



# **Economic Analysis of The Proposed Scoping Plan**

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# Today's Presentation

- Economic evaluation of the Scoping Plan
- Additional analyses
- Peer review and stakeholder comments and responses
- Next steps

# Economic Evaluation of Scoping Plan

- Evaluation of Draft Scoping Plan discussed at 9/26 workshop
- Proposed Scoping Plan released 10/15
  - Includes updated economic analysis
  - Discussed at November Board meeting
  - Also discussed additional analyses

# Economic Evaluation

## Changes from Business-as-Usual in 2020

Economic Indicator	BAU	Plan	Change	% Diff
Real CA Output (\$Billion)	3,597	3,630	33	0.9
GSP (\$Billion)	2,586	2,593	7	0.3
Personal Income (\$Billion)	2,093	2,109	16	0.8
Per Capita Income (\$Thousands)	47.56	47.76	0.20	0.4
Employment (Millions)	18.41	18.53	0.12	0.7

# Additional Analyses

- The results of additional analyses were discussed at the November Board meeting and summarized in the peer review responses
- Additional analyses included:
  - Alternative baseline
  - Energy price variations
  - Costs and savings sensitivity
  - Near term economic effects

## Alternative Baseline

**How would including the Pavley I regulations in the business-as-usual baseline affect the results?**

Staff did an additional model run with Pavley I as part of the BAU baseline.

*The effects of the Plan remain positive for most indicators.*

# Alternative Baseline: Results

<b>Measure Costs and Savings</b>		
<b>(Billions \$2007)</b>	<b>As in Proposed Plan</b>	<b>w/ Pavley in BAU</b>
<b>Total Plan Costs</b>	<b>28.3</b>	<b>26.9</b>
<b>Total Plan Savings</b>	<b>45.4</b>	<b>34.0</b>
<b>Net Savings</b>	<b>17.2</b>	<b>7.2</b>

<b>Macroeconomic Effects</b>		
	<b>v. BAU</b>	<b>v. BAU that includes Pavley</b>
<b>Real CA Output</b>	<b>0.9%</b>	<b>0.1%</b>
<b>Gross State Product</b>	<b>0.3%</b>	<b>-0.2%</b>
<b>Personal Income (SPI)</b>	<b>0.8%</b>	<b>0.1%</b>
<b>SPI Per Capita</b>	<b>0.4%</b>	<b>0.0%</b>
<b>Labor Demand</b>	<b>0.7%</b>	<b>0.2%</b>

# Energy Price Variations

## How would different energy prices affect the results?

Staff ran the model using energy prices 50 percent higher and 50 percent lower than the forecasts used in the initial analysis.

*The effects of the Plan remain positive for most indicators.*

# Energy Price Variations: Results

	Scoping Plan	50 Percent Increase in Energy Prices*	50 Percent Decrease in Energy Prices
<b>Real CA Output</b>	<b>0.9%</b>	<b>0.4%</b>	<b>-0.1%</b>
<b>Gross State Product</b>	<b>0.3%</b>	<b>-0.1%</b>	<b>-0.1%</b>
<b>California Personal Income (SPI)</b>	<b>0.8%</b>	<b>0.3%</b>	<b>0.2%</b>
<b>SPI Per Capita</b>	<b>0.4%</b>	<b>0.1%</b>	<b>0.1%</b>
<b>Labor Demand</b>	<b>0.7%</b>	<b>0.4%</b>	<b>0.1%</b>

\* These results exclude the costs and savings from the Pavley I and II regulations based on the assumption that prices at this level will induce at least as much fuel savings as the regulations would have required.

# Costs and Savings Sensitivity

**How sensitive are the results to the estimated costs and savings of the measures in the Plan?**

Staff ran additional scenarios that varied the estimated costs and savings of the measures.

*Plan is essentially neutral if cost estimates are increased 25 percent and savings estimates are decreased by 25 percent.*

# Costs and Savings Sensitivity: Results

<b>Billions \$2007</b>	<b>Scoping Plan</b>	<b>Lower Net Savings</b>	<b>Higher Net Savings</b>
<b>Total Plan Costs</b>	<b>28.3</b>	<b>35.3</b>	<b>24.1</b>
<b>Total Plan Savings</b>	<b>45.4</b>	<b>34.1</b>	<b>56.8</b>
<b>Net Savings</b>	<b>17.2</b>	<b>-1.3</b>	<b>32.7</b>

	<b>Scoping Plan</b>	<b>Lower Net Savings</b>	<b>Higher Net Savings</b>
<b>Real CA Output</b>	<b>0.9%</b>	<b>-0.1%</b>	<b>1.5%</b>
<b>Gross State Product</b>	<b>0.3%</b>	<b>-0.2%</b>	<b>0.5%</b>
<b>California Personal Income (SPI)</b>	<b>0.8%</b>	<b>0.1%</b>	<b>1.1%</b>
<b>SPI Per Capita</b>	<b>0.4%</b>	<b>0.0%</b>	<b>0.7%</b>
<b>Labor Demand</b>	<b>0.7%</b>	<b>0.2%</b>	<b>0.9%</b>

## Near-Term Investments, Costs and Savings

**What are the economic effects of the Plan on business in the near-term, particularly small business?**

Staff developed preliminary estimates of the investments needed in the early years of the program, annual expenditures needed to pay for the investments, and the resulting savings.

*Most costs begin after 2012, and are phased in over several years.*

*Savings exceed annual costs throughout implementation.  
No major outlays expected for small business.*

## Near-Term Investments, Costs and Savings

Billions \$2007	Investment	Expenditures	Savings
2009 through 2011	2.4	0.9	1.9
2012 through 2014	29	12	21

- Investment is the amount financed
- Expenditures are the payments on investments
- Savings are generally the value of energy saved

# Peer Review & Stakeholder Comments and Responses

- ARB submitted economic analysis to Peer Review
- Comments have been received from stakeholders
- The LAO provided an assessment of the analysis
- Key themes of comments:
  - Selection of the business-as-usual baseline
  - Fuel price effects and uncertainty
  - Costs and savings estimates
  - Comparative policy analysis
  - Near-term and mid-term costs

## **Comment: Selection of BAU**

### **Issue:**

**Inclusion in the baseline of adopted measures (e.g. Pavley I)**

### **Response:**

- Evaluating the Plan should include costs and savings from all measures primarily focused on reducing GHG emissions
- Even with all Pavley savings in the baseline, the Plan remains positive for most indicators

## **Comment: Selection of BAU**

### **Issue:**

**Exclusion of the costs and savings of measures adopted for other reasons**

### **Response:**

- Costs and savings of adopted measures are only included when greenhouse gas emission reductions are the primary driver of the measure

## **Comment: Fuel Price Impacts on BAU**

### **Issue:**

**Need for consideration of market responses to higher energy prices and estimates of future fuel savings**

### **Response:**

- Initial assessment did not consider reduced consumption from higher fuel prices
- Some savings from Pavley expected from market forces with gasoline at \$3.67/ gallon
- Even if all the Pavley savings are in the baseline, the Plan remains positive for most indicators

## **Comment: Need for Sensitivity Analysis**

### **Issue:**

**Need for consideration of a range of estimates of costs and savings**

### **Response:**

- Staff has completed sensitivity analyses:
  - Even if estimates of costs are increased 25% and estimates of savings are decreased 25% across the board, the effects of the Plan are neutral
  - Even if the energy price forecasts are increased or reduced 50%, the economic effects of the Plan are neutral

## **Comment:** **Consistency with Other Studies**

### **Issue:**

**Consistency of ARB results with those of other analyses**

### **Response:**

- Recent analyses confirm net positive economic impacts of similar plans as the Scoping Plan (Maryland, Florida, Center for Climate Strategies)
- Some other studies have concluded that implementation of various greenhouse gas reduction policies would have a slight negative impact on GDP

## **Comment:** **Role of Analysis in Developing Plan**

### **Issue:**

**ARB should have examined a range of policy designs to develop its recommendations**

### **Response:**

- The rationale for the recommended design is described in the Plan
- Many of the measures implement or expand upon existing law and policy; excluding them from the analysis would not be productive

## **Comment:** **Role of Analysis (continued)**

### **Issue:**

**ARB should have examined a range of policy designs to develop its recommendations**

### **Response:**

- Existing macro-economic models do not provide useful comparisons between traditional regulatory and market-based approaches
- The economic modeling was not designed to select individual measures to include or exclude from the Plan

## **Comment: Near-term Costs**

### **Issue:**

**Need for information on near-term and mid-term costs.**

### **Response:**

- Further analysis presented earlier shows near- and mid-term savings exceed costs and pay for the investments
- The trajectory of costs and savings will be examined in more detail as measures are implemented

## Next Steps

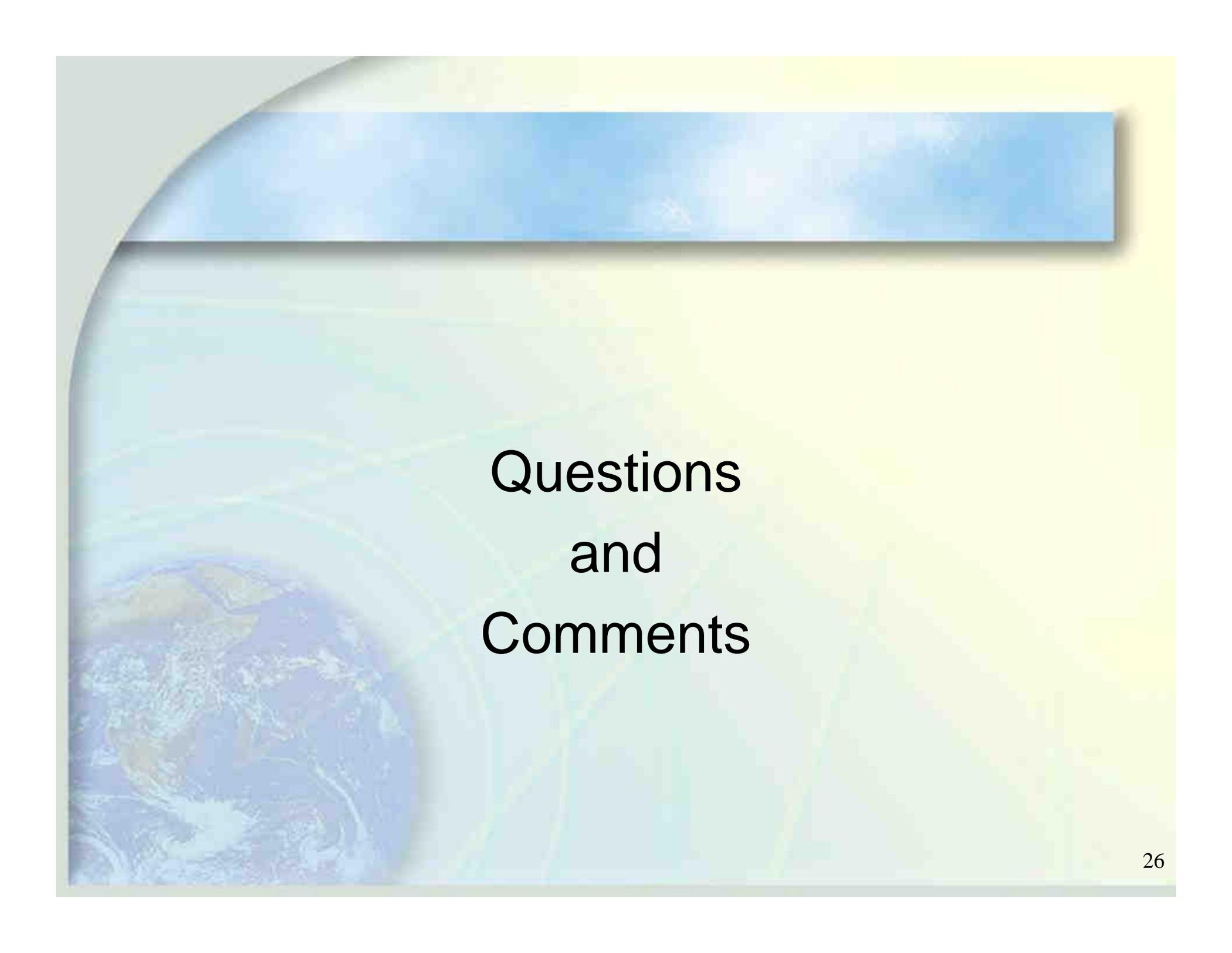
- As part of implementation of AB 32, ARB will continue to examine the full suite of measures included in the Scoping Plan
- ARB will establish a forum for regular input and advice from economic modeling experts on the continuing economic evaluation of AB 32 implementation

## Next Steps

- In the cap-and-trade rulemaking, ARB will evaluate the economic implications of different program design options
- ARB will coordinate the analysis of the cap-and-trade program with the evaluation of the Western Climate Initiative

## Next Steps

- ARB will solicit expert input on key questions related to the distribution or auction of allowances and the use of revenue
- This input will be considered as part of the extensive public process in the cap-and-trade rulemaking



# Questions and Comments