POLICIES TO ACHIEVE 2030 TARGETS ON ZEVs AND GHGs

PRELIMINARY RESULTS FROM THE CALIFORNIA ENERGY POLICY SIMULATOR

Chris Busch, Robbie Orvis, Jeff Rissman

California Climate Policy Modeling Dialogue

14 May 2018
THE ENERGY POLICY SIMULATOR

Canada  China
Indonesia  Mexico
Poland  United States

Six countries covering 46% of global emissions

http://energypolicy.solutions
USER FRIENDLY WEB INTERFACE

Ability to graph many different outputs

Policies included in the model

Active Policy Settings

http://energypolicy.solutions
POLICIES TO ACHIEVE THE 2030 GHG TARGET

Reference emissions

With 2030 policies

Policy highlights:
• SLCP reductions
• 65% RPS and flexibility policies
• $56 carbon price
• Transport next...
TRANSPORTATION POLICIES

Reference

• Current tailpipe standards
• 2025 ZEV rule
• LCFS at 10% by 2022
• Current incentives for cars and trucks, phasing out over 10 years

Additional

• Zero Emission Vehicle sales standard for 2030
  • 42% for LDV
  • 10% MDV Freight
  • 50% for new bus sales, approximating clean transit program effects
• New car and truck standards increase efficiency of gasoline and diesel vehicles (+14% over current standards)
• LCFS set to 20% by 2030
• Reflecting anticipated lag in US EPA approval, new standards for ICE and ZEVs increase linearly 2021-2030
LIGHT DUTY PASSENGER VEHICLE STOCK

Reference scenario  5 million ZEVs with 2030 policies *

Gasoline

PHEV Electric

Rebound effect

4.97 mn Gasoline

3.91 mn Electric

* 4.97 mn LDV + 40,000 MDV + 10,000 Bus >5 mn
MEDIUM DUTY FREIGHT TRUCK STOCK
~40,000 ZEV trucks and 7,000 new sales in 2030 with 10% ZEV requirement

Reference scenario

With 2030 policies
TRANSPORTATION FUEL USE WITH POLICIES

Policies reduce petroleum fuel use 44% vs. 29% compared to 2017
ANNUAL NET POSITIVE SOCIAL IMPACTS IN 2024

- Economic impacts are changes to capital, fuel, and operation costs

- NPV at 7% discount rate:
  - +$90 million (only econ. impacts)
  - +$230 million (includes social)
PROMISE AND PERIL

Promise

- Other studies also bullish: Scoping Plan graphic
- Major automaker investments
- Promising early commercial options across a diverse portfolio of startup companies and technologies
- International governmental commitments and market momentum (China)

Peril

- A four-year trend of increasing GHG emissions from transportation
- Inventory goes to 2015 but 2016 MRR data and 2017 tax data point to continued increases
- 2030 targets pose new challenges and uncertainties, but CARB has also advanced the state of the art in cost containment
CONCLUSION

Together with other research, California EPS analysis supports the extension and intensification of current policies, and provides new insights on calibration needed to hit 2030 targets.

Despite some apocalyptic predictions, economic growth has been outstanding under AB 32.

Surprisingly fast innovation could happen in transportation. 10 years ago conventional wisdom forecasted a $150 per ton carbon price necessary to incent renewables.

California EPS results provide further reason for optimism, indicating energy savings and health benefits counterbalance upfront energy transition costs.
THANK YOU