

AB 32 Economic Analysis Update

March 25, 2010

California Air Resources Board

Updated Economic Analysis

- Completed based on Board direction
- Estimates the state-level economic effects of implementing the Scoping Plan measures
- Not a substitute for, but will inform measure-specific analyses such as the cap-and-trade regulation

What's Different About this Analysis?

- New Business-as-Usual projection
 - Updated forecasts reflecting recent economic downturn
 - Pavley regulations
 - 20% RPS
- Uses a dual modeling approach
 - Energy 2020 model
 - E-DRAM model
- Sensitivity analysis
 - 4 additional modeling cases

Working with EAAC

- Economic and Allocation Advisory Committee (EAAC) formed to advise ARB
- Staff has worked closely with EAAC to refine methodologies and discuss results
- Staff will continue to consult with members of EAAC as part of the cap-and-trade program development

Key Measures Analyzed

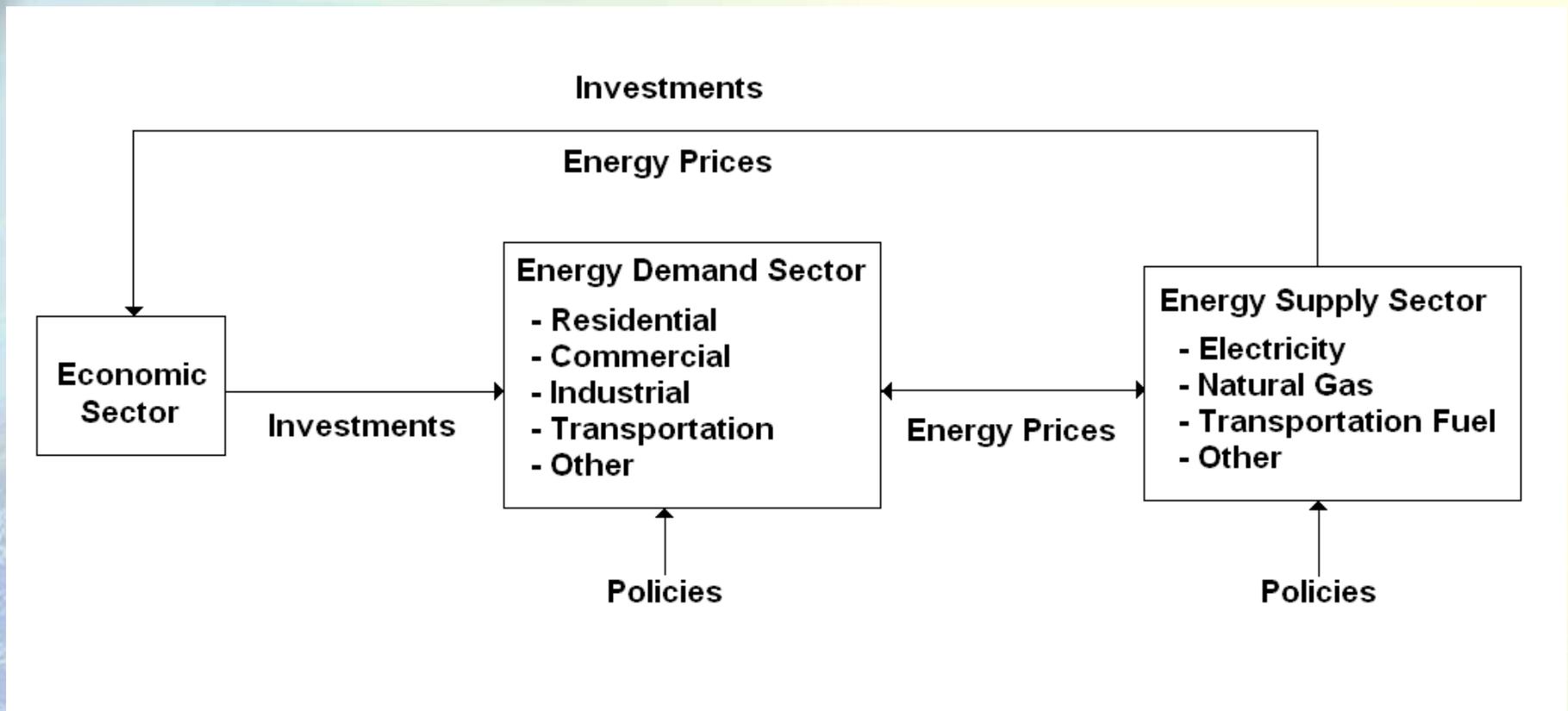
The modeling focuses on several key Scoping Plan measures

- Electricity and natural gas energy efficiency programs and standards
- 33 percent Renewable Energy Standard
- Increased use of combined heat and power
- Regional VMT reduction targets
- California's clean car standards (LEV III)
- Goods movement measures
- Low Carbon Fuel Standard
- Cap and Trade

Energy 2020

- ENERGY 2020 is a detailed energy analysis system that simulates the supply, price, and demand for all fuels
- Useful for analysis of key Scoping Plan measures and certain aspects of the cap-and-trade program

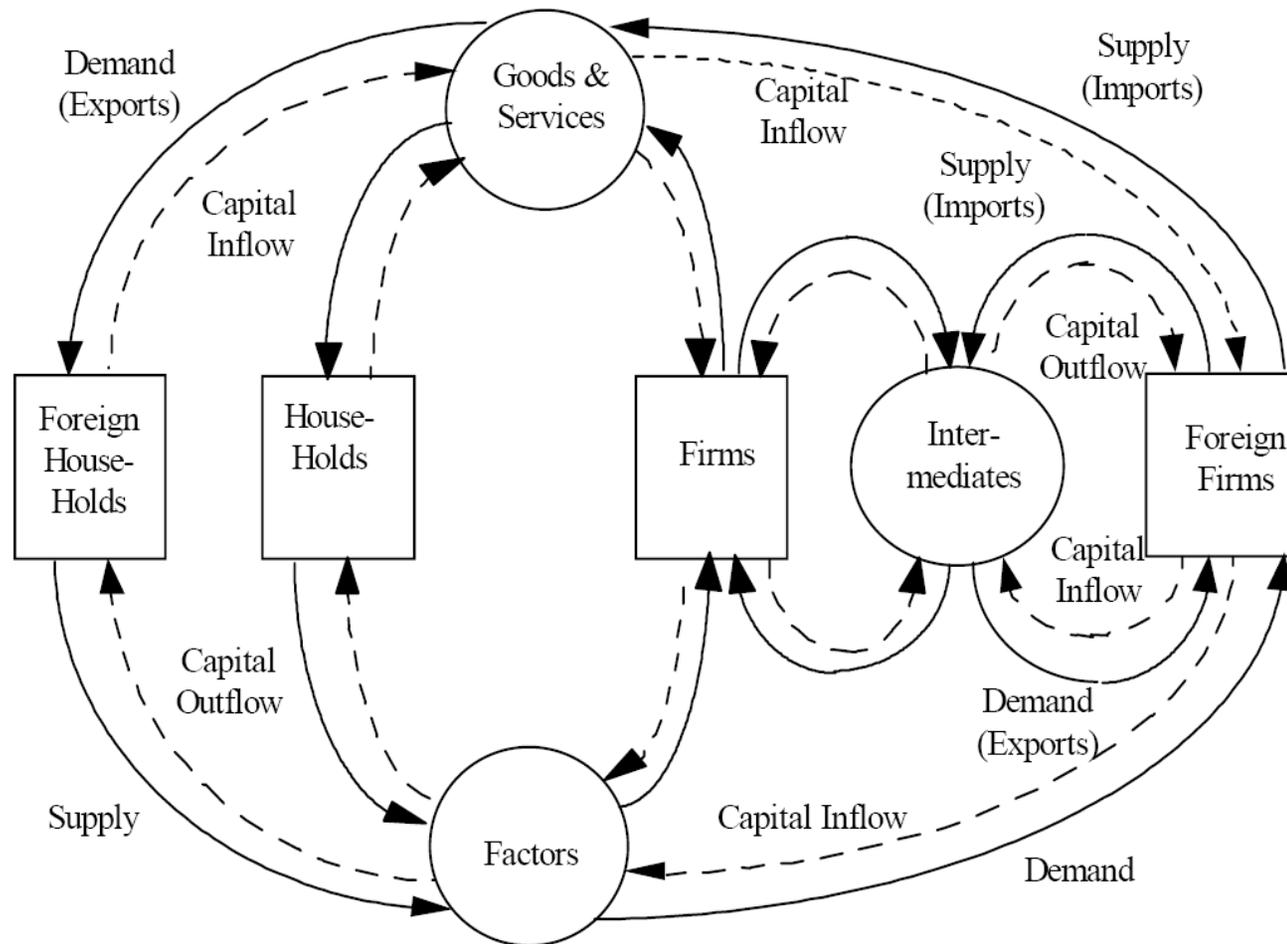
Energy 2020



E-DRAM

- E-DRAM is a computable general equilibrium (CGE) model of the California economy
- CGE models are standard tools of empirical analysis that are widely used to analyze the impacts of policies whose effects are transmitted through multiple markets

E-DRAM



Combining the Models

Energy 2020

1. CO₂ price
2. Energy demand investments
3. Energy supply investments
4. Fuel expenditures

E-DRAM

1. Sector-level output
2. Personal income
3. Population

Scoping Plan Policy Case (Case 1)

- Electricity and Natural Gas Measures
 - Energy efficiency programs and standards
 - 33 percent Renewable Energy Standard
 - Increased use of combined heat and power
- Transportation-related GHG measures
 - Regional VMT reduction targets
 - California's clean car standards (Pavley I)
 - Goods movement measures
 - Low Carbon Fuel Standard
- Cap-and-Trade with 4% offsets

Sensitivity Cases (Cases 2-5)

Case 2: No offsets in cap-and-trade; full complementary policies

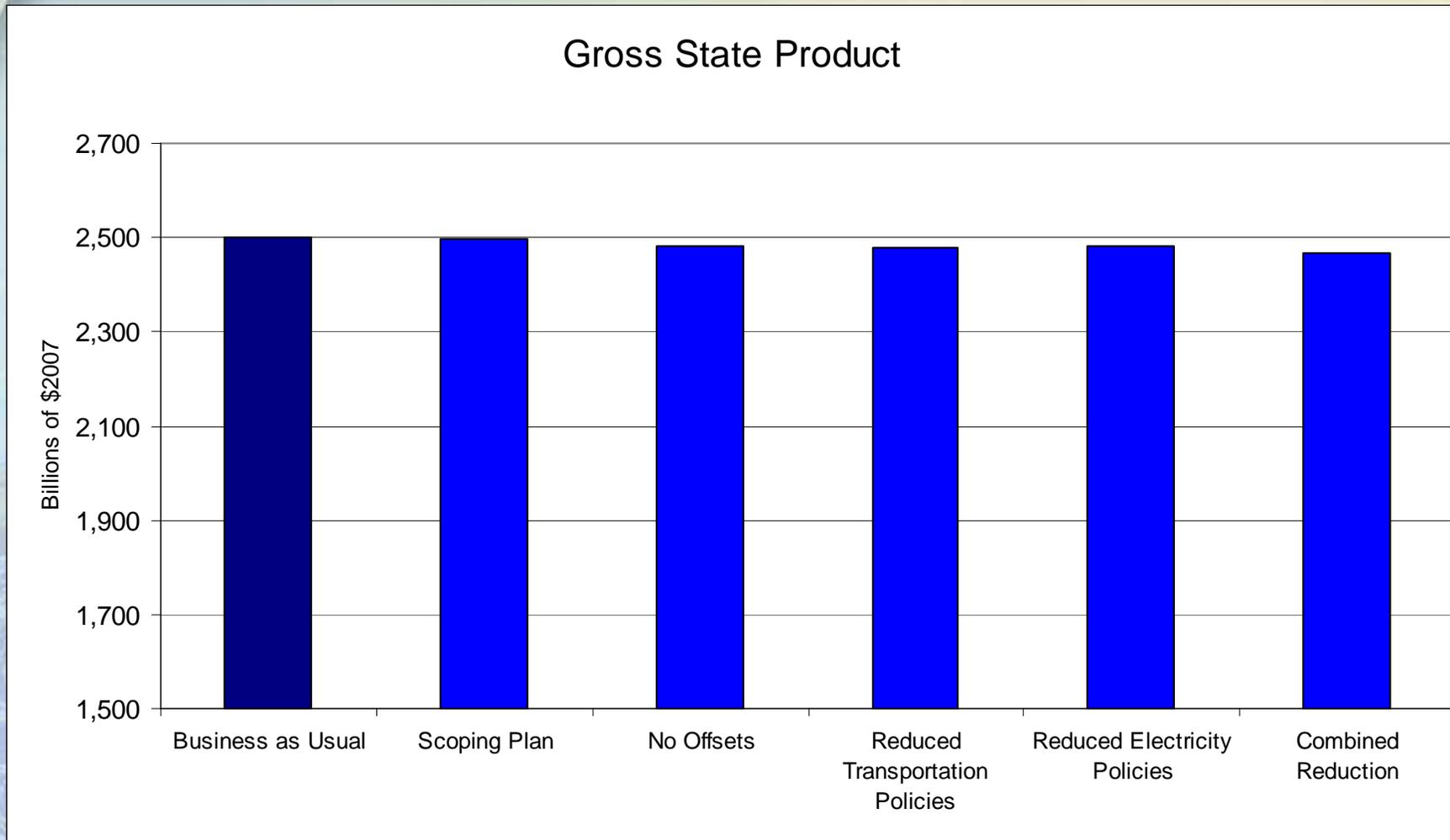
Case 3: Fewer reductions from transportation measures

Case 4: Fewer reductions from electricity and natural gas measures

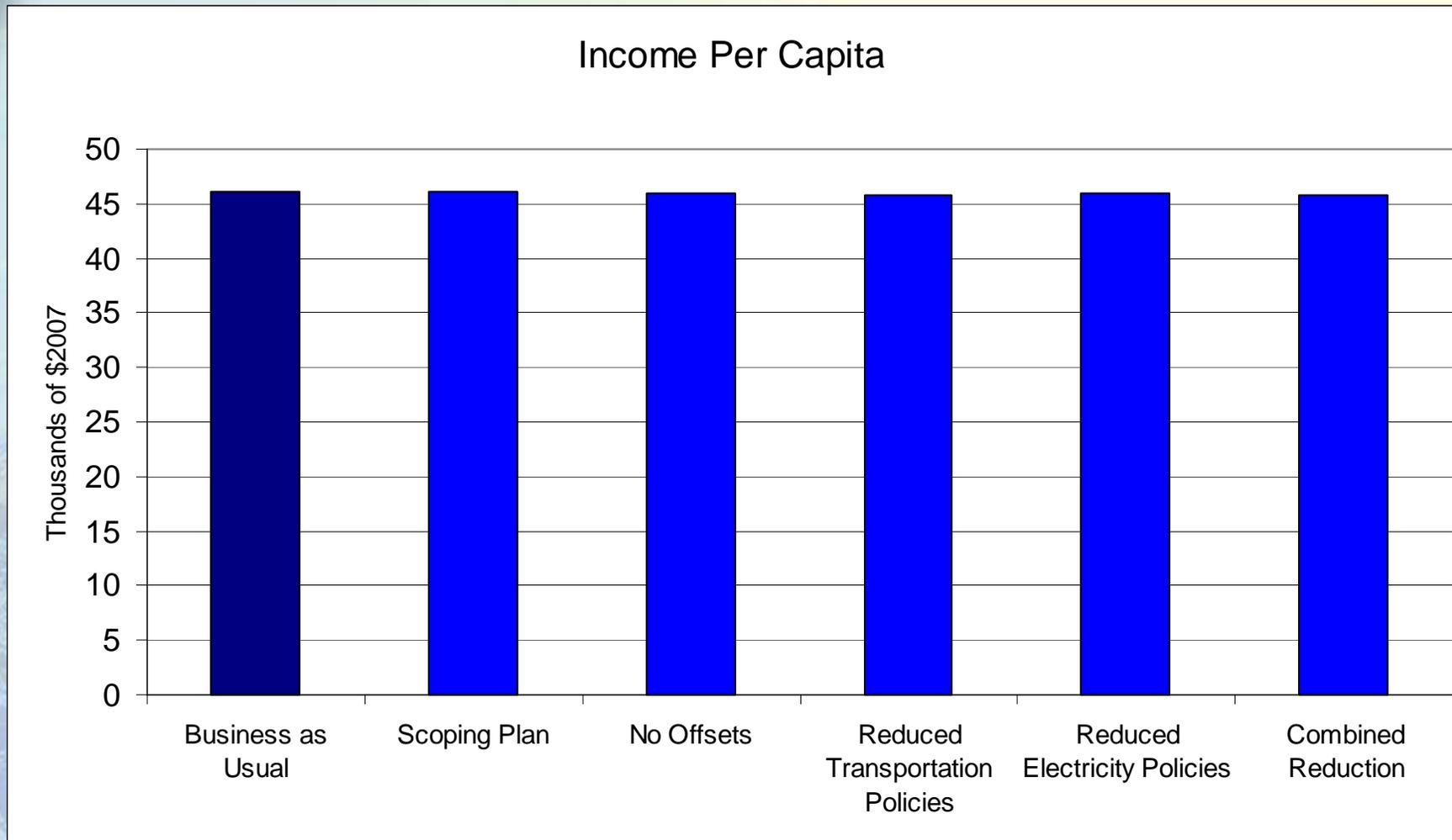
Case 5: Combination of Cases 3 and 4

Note: AB 32 target achieved in all cases

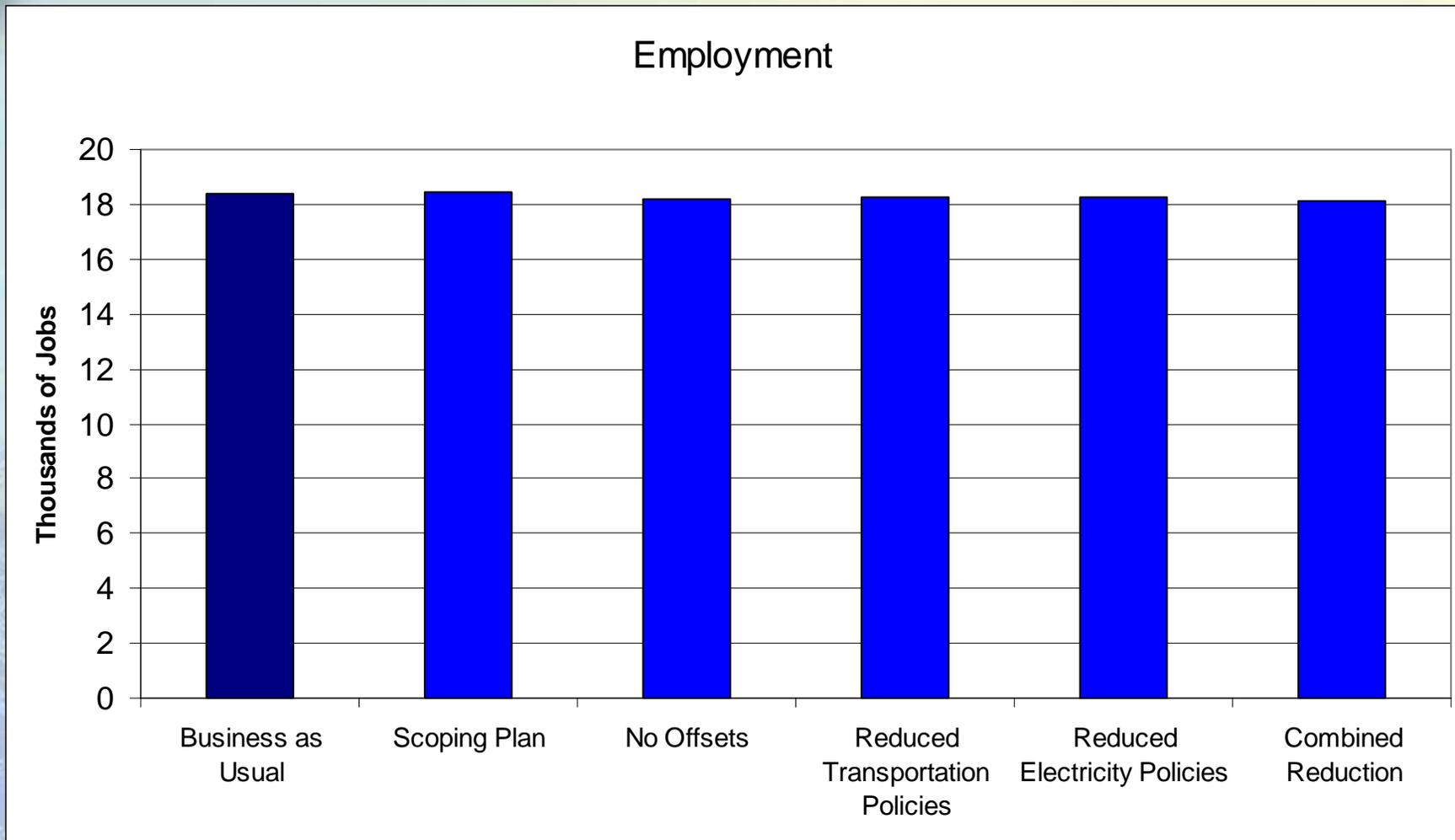
2020 Economic Effects



2020 Economic Effects



2020 Economic Effects



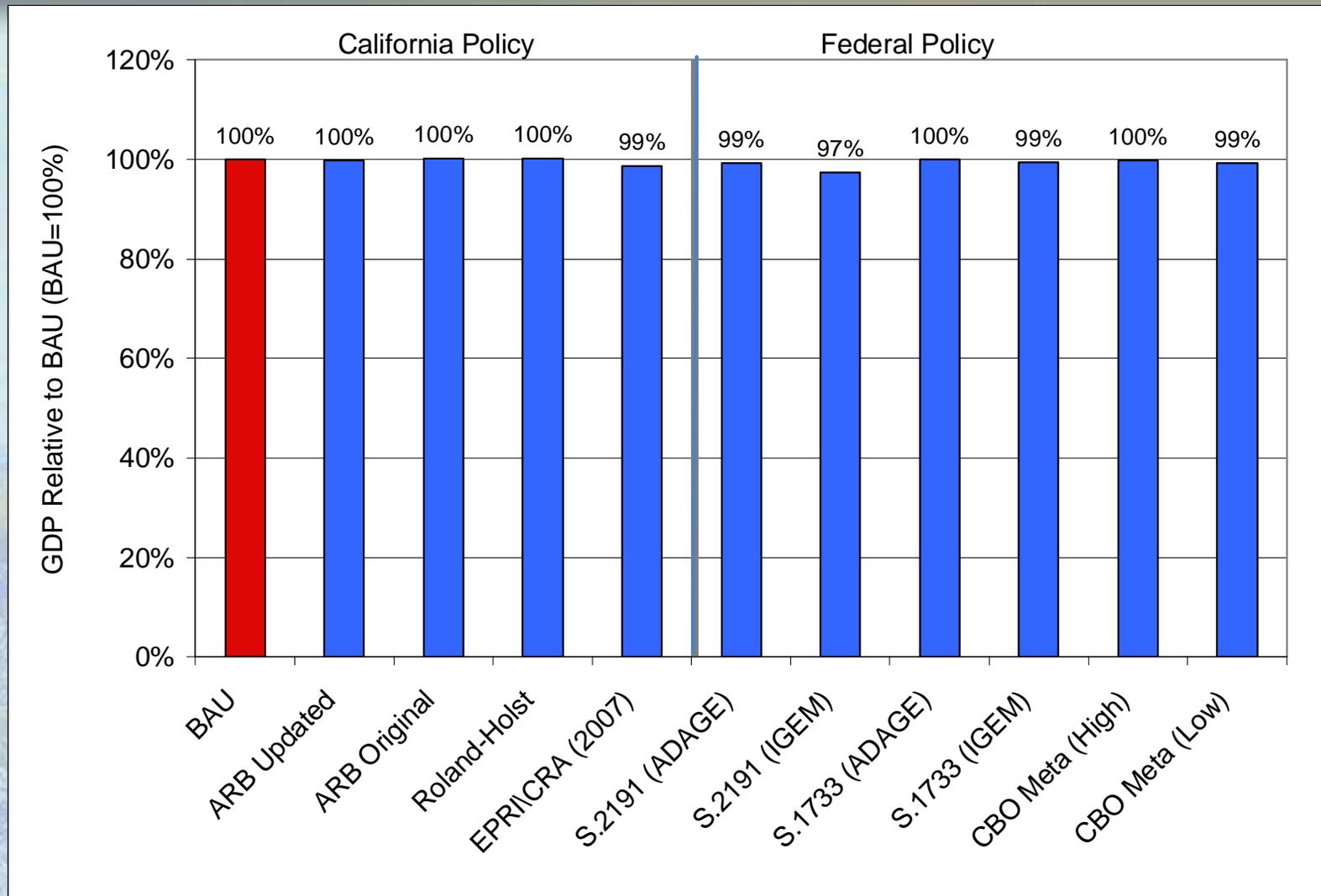
Study Results

- California's emissions target could be achieved while maintaining economic growth
- Less effective implementation of some complementary measures could increase costs
- Offsets reduce costs

Comparison with Other Economic Analyses

- ARB results are consistent with other economic analyses of AB 32 and federal climate change proposals
- Modeling approaches vary but reach similar conclusions – impacts on GDP are small relative to projected growth between now and 2020

Comparison with Other Economic Analyses of Climate Policy



Small Business Analysis

- Indicates that there are unlikely to be significant adverse or disproportionate impacts on small business
- ARB will work with small business to design programs and provide opportunities for California small businesses

Achieving AB 32 Goals

- Analysis demonstrates the Scoping Plan strategy for reducing greenhouse gases represents a cost-effective approach to implement AB 32
- Individual implementation of Scoping Plan measures will be informed by this economic analysis

Next Steps

- April discussion
- Continue working with EAAC
- Analyses to support individual AB 32 measures