



Carbon Pricing Experience in California

Brian Turner

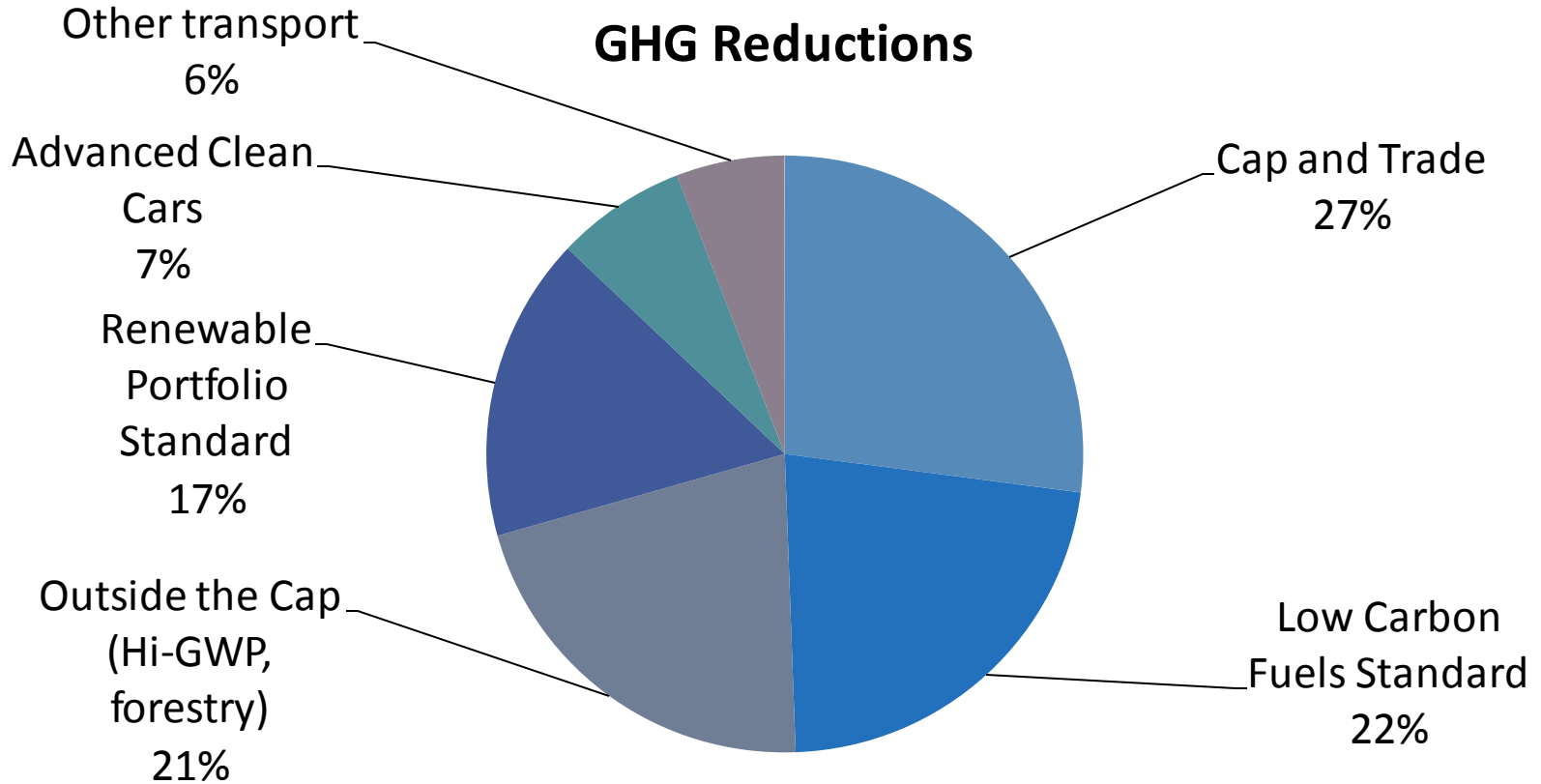
California Public Utilities Commission

May 22, 2014

AB 32: Global Warming Solutions Act of 2006

- Reduce emissions to 1990 level by 2020
- Maximize environmental/ economic/ community co-benefits
- Gave California Air Resources Board authority to develop range of programs, including market-based

AB 32 Suite of Programs



Goals of the Cap-and-Trade Program

- Reduce GHG emissions
- “Price” emissions to incentivize change
- Spur innovation in low emissions and efficient technologies
- Complement existing programs to reduce smog and air toxics
- Ensure AB 32 reduction mandates for GHG are realized through strict limit
- Flexible mechanism—allows covered entities to find most cost effective reductions

Cap-and-trade Coverage Basics

- Stationary sources of emissions at or above 25,000 metric tons of CO₂e per year
 - Covers 6 GHGs, not just CO₂
 - Large industrial sources (e.g. cement, refineries, oil and natural gas producers)
 - Electricity generation and imports
- Upstream coverage of small combustion emission sources (at fuel wholesaler/distributor)
 - Transportation fuels (beginning in 2015)
 - Residential and commercial use of natural gas (2015)

The story so far

- All required entities registered by fall 2012
- Cap and trade program began Jan. 1, 2013
- First compliance deadline Nov. 2014
- Wholesale electricity costs increased
- Industrial firms incorporating GHG cost in investment decisions
- Allowance prices low and stable
- Strong general public support
 - Repeal referendum 2010 lost 40-60%
- Industry opposition focused on allocation and assistance

Political and Legal Challenges

- Impacts to business
 - Phase-in; allocation; cost and volatility containment
- Impacts to consumers
 - Phase-in; spending programs; Climate Credit
- Market distrust
 - Careful design; Price collar; Strict monitoring and enforcement
- Sued from the right and left
 - Illegal tax
 - Allowing trading and offsets

Market Integrity

- Compliance instrument tracking system and auction platform designed for security
 - Know Your Customer requirements
- Market surveillance activities performed by agency staff with assistance from outside experts
 - Coordination with other agencies (CA ISO, FERC, CFTC, DOJ) on market surveillance
- Agency must protect market sensitive information while providing transparency to the public

Price and volatility containment

Allowance Price Containment Reserve

- 4 percent of all allowances go to a 'reserve' to contain prices should they get too high
- For sale alongside quarterly auctions in three price tiers.
- Began in 2013 at \$40/\$45/\$50
 - Increase at 5% above inflation/year

Industrial Assistance

- Free allocation to industrial producers to provide transitional assistance and to minimize “leakage”
- Allowances = Assistance Factor x Benchmark x
Cap Decline Factor x Production
 - Assistance Factor considers energy intensity and trade exposure (“leakage” risk)
 - Benchmark is about 90 percent of the most efficient CA facility
 - Units: metric ton of CO₂e per unit of production
 - Cap decline is 2-3% a year
 - Production is reported each year

Consumer protection Electrical Distribution Utilities

- Free allocation to electric utilities for the benefit of ratepayers
 - Electricity *generators* receive no free allowances. *Utilities* are issued free allowances to benefit ratepayers
 - California PUC determines how investor-owned utilities use value
 - Publicly-owned utilities (Munis and co-ops) Boards decide
- CA Public Utilities Commission:
 - Buy-down residential rates
 - At least until rate reform
 - Intent to include carbon cost
 - Subsidy for EITE Industry and Small Business
 - Climate Credit
 - Created by CPUC; applies to IOUs
 - Equal (in each IOU) per-household bill credit

Public Benefits

- Remaining allowances not freely allocated are auctioned
 - Approx. 5% of market in 2013; Approx. 50% in 2015
 - \$663 million so far; many billions in coming years
 - Proceeds to the State to be appropriated during the budget process
- Legislation establishes funding framework
 - Proceeds must fund projects that reduce GHG emissions.
 - Disadvantaged communities focus.
- Priorities in Governor's Budget:
 - Clean transportation, commercial and residential energy efficiency, sustainable communities, water-related energy efficiency
 - Sustainable agricultural practices, forestry, and waste diversion

Allowance Price Update

- State held 7 auctions to date
 - ~\$734 million into the Greenhouse Gas Reduction Fund
- Floor prices began at \$10 in 2013, increasing by 5% above inflation annually
 - 2014 auction floor price: \$11.34
- May 2014 auction results
 - Current vintage \$11.50
 - 2017 advance auction \$11.34
- Bilateral, exchange-listed trades average slightly higher

Electricity Market Experience

- California Independent System Operator
 - GHG adder in Economic Dispatch “Bid Stack”
 - Uses daily allowance price option x carbon intensity
 - Affects dispatch to cleaner units
- In 2013, CAISO estimates effect on wholesale prices currently averages \$6/MWh
 - One-sixth cent per KWh
 - Roughly equal to carbon intensity of “marginal” gas plant x \$13.50 average 2013 carbon price
- GHG cost has not noticeably affected import levels

Conclusions

- Carbon prices are modest and stable
 - Reflect confidence in program but optimism about complementary policies
- Electricity impacts modest, affecting dispatch and investment decisions to cleaner units
- Transition assistance to industry important
- Consumer and public benefit critical