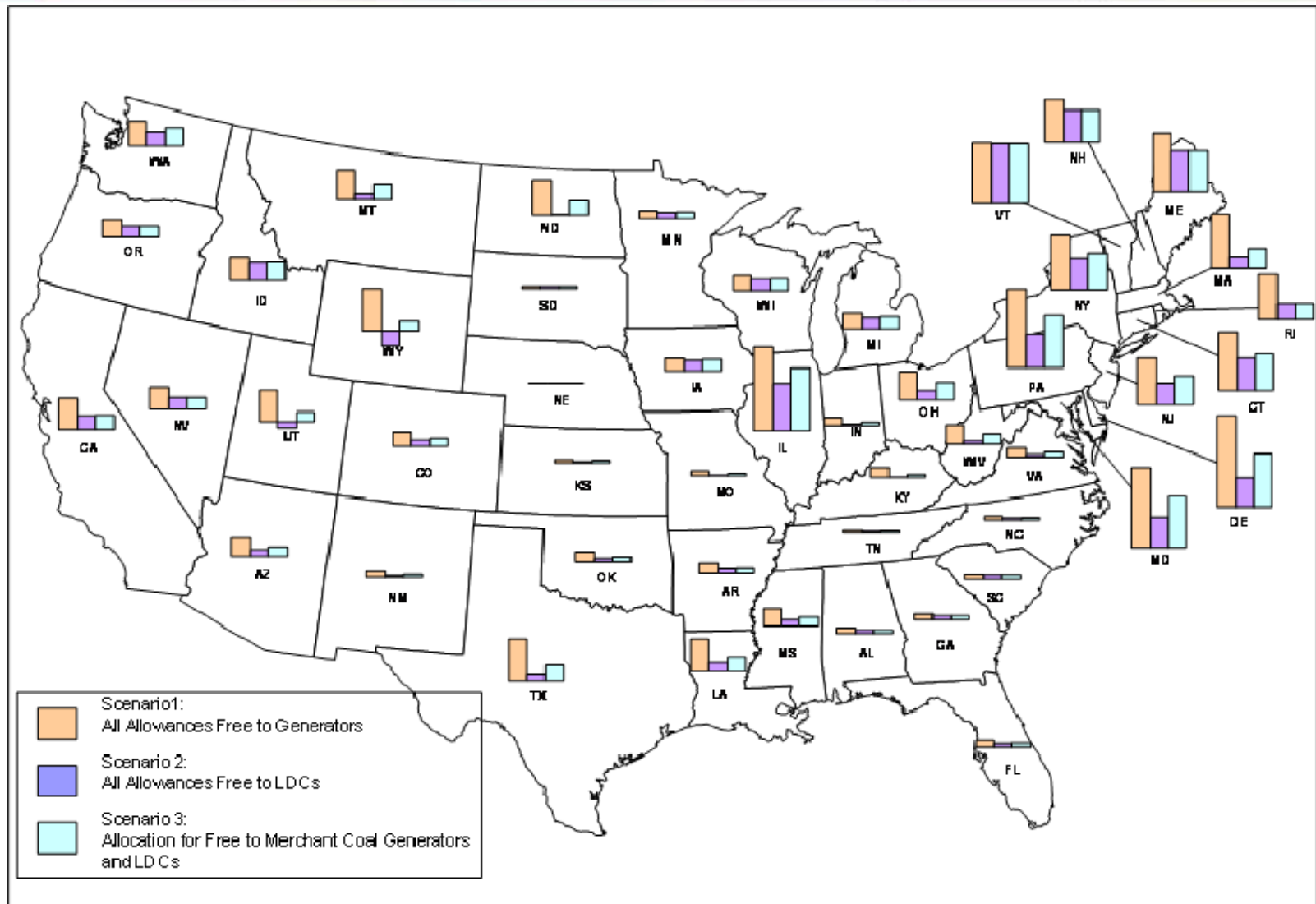
# Impact on Merchant Generator Profits



# Change in Profit (\$/MWh) for Market-Based Plants



# Weighted Average Change in Generator Profit (\$/MWh)



## Study Limitations...

- Based on 2005 operational and emissions data
- No explicit change in generation stock or energy use
- Key assumptions: Allowance price (\$20/ton) and abatement cost (\$10/ton)
- No cost benefits from efficiency, renewables, etc.

## Take-Home Messages...

- Cap-and-trade + deregulated markets = high unproductive costs
- Allocating allowances for free to merchant generators increases unproductive costs
- Free allocations to merchant generators not necessary—they will be doing just fine
- Actions to reduce emissions (EE, RE) will help to mitigate cost
- Congress should be interested in unproductive costs to consumers, even if they are not “net costs to society”