

# House RES and Expanded Clean Energy Scenarios: Benefits and Costs

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Bill Prindle  
Deputy Director  
American Council for an Energy-  
Efficient Economy (ACEEE)  
EESI Briefing  
November 1, 2007



# Outline

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- Project Overview
- Methodology
- Results
  - Electricity sales and capacity
  - Wholesale electricity price impacts
  - CO2 emissions reductions
  - Net customer electric bill savings
  - Net job creation



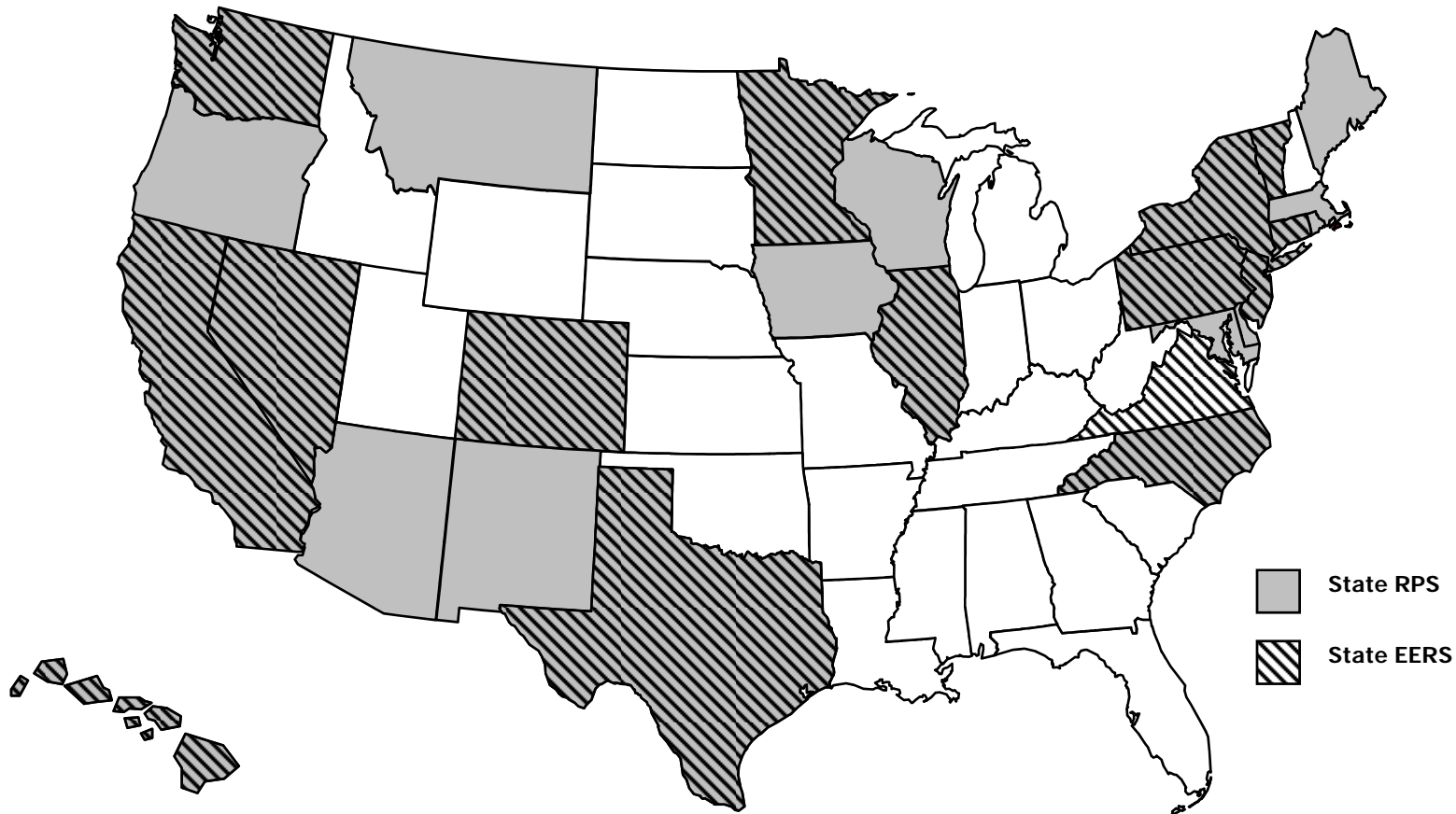
# Project Overview

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- ACEEE Analysis of Renewable Electricity Standard (RES) included in the August House energy bill (H.R. 3221)
- Given that several states are already pursuing aggressive targets, we also include more aggressive RES-EERS scenarios
- We also frame RES-EERS scenarios in a climate policy context



# States with EERS and RES Activity



Note: New Jersey and New York have pending EERS requirements.  
Source: ACEEE 2007. <http://www.aceee.org/energy/state/2pgEERS.pdf>



# Methodology

- ACEEE Scenario development
  - Three scenarios:
    - House RES (11% renewables, 4% efficiency)
    - *10% electricity efficiency + 5% natural gas (We do not present all of these results here)*
    - A '15-15' RES-EERS: separate 15% efficiency + 15% renewables
  - Two frameworks:
    - Business-as-usual reference case without federal climate policy
    - Climate policy framework (representative Bingaman-Specter Bill)
- ICF Consulting ran its Integrated Planning Model (IPM)
  - Electric sector impacts of multiple scenarios
  - Policy compliance costs
- DEEPER macro-economic model
  - Jobs impacts



# Scenario Overview

## Nominal Renewable and Efficiency Targets

	House RES (Scenario 1) (RE,EE)	10% EE (Scenario 2) (EE)	“15-15” Scenario (Scenario 3) (RE,EE)
2015	4.7%,1.8%	6%	4.8%,4.8%
2020	11%,4%	10%	10%,10%
2025	11%,4%	10%	15%,15%

# Results – House RES

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- House RES (with 2030 BAU reference)
  - 22 TWh reduction in electricity usage (~.5%)
  - 3% reduction in CO2 emissions by 2030
  - 16,000 MW of avoided powerplants (~4.5%)
- House RES In 2030 Climate Policy Framework
  - 246 TWh reduction in electricity usage (~4.5%)
  - 22% reduction in CO2 emissions
  - 32,000 MW of avoided powerplants (~9%)



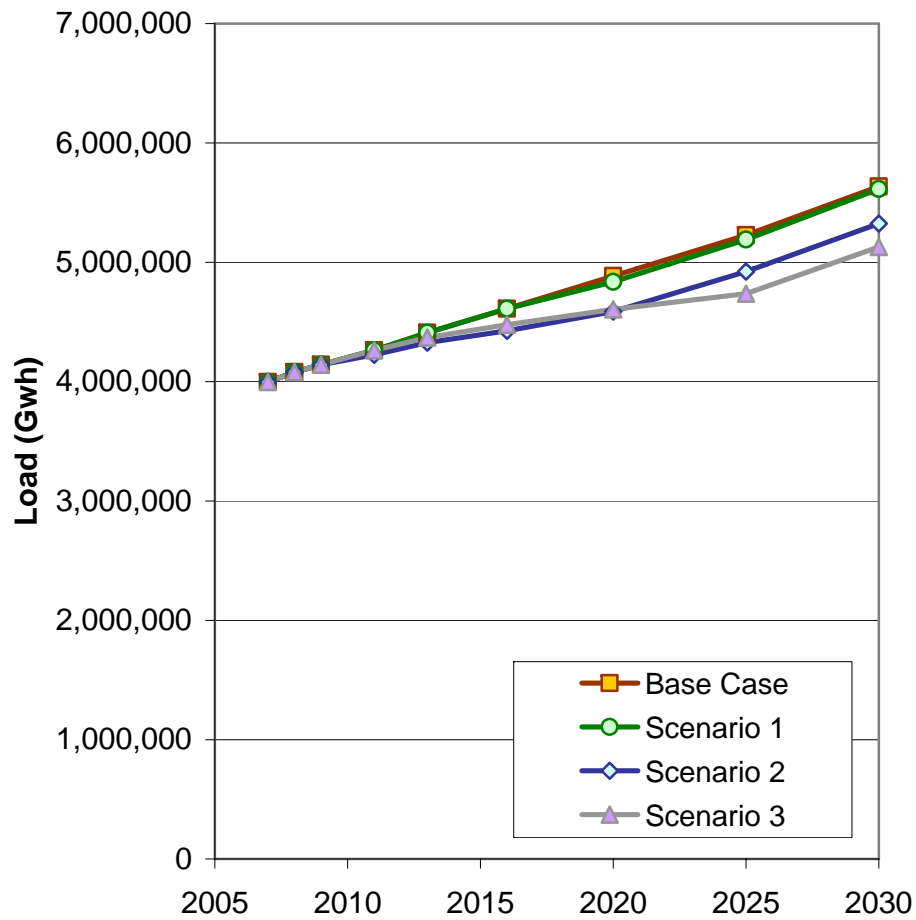
# Results – “15-15” Scenario

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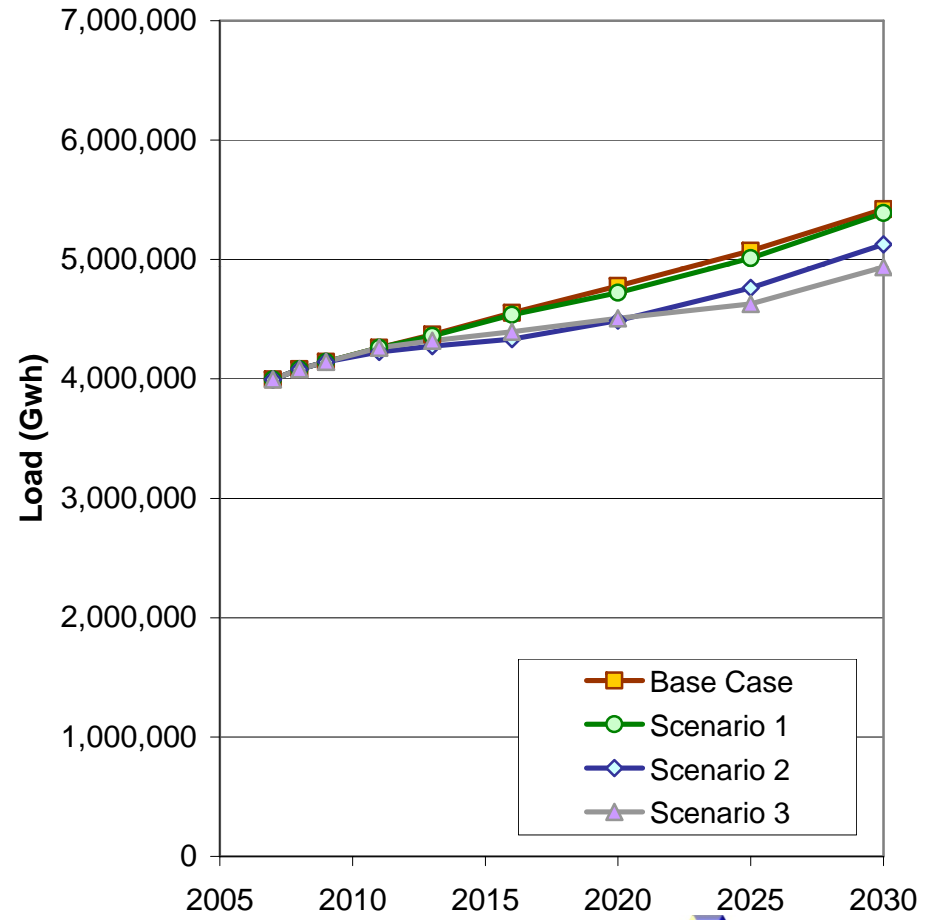
- “15-15” Scenario (with 2030 BAU reference)
  - 507 TWh reduction in electricity usage (~9%)
  - 18% reduction in CO2 emissions by 2030
  - 71,000 MW of capacity savings by 2030 (~20%)
- “15-15” in 2030 Climate Policy Framework
  - 699 TWh reduction in electricity usage (~13%)
  - 18% reduction CO2 emissions by 2030
  - 108,000 MW of capacity savings by 2030 (30%)



# Electricity Load (GWh)

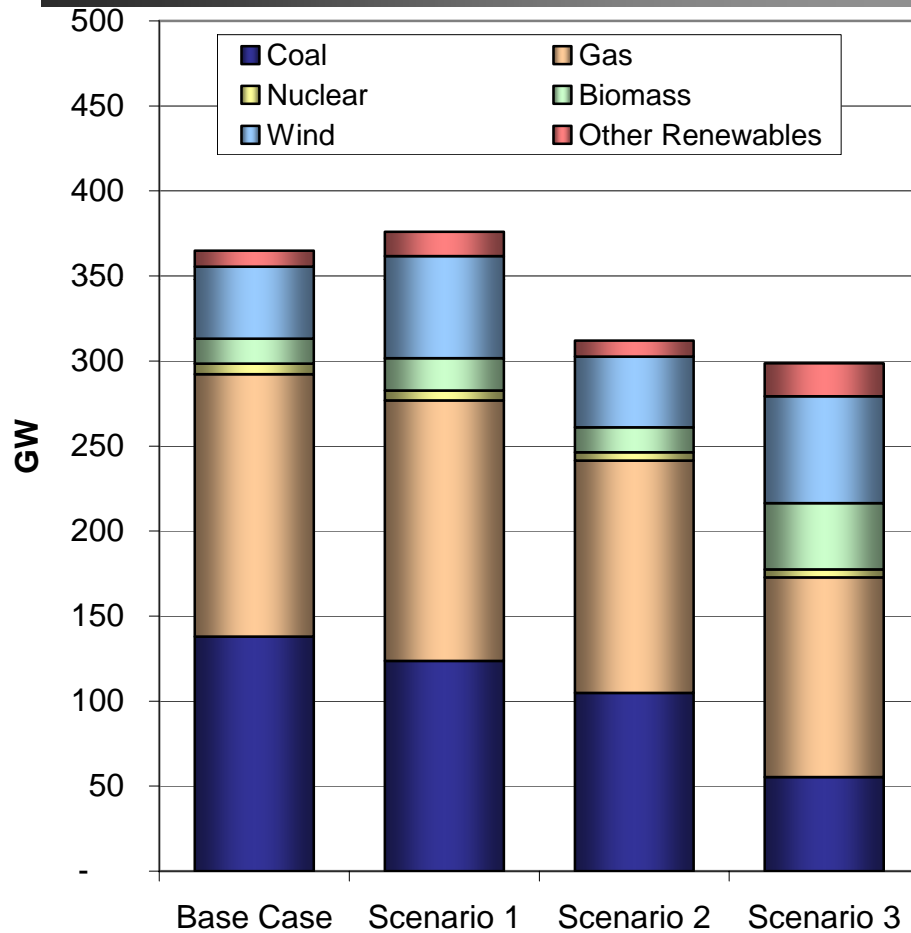


**Business-as-usual**

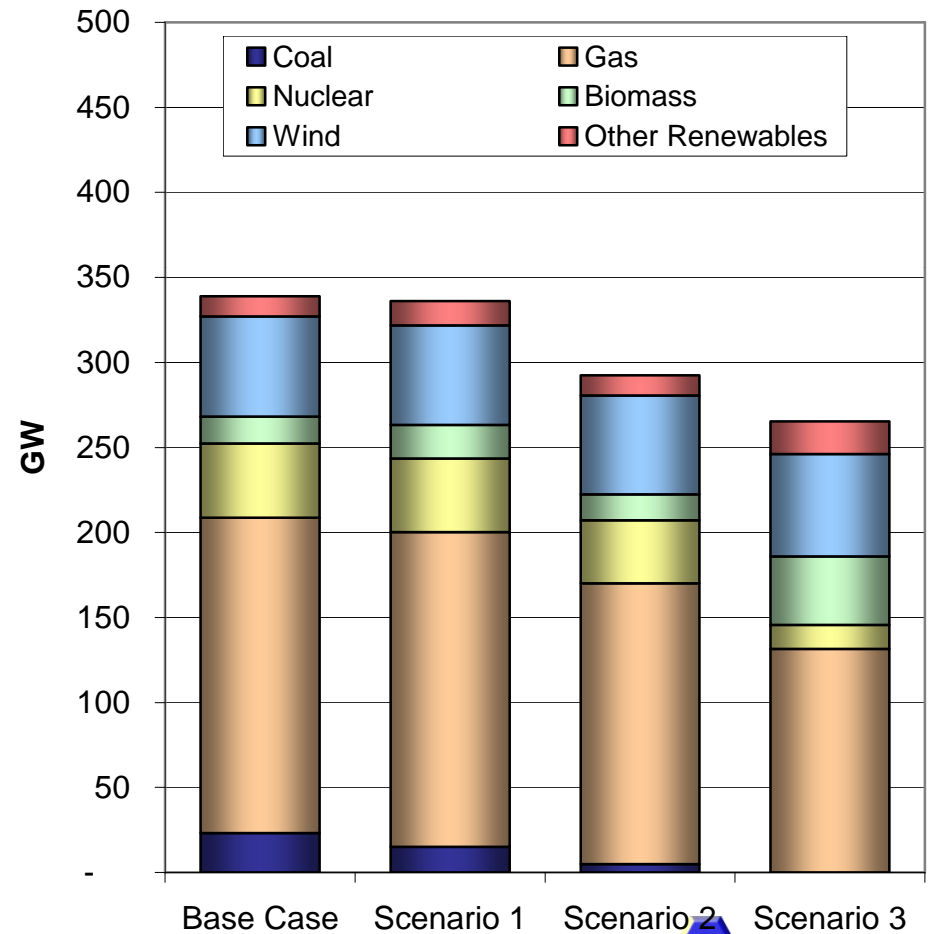


**Climate Framework**

# Capacity Addition Impacts

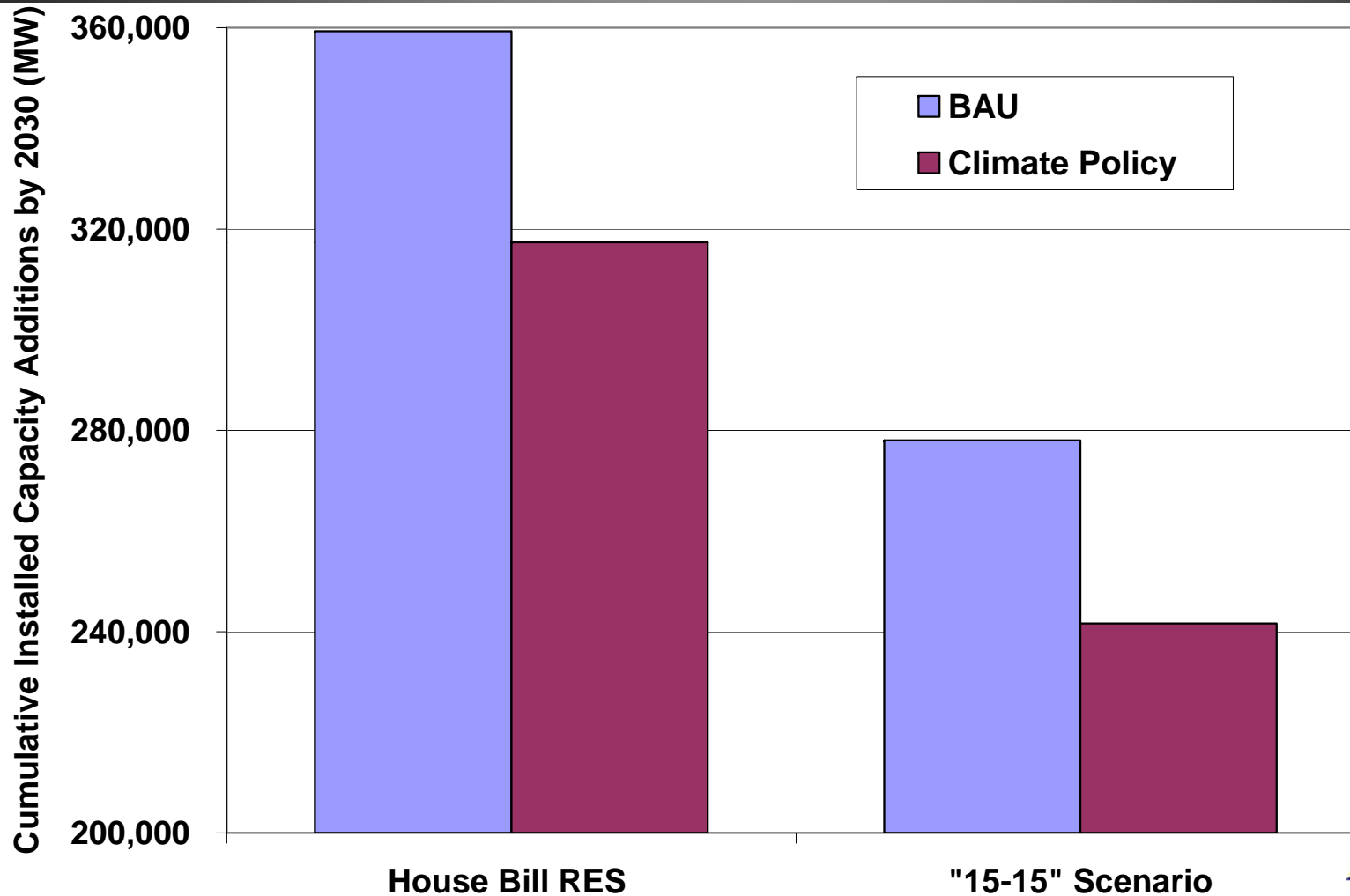


**Business-as-usual**

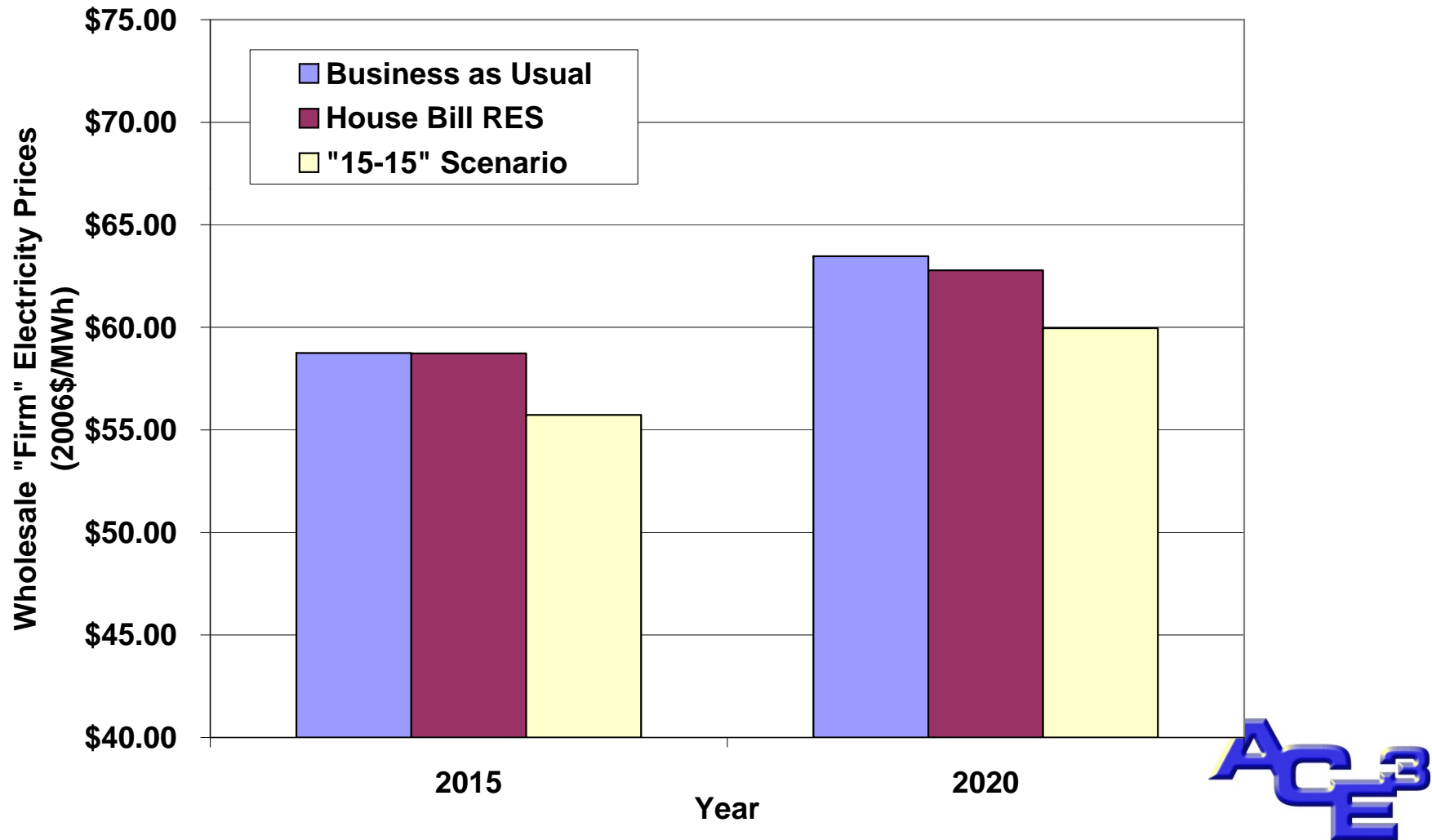


**Climate Framework**

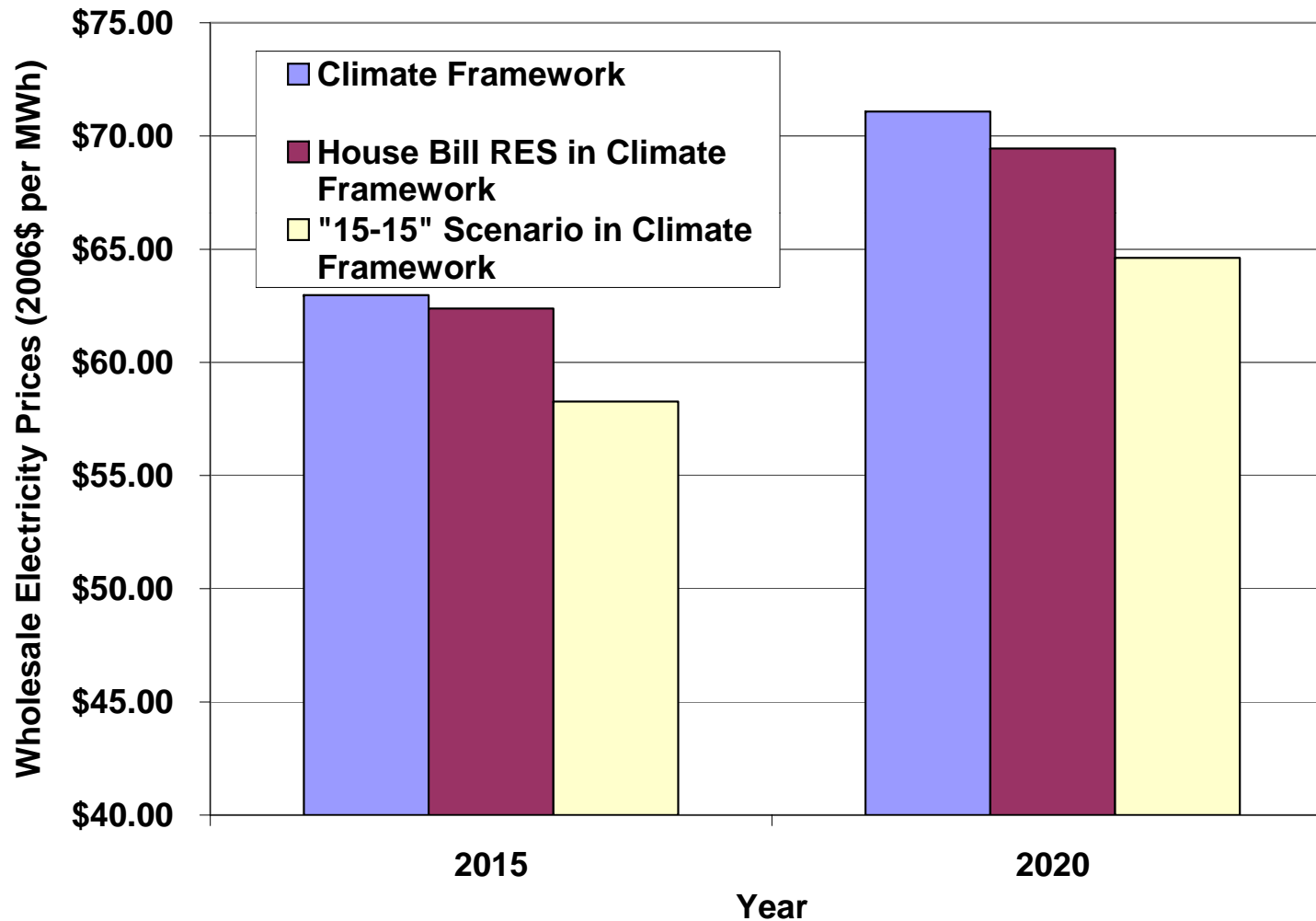
# New Capacity Needs in Business-as-Usual and Climate Policy Frameworks



# Wholesale Electricity Price Impacts



# Wholesale Electricity Price Impacts in Climate Framework



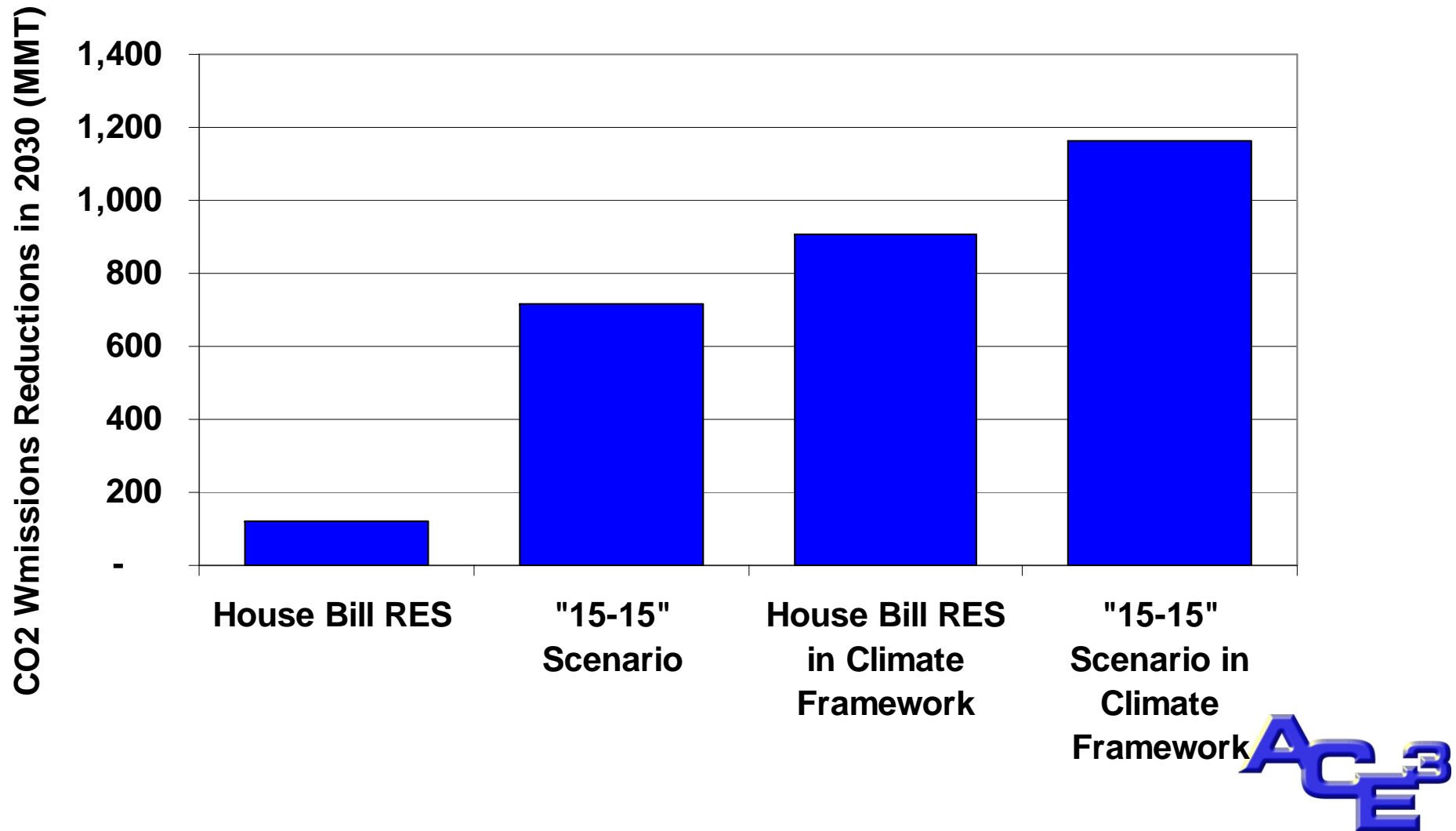
# Net Customer Bill Impacts

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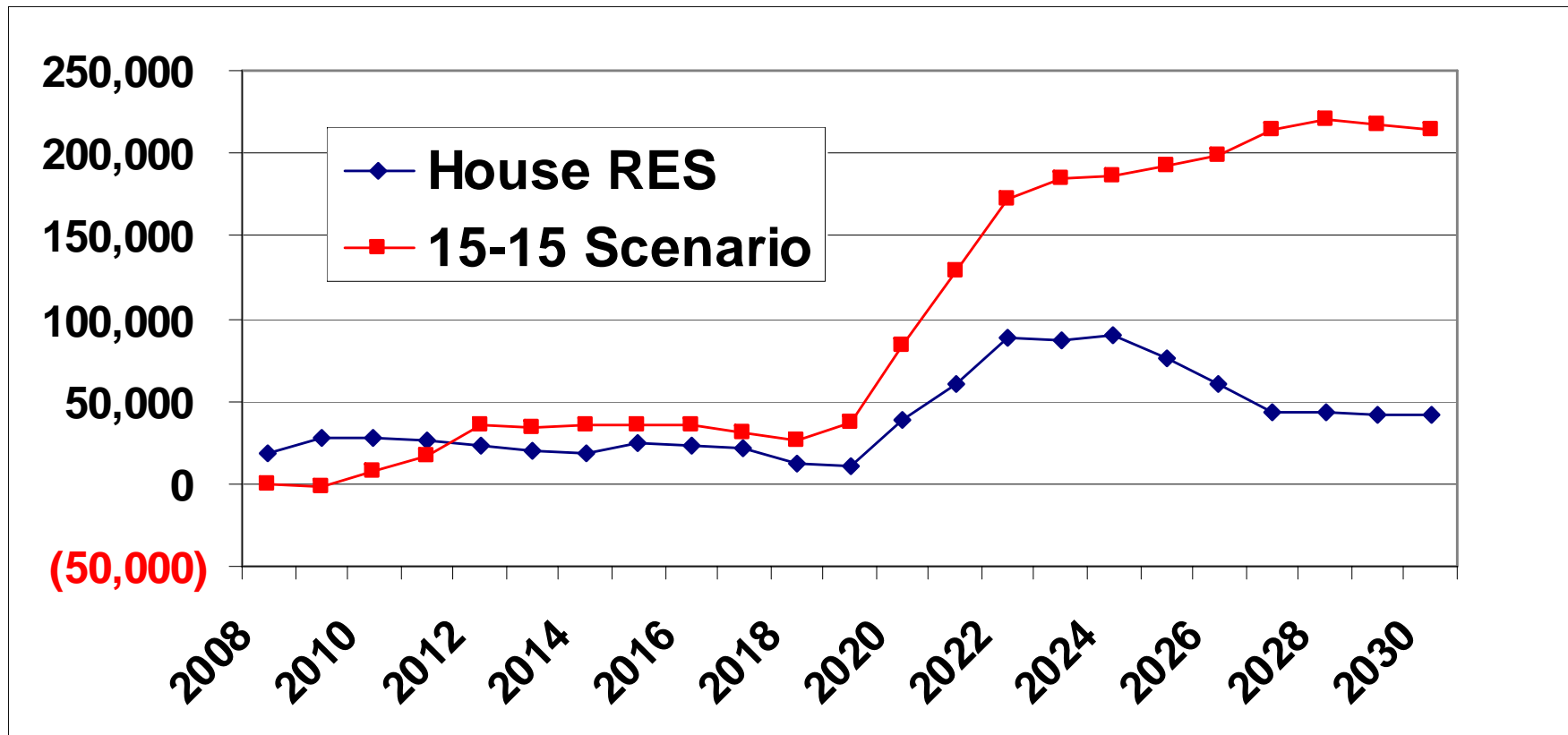
- House RES: \$36 billion through 2030
- “15-15”: \$417 billion through 2030
- These are in the business-as-usual framework
- Climate-policy framework savings TBD—expected to be larger



# 2030 Annual CO2 Emissions Reductions (MMT)



# Net Job Creation



# Regional Benefits

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- Southeast
  - House RES:
    - 3,000 MW of avoided coal capacity
    - Wholesale prices fall \$0.57 per MWh
  - “15-15”
    - 28,000 MW of avoided coal/gas capacity
    - Wholesale prices fall \$3 per MWh



# Regional Benefits

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- Midwest
  - House RES:
    - 1,300 MW of avoided coal capacity
    - Wholesale prices fall slightly
  - “15-15”
    - 20,500 MW of avoided coal/gas capacity
    - Wholesale prices fall slightly



# Summary

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- House RES reduces electricity prices and bills, avoids powerplants, creates jobs, and saves carbon
- House RES benefits are moderate, because states are already moving on these policies
- More aggressive RES-EERS policies offer even greater benefits
- RES-EERS policies generate greatest benefits in a climate policy framework
- RES-EERS policies should be the cornerstone of any U.S. energy or climate legislation

