



Workshop to Continue Informal Discussion on Potential Amendments to Cap-and-Trade Regulation

April 26, 2018



Workshop Materials and Submitting Comments

- ▣ Presentation and other materials:
<http://www.arb.ca.gov/cc/capandtrade/meetings/meetings.htm>
- ▣ Presentation webcast: <https://video.calepa.ca.gov/>
- ▣ Written comments may be submitted until 5:00 pm Pacific time on Thursday, May 10, 2018, at this site:
<http://www.arb.ca.gov/cc/capandtrade/meetings/meetings.htm>
- ▣ During this workshop, e-mail questions to:
coastalm@calepa.ca.gov

Agenda

- ▣ Introduction
- ▣ Program Topics – focusing on stakeholder comments from March 2 workshop
 - ▣ Allowance Allocation
 - ▣ Cost Containment Design Features
 - ▣ Post-2020 Cap Setting
 - ▣ Direct Environmental Benefits to the State
 - ▣ Purchasing Metric Tons for Price Ceiling
 - ▣ Energy Imbalance Market
 - ▣ Other Potential Changes
- ▣ Public Engagement and Next Steps

Introduction

- This workshop continues the informal discussion of potential regulatory amendments. The slides are not part of a formal regulatory proposal, nor do they include staff recommendations.
- Two prior informal workshops
- Today's focus: continue discussion of potential changes to the regulation, as presented in workshop materials, and review process and schedule
 - Topics not in current workshop materials could be in future release
 - Materials reflect comments submitted to CARB; staff will continue to consider stakeholder comments going forward







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Thursday, April 5, 2018

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Workshop Comments Log

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BELOW IS THE COMMENT LOG FOR POSSIBLE REVISIONS TO THE CAP-AND-TRADE REGULATION (18-WKSH-WS).

#	Received From	Subject	Comment Period	Date/Time Added to Database	Att
1	Trowsdale, Lamy, PVL Limestone, Inc.	Requested Revision of Cap and Trade for Lime	1st Workshop	2018-03-07 11:32:30	AB
2	Craig Andrew, California Bioenergy LLC	GWP of Methane	1st Workshop	2018-03-12 14:39:59	
3	Gagstetter, Nicol	Comments on possible revisions to the Cap and Trade Regulation	1st Workshop	2018-03-13 10:16:42	AB
4	Halloran, Jim	Solar Turbines March 2nd Workshop Comments	1st Workshop	2018-03-14 12:02:04	AB
5	Ravenscroft, Nigel, Owens Corning	foam methodology for carbon offset credit creation	1st Workshop	2018-03-14 12:06:33	AB
6	Haddad, Ramsey, California Steel Industries	CSI Comments on Amendments to the Cap-and-Trade Regulation 03142018	1st Workshop	2018-03-14 12:57:16	AB
7	Fort, Jeffrey, Dentons US LLP	Possible Revisions to the Cap-and-Trade Regulation	1st Workshop	2018-03-15 12:54:59	AB
8	Facciola, Nick, 3Degrees Group, Inc.	Removal of days out of Regulatory Compliance, Process Improvements, & Protocol Errata	1st Workshop	2018-03-15 13:37:42	AB
9	Harell, Badia, City of Pasadena Water and Power	PIVP Comments re 03/02/18 Cap-and-Trade Prelim Discussion Draft	1st Workshop	2018-03-15 17:02:41	AB
10	DeRivi, Tanya, Joint State POU's	California Public Power "Forced Consignment" Comments	1st Workshop	2018-03-16 07:51:15	AB
11	DeRivi, Tanya, SCPPA	SCPPA Comments on March 2018 CnT Workshop	1st Workshop	2018-03-16 10:40:43	AB
12	Olson, Jessica	Comments from Honeywell International Inc.	1st Workshop	2018-02-16 10:56:07	AB

Approach to Current Rulemaking

- Continue market design for steady, predictable, increasing floor price, with a declining cap, to prompt investments and actions to achieve mid- and long-term GHG reductions
- Carbon price signal should conform to legislation and maintain integrity of the pre-2021 period of the Program
- Avoid penalizing covered entities in response to early action to reduce GHGs or investments in allowances
- Maintain and continue to attract linkage partners
- Maintain benefits of Program's market features
 - Cost-effective through opportunities to identify lowest GHG reductions across economy
 - Compliance flexibility through trading and multiyear compliance periods
 - Minimize leakage

Allowance Allocation: Post-2020 Cap Adjustment Factors (1 of 3)

- To evaluate eligibility for an alternate cap adjustment factor (CAF), all covered industrial sectors in Table 8-1 were evaluated using data available for 2012-2015
 - Criteria 1: Process emissions > 50% of the total emissions
 - Aggregated facility-specific Mandatory Reporting Regulation data at the sector level
 - Criteria 2: Emission intensity > 5,000 MTCO₂e/\$M value added
 - Used publically available national data for 6-digit NAICS codes
 - Direct emissions: US EPA GHG emissions reporting
 - Indirect emissions: US Census Annual Manufacturing Survey
 - Value added: US Census Annual Manufacturing Survey
 - Criteria 3: High leakage risk classification
 - Refers to the current classification specified in Table 8-1 of the Regulation

Allowance Allocation: Post-2020 Cap Adjustment Factors (2 of 3)

- Cement and lime manufacturing are eligible for an alternate CAF at the NAICS 6-digit classification
- No covered nitrogenous fertilizer manufacturers after 2017
- Coke calciners approached staff to suggest that NAICS 6-digit classification not disaggregated enough to characterize specific manufacturing activities at their covered facilities
 - Coke calcining is included in NAICS code 324199: All Other Petroleum & Coal Products Manufacturing
 - Staff agreed that NAICS code 324199 aggregates many different manufacturing activities
 - Staff evaluated coke calcining-specific data provided stakeholders
- Staff will review manufacturing activity-specific data if stakeholders demonstrate that the NAICS 6-digit classification does not represent the activities conducted at the covered industrial facilities

Allowance Allocation: Post-2020 Cap Adjustment Factors (3 of 3)

- Criteria 1: Process emissions > 50% of total emissions (CBI)
- Criteria 2: Emissions intensity > 5,000 MTCO₂e/\$M value added
- Criteria 3: High leakage risk classification

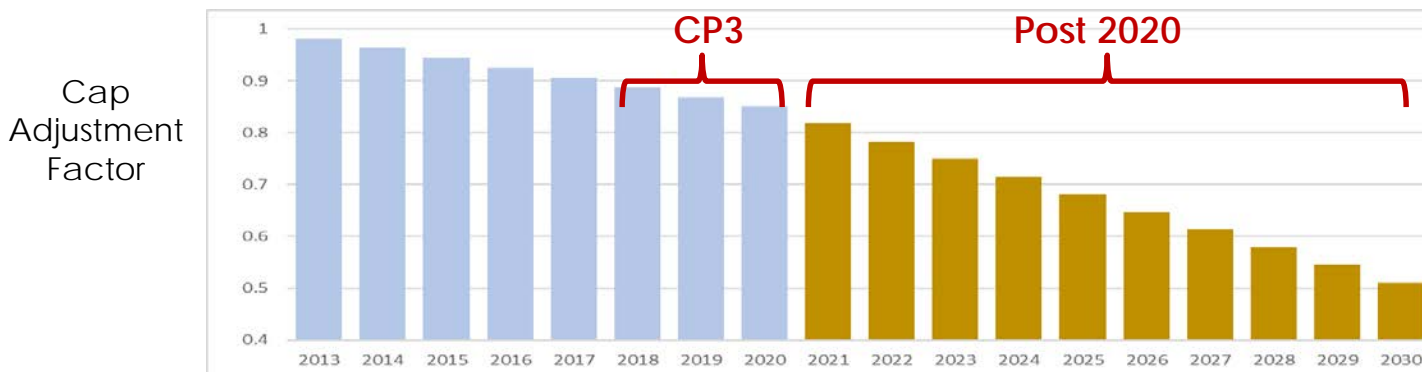
Sector	Criteria		
	Process Emissions	Emissions Intensity	Leakage Risk Classification
Cement Manufacturing	√	17,885	High
Lime Manufacturing	√	19,142	High
Coke Calcining	√	> 5,000 MTCO ₂ e	High

Stakeholder Comments: CP3 Assistance Factors (AF)

- Most commenters support move to 100% AF 2018-2020 (CP3) and commented that maintaining lower AFs:
 - Would result in significantly higher compliance costs which, paired with increasing difficulty meeting compliance obligations post-2020, makes reduction and efficiency investment more difficult
 - Would be disruptive to affected covered entities
 - Would increase leakage risk due to competition from entities not subject to carbon costs
- Some commenters support maintaining reduced CP3 AFs, and commented that raising AFs to 100%:
 - Is not included in AB 398
 - Would result in windfalls to covered entities
 - Would delay investments in reducing emissions

Allowance Allocation: Industry Assistance

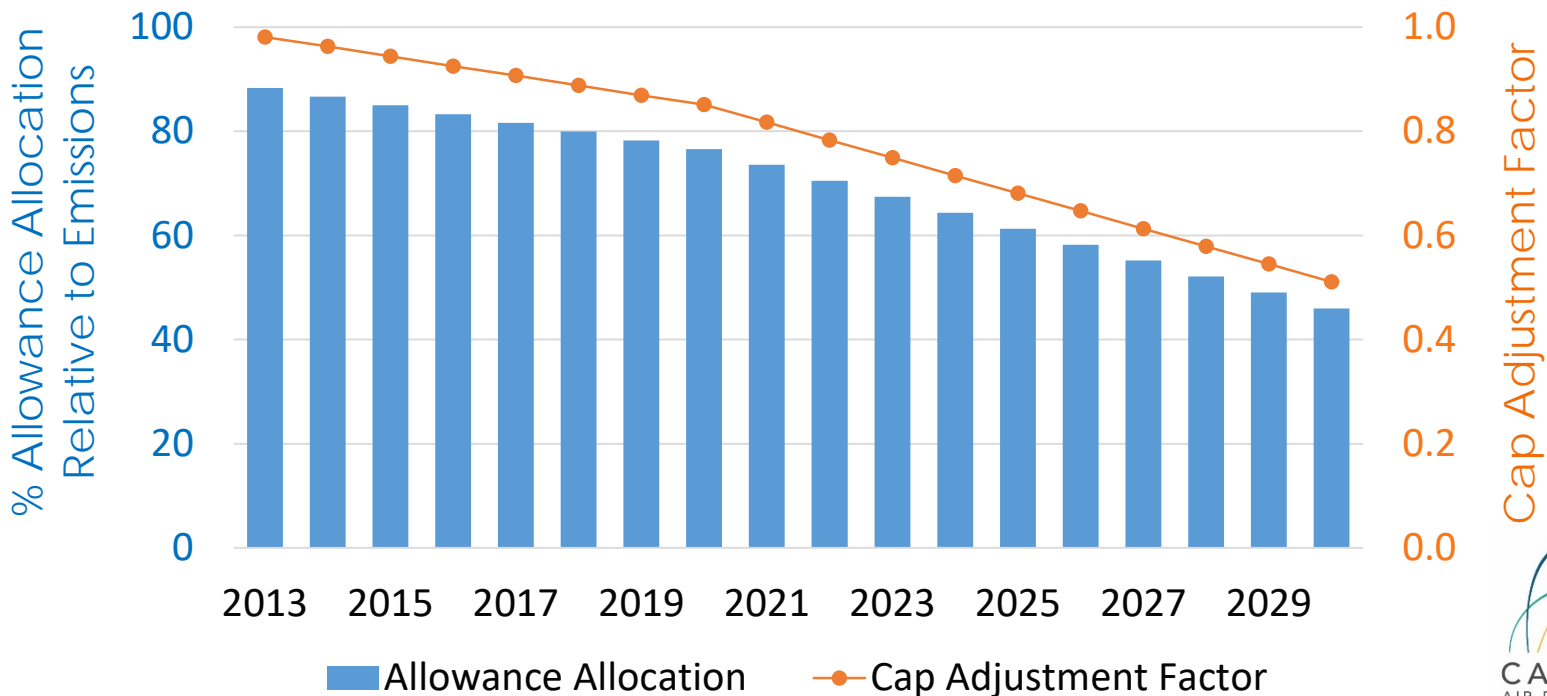
- ▣ Objectives of industry assistance
 - ▣ Minimize risk of emissions leakage
 - ▣ Help industrial sectors to smoothly transition to period of steeper cap declines
- ▣ Staff evaluating how to smooth transition to post-2020 period
 - ▣ Allowance budget and CAF decline faster in 2021 – 2030
 - ▣ 2013 - 2020: About 2% per year (15% cumulative)
 - ▣ 2021 - 2030: About 4% per year (36% cumulative)



Allowance Allocation: Decline due to Benchmarks and Cap Adjustment Factor

- By 2030, most industrial sectors will receive <50% of allowances needed to cover compliance obligations

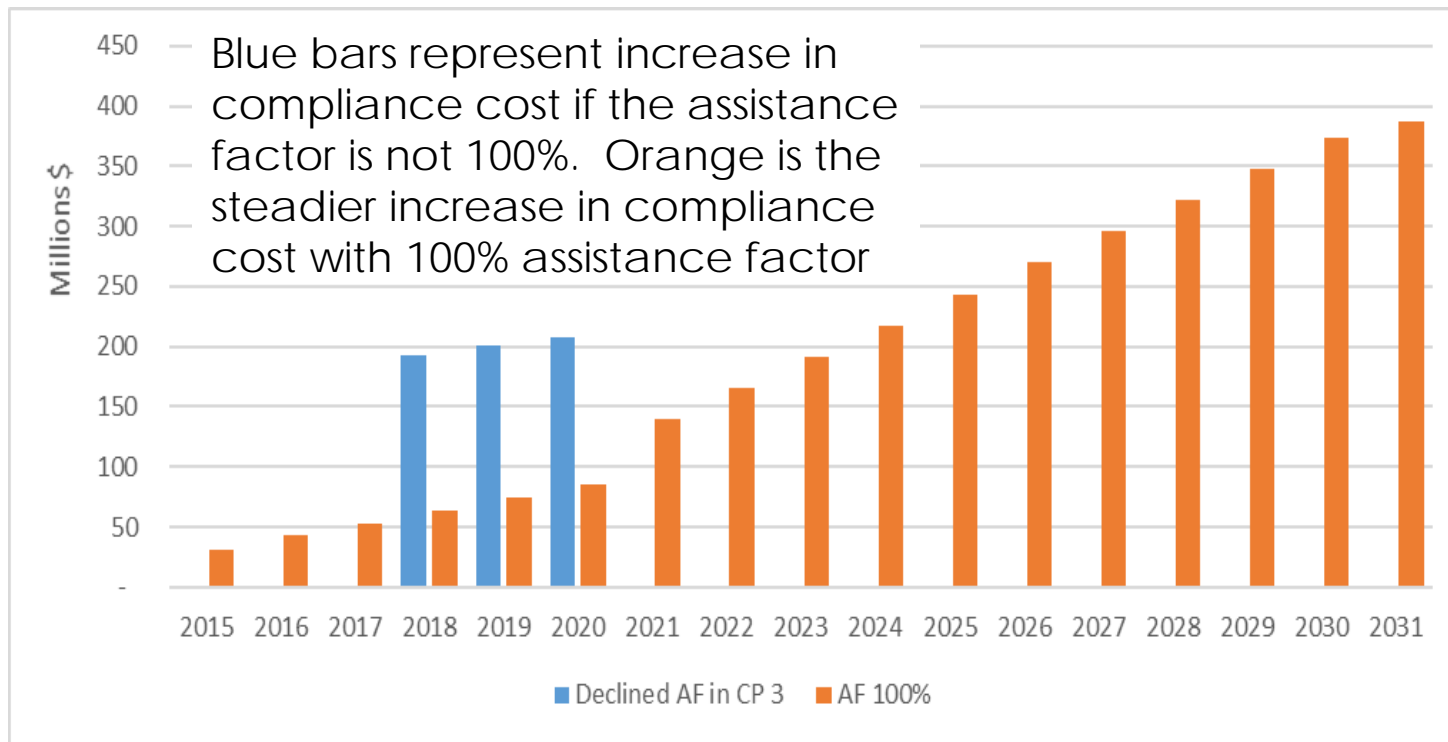
Effect of Benchmark Stringency and Declining Cap Adjustment Factor on Allocation



Allowance Allocation: Smoothing Transition into Post-2020 Period

- Continued staff analysis of CP3 assistance factors

Estimated Compliance Cost for Sectors in Medium and Low Leakage Risk Categories



- Assumes \$15 allowance value for 2015 – 2020 and \$20 for 2021 – 2023
- Uses 2016 emissions as a proxy for emissions in 2017 and beyond

Allowance Allocation: Example

- ▣ Petroleum refining sector
 - ▣ Largest covered industrial sector with medium leakage risk
 - ▣ Refineries incur compliance obligations for both on-site emissions and for emissions from supplied transportation fuels
 - ▣ There is no allocation for supplied transportation fuel emissions
 - ▣ Average refinery faces a 10.8 million MTCO₂e compliance obligation annually, and allocation covers ~15% of that

Allowance Allocation: Modifications to Energy-Based Allocation

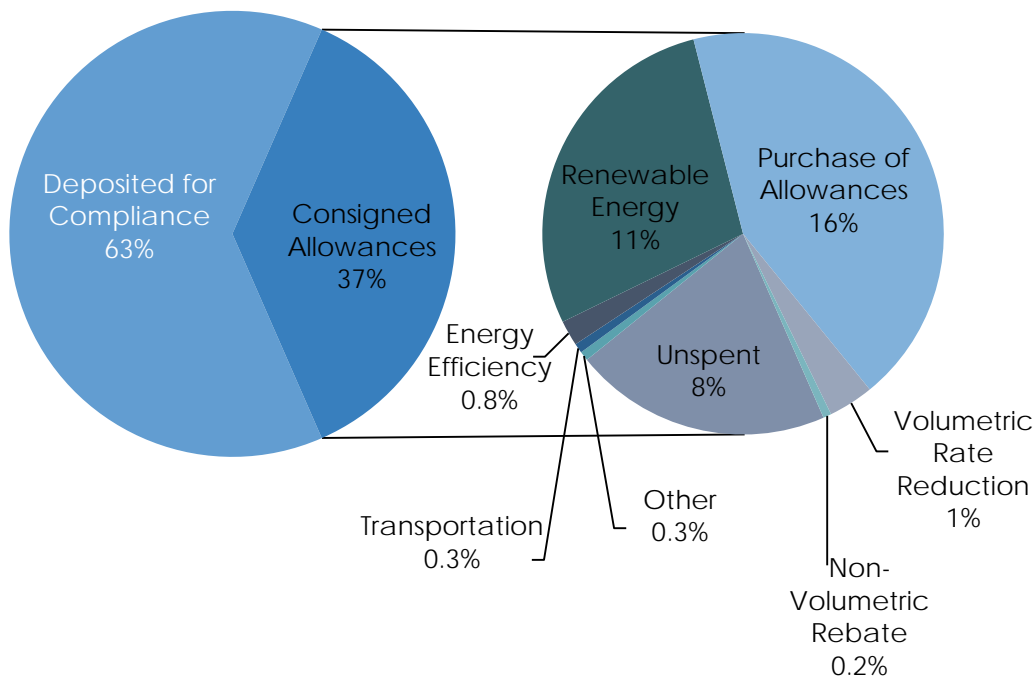
- A CP3 true-up mechanism may be needed to accommodate potential changes to CP3 assistance factors
 - For vintage 2020 allowance allocation, provide true-up allowances to entities with low and medium leakage risk classification if the CP3 assistance factors increase from 50% and 75% to 100%
 - This will allow for true-up of vintage 2018 and 2019 allocation calculated using the lower assistance factors
- Add process emissions to baseline allocation calculation
 - Address the leakage risk associated with process emissions
 - Maintains consistency with product benchmark development
 - $A_t = (Steam \times B_s + Fuel \times B_f + \underline{ProcessEmissions} - e_{sold} \times B_e) \times AF \times c$

Allowance Allocation: Uses of Allowance Value by POUs and Natural Gas Utilities

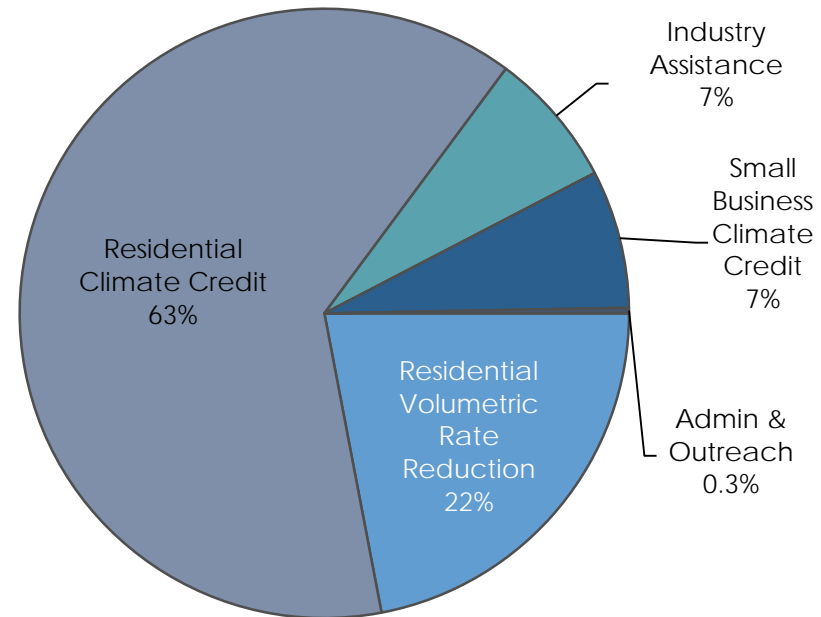
- February concept paper proposed clarifications to allowable uses of allocated allowance proceeds
 - Identifies allowable uses, focusing on GHG reducing activities and non-volumetric ratepayer rebates
 - Maintains flexibility while addressing requests for clarification on allowable uses of allocated allowance value
- Staff requests additional feedback on:
 - Methods to increase clarity of allowed uses and oversight, including quantification methods and purchase of allowances using auction proceeds
 - Additional GHG reducing uses, criteria, or reporting information that should be included
 - Methods to quantify transportation-related load growth emissions (quantifiable & verifiable to allocation standards)

Allowance Allocation: EDU Past Uses of Allowance Value

**POU allowance value uses
2013-16: ~ \$1.5 Billion**



**IOU allowance value uses
2014-16: ~ \$3 Billion**



Cap-and-Trade Program Summary of Vintage 2014–2016 Electrical Distribution Utility Allocated Allowance Value Usage, Available at: <https://www.arb.ca.gov/cc/capandtrade/allowanceallocation/edu-v2014-2016-allowance-value-report.pdf>

Cost Containment Design Features

- ▣ CARB staff asked for stakeholder comments on various cost containment design features presented in February concept paper
 - ▣ Price ceiling range
 - ▣ Price tiers (“price containment points” in AB 398) range
 - ▣ Distribution of allowances to price ceiling or tiers
 - ▣ 52.4M allowances allocated to post-2020 Reserve in 2016 amendments
 - ▣ 23M allowances that represent two percent of 2026-2030 budgets to reflect change in offset limits from four percent to six percent
 - ▣ Allowance banking

Stakeholder Comments: Cost Containment Design (Higher Prices)

- Some stakeholders want to see higher prices through reduction of allowance supply
 - Set post-2020 caps lower
 - De-value pre-2021 allowances in private accounts in post-2020 period
 - Place expiration dates on banked allowances
 - Retire 52.4M and 23M allowances or allocate to ceiling
- Some stakeholders argued for price ceiling in 2030 near high end (\$147 in 2015 dollars) or above proposed range, higher range tier prices
 - Cited complementary measures in Scoping Plan that would cost more than \$147 per metric ton
 - Facilitate price discovery
 - Tier prices should be above social cost of carbon

Stakeholder Comments: Cost Containment Design (Lower Prices)

- Most commenters want lower allowance prices and price ceiling to backstop compliance costs
 - Set price ceiling value at \$50 in 2021
 - No additional rules on banking or changes to caps
 - Focused on affordability and political sustainability and attractiveness of Program to linkage partners
 - High ceiling would add uncertainty and increase leakage risk
 - Do not redistribute 23M allowances from 2026-2030 budgets
- Some stakeholders advocate for lower price tiers and/or tiers equally spaced between price floor and ceiling
 - Distribute 52.4M allowances to price tiers
 - Allow for two distinct “speed bumps” to protect consumers and signal need for more abatement

Staff Observations: Cost Containment Design Stakeholder Comments (1 of 2)

- Reducing supply may lead to higher compliance costs than needed to achieve the 2030 target and allowance price may hit the price ceiling sooner
- At price ceiling, Program functions like a higher-cost carbon tax
 - No trading of compliance instruments
 - Higher prices per metric ton
 - Higher potential for leakage
 - Higher costs to the economy and consumers
- Puts existing and future linkages at risk

Staff Observations: Cost Containment Design Stakeholder Comments (2 of 2)

- Too many allowances at low prices could mute the carbon price signal
 - May undermine incentives for GHG reductions needed to achieve 2030 target
 - Affects stringency and risks existing and future linkages
- If prices are too low, Program functions like a lower-cost carbon tax

Stakeholder Comments:

“Overallocation”

- The term “overallocation” is used to reference the fact that covered emissions have been lower than the annual caps
- Some believe the unused pool of allowances will hinder ability to achieve the 2030 target
- Stakeholder suggestions to address concerns:
 - Set post-2020 caps lower
 - De-value pre-2021 allowances in private accounts in post-2020 period
 - Place expiration dates on banked allowances

Staff Observation: “Overallocation”

- GHG emissions are lower than the cap and the State is on track to achieve 2020 target early
- The Cap-and-Trade Program is working as intended
- The relationship between GHG reductions and carbon price requires a more thoughtful and in-depth evaluation—not simply supply vs. demand
- Avoid penalizing covered entities in response to early action to reduce GHGs or investments in allowances
 - Would incent entities to only do minimum
- Avoid introducing future allowance scarcity that will increase prices today for compliance and consumers

CARB Assumptions: Unused Allowances

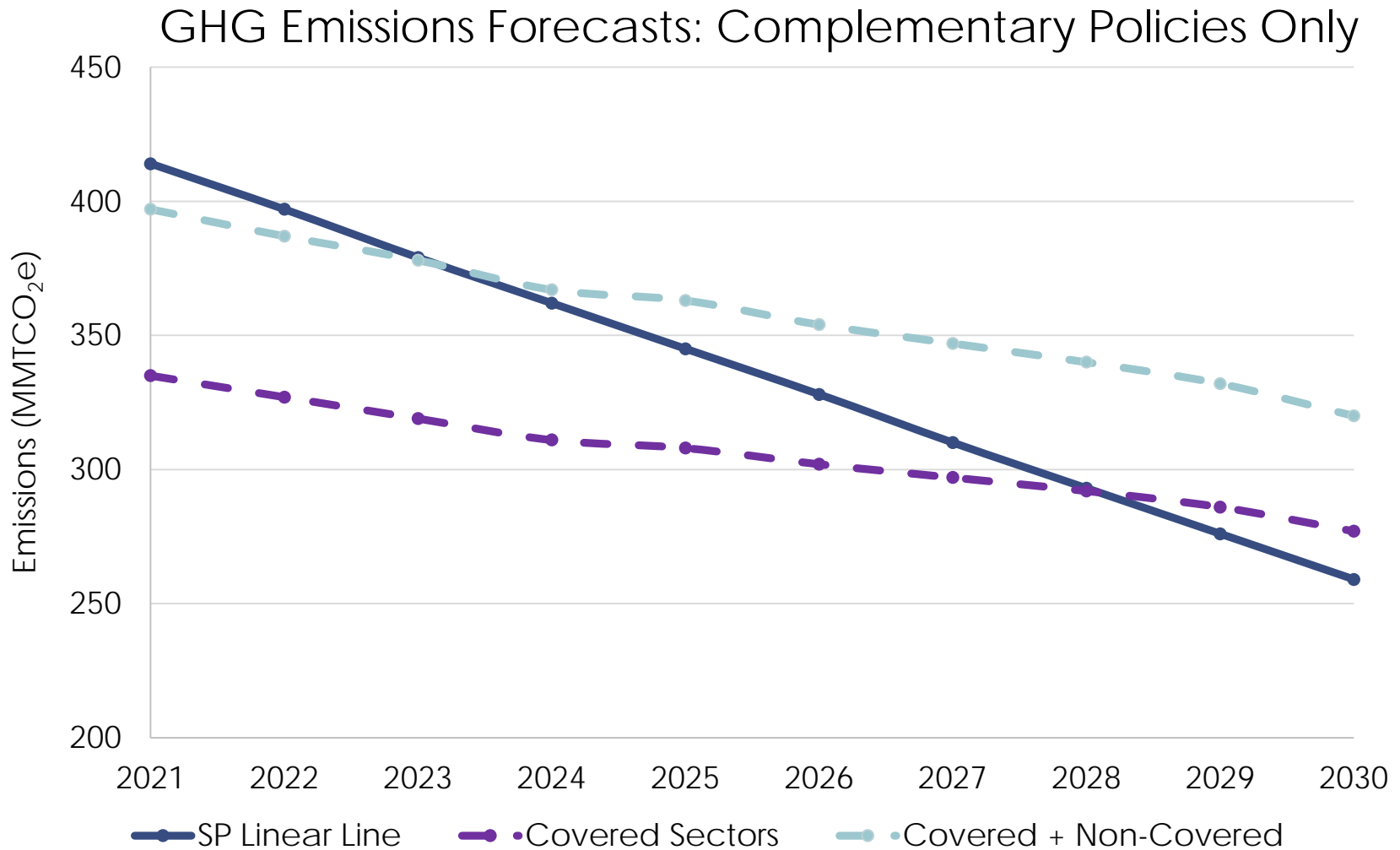
- External commenters estimate 200 million unused allowances between 2013 through 2020
- CARB staff used this value as starting point and adjusted this value to reflect existing Program
 - Removal of unsold auction allowances to Reserve
 - Set-aside for Voluntary Renewable Electricity Program
 - Retirement to ensure environmental integrity in situations of bankruptcy
- Adjusted unused allowances ~150 million
- Several unknowns that would further change quantity of unused allowances
 - Linkages, Energy Imbalance Market, amount in private accounts versus State accounts

Holding Limits

- Holding limits limit how many allowances any entity can own
- Protect against market manipulation
- Decrease each year in proportion to annual caps
- Most entities have financial constraints preventing them from holding up to the full limit
- Market monitor, who provides market oversight, and staff have not observed any evidence of financial windfalls

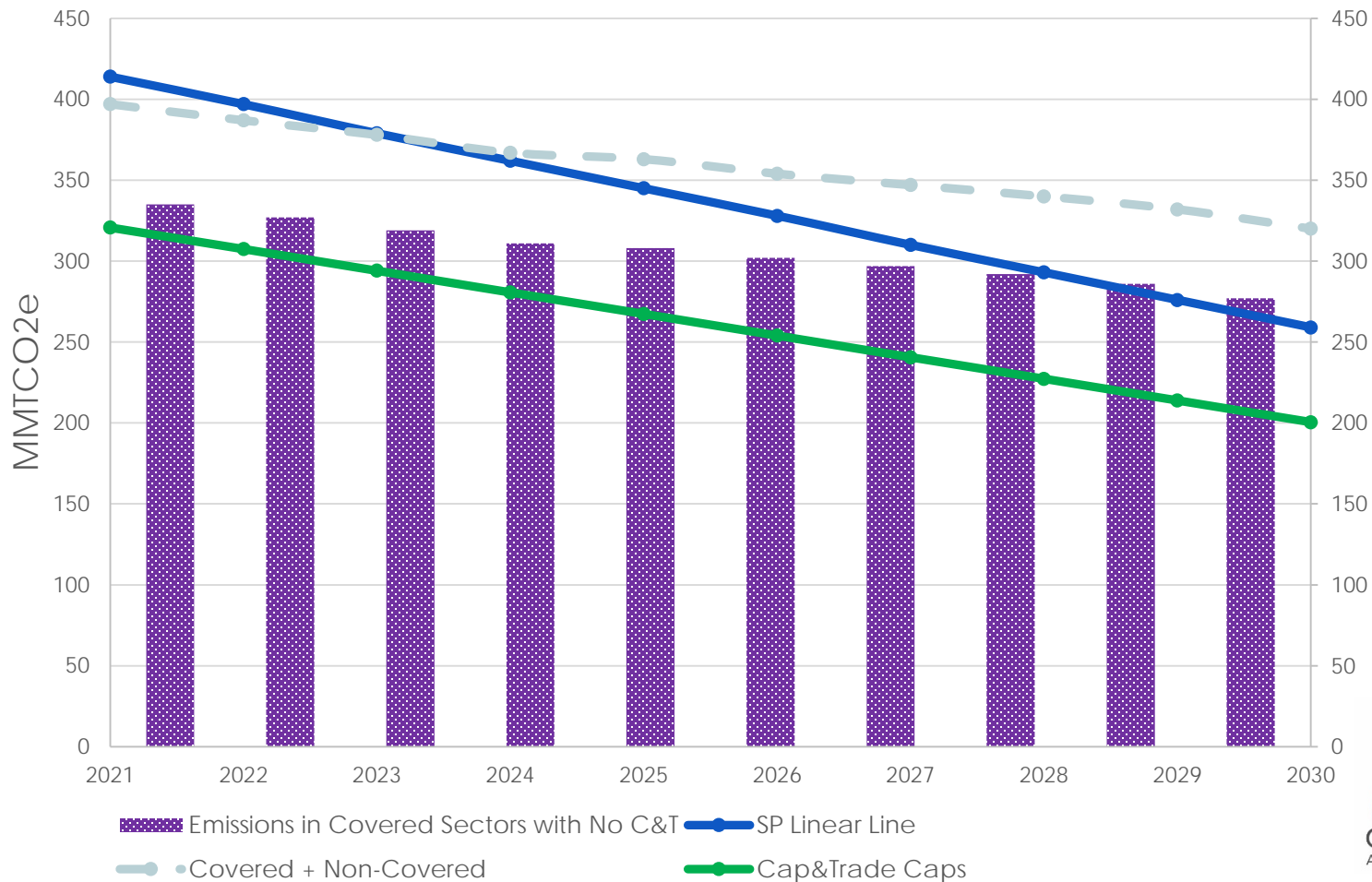
Year	Holding Limit
2018	15,717,500
2019	15,217,650
2020	14,715,200
2021	14,302,950
2022	13,848,950
2023	13,392,700
2024	12,936,200
2025	12,482,200
2026	12,025,950
2027	11,569,475
2028	11,115,725
2029	10,659,225
2030	10,202,975

Scoping Plan Public Data



Post-2020 Caps in Current Regulation

Scoping Plan Emissions Estimates and
Cap-and-Trade Post-2020 Caps



Evaluation of Post-2020 Caps

- Assume post-2020 emissions equal allowances and offsets available

	Case A (MMT)	Case B (MMT)
Covered emissions without Program (PATHWAYS)	3,054	3,054
Post-2020 caps (excluding Reserve)	2,532	2,532
Unused v2013-2020 allowances available	0	150
Offset credit usage*	96	103
Total compliance instruments (or total emissions)	2,628	2,785
Total reductions from Cap-and-Trade 2021-2030	426	269

- In either case, the Program achieves reductions needed to meet the 2030 target, but compliance costs are higher in Case A

* Both cases assume no APCR or post-2020 Reserve allowances used and an offset usage rate of 3% for 2021-2025 and 4.5% for 2026-2030

Addressing Uncertainty

- Sources of uncertainty must be considered when discussing unused allowances and post-2020 caps
 - Projections of future covered emissions
 - performance of other GHG programs
 - population and economic growth projections
 - Usage rate and availability of offset credits
 - Abatement opportunities in linked jurisdictions
 - Quantity and timing of unsold allowances moving into the Reserve after eight auctions
 - Allowance retirements for environmental integrity

Summary: Post-2020 Caps Analysis

- Post-2020 caps are currently set in the Regulation as a decreasing straight-line trajectory from 2020 to 2030
- Analysis indicates caps will limit emissions from covered sectors, even in the context of 150 million vintage 2013-2020 allowances carrying forward
- Program includes a feature to address uncertainty when demand is low that has proven to be effective
 - Transfer of unsold auction allowances to Reserve after 8 auctions

Staff Request for Comment

- ▣ Additional areas of uncertainty?
- ▣ Additional abatement opportunity and cost data staff should review?
- ▣ Comments on methodology
- ▣ Comments on assumptions

Stakeholder Comments: Direct Environmental Benefits (1 of 2)

- AB 398 states that a percentage of ARB offset credits surrendered for compliance must provide direct environmental benefits to the State (DEBS)
- Vast majority of stakeholders support using the precise statutory language in the amended Regulation
 - All projects located in California should automatically meet the DEBS standard
 - Out-of-state offset projects can still have DEBS in California if they can demonstrate they meet DEBS standard
 - Find a way for ODS projects to meet the DEBS standard
- A small number of stakeholders asserted that not all in-state projects could meet DEBS standard

Stakeholder Comments: Direct Environmental Benefits (2 of 2)

- Stakeholders were split on whether explicit criteria should be developed for DEBS, noting that:
 - Explicit criteria would leave the Regulation subject to legal challenge and may be difficult to define due to the diversity of offset projects
 - Explicit criteria are necessary to assure conformance with the intent of the statute
- Most stakeholders did not support retroactively applying DEBS to offset credits issued prior to 2021
 - Concerned about financial repercussions to existing projects, and applying a standard not in place when project was developed
 - Support for exempting from or automatically meeting DEBS standard for previously issued offset credits
- Stakeholders were also in support of defining watersheds for DEBS and adopting additional offset protocols

Stakeholder Proposal: Option for Metric Tons at Price Ceiling

- Commenters proposed the following for supply of metric tons for price ceiling:
 - CARB preparing a list of eligible projects
 - Instant eligibility of instruments generated through any offset protocols
 - Developing multiple procurement methodologies to obtain eligible instruments sold from the ceiling mechanisms, identify conditions for pre-contracting, complete projects within an established timeframe
 - Identifying natural and working lands as preferred source for one-for-one reductions and allow advanced contracts prior to 2021

Aligning CARB GHG Accounting Policy and the Energy Imbalance Market (EIM)

- Under AB 32, CARB must account for the total annual GHG emissions in the State, including all GHG emissions from the generation of electricity delivered to and consumed in California, whether that electricity is generated in-state or imported
- ARB is currently using a “bridge solution” because the design of EIM does not account for the full GHG emissions experienced by the atmosphere from imported electricity under EIM and results in emissions leakage
- Any staff proposal will only address EIM transactions, not day-ahead market transactions or grid regionalization

EIM History and Current Status

- Beginning in 2016, CAISO and CARB coordinated to address GHG accounting inaccuracies
 - CARB initially proposed to assign a compliance obligation to California entities purchasing EIM electricity (“EIM Purchaser”)
 - CARB implemented interim “bridge solution,” retiring State-owned allowances in proportion to EIM Outstanding Emissions in anticipation of implementing a Two-Pass Solution at a later date
- In late 2017, CAISO conducted tests of the existing EIM and Two-Pass Solution
 - These tests showed the Two-Pass more fully captured emissions serving California load; however, stakeholders identified issues
- In early 2018, CAISO released a new proposal that addresses some, but not all GHG accounting issues

Potential 2018 EIM Regulatory Options

- Although CAISO's latest proposal addressed some GHG accounting issues, CARB must still ensure that it is accounting for all GHGs from electricity serving California load
 - The bridge solution was always intended to be temporary
- Staff is re-evaluating the "EIM Purchaser" option, where the EIM Outstanding Emissions compliance obligation would be assigned directly to California EIM Purchasers
 - Any proposal will concern only EIM transactions and not the day-ahead market or grid regionalization
- Questions for stakeholders:
 - Are there recommendations for how CARB might implement an EIM Purchaser approach for California entities?
 - Are there any other regulatory options staff should consider?

Topics for Ongoing Consideration

- Staff invites input on the following potential topics for regulatory amendment consideration:
 - Revising invalidation provisions to further narrow types of activities or actions that could result in an invalidation
 - Revising offset project activities within scope of regulatory compliance evaluation list to cover all project types, and further clarify assessments and timing of noncompliance
 - Alternative cap adjustment factor for certain industrial sectors
 - CP3 assistance factors
 - Use of allocated allowance value
 - Design of cost-containment features
 - Approach for unused vintage 2013-2020 allowances and post 2020 caps
 - Methods for assessing compliance obligations for EIM emissions

Public Engagement

- ▣ Additional Workshop(s)
- ▣ Regulatory drafts
- ▣ Formal rulemaking process
- ▣ CARB staff will use due diligence to ensure all market influencing information is made available to all stakeholders at the same time
- ▣ Join Cap-and-Trade list serve on CARB website

Next Steps and Tentative Schedule

- ▣ Written comments may be submitted until 5 pm (PDT) Thursday, May 10, 2018, at this site:
<http://www.arb.ca.gov/cc/capandtrade/meetings/meetings.htm>
- ▣ CARB evaluating convening informal market design reviewers to support staff regulatory development process
- ▣ Public workshops first half of 2018
- ▣ Tentative first Board hearing Fall 2018
- ▣ Tentative final Board hearing December 2018