



# *California's Cap-and-Trade Program*

&

# *Greenhouse Offsets for CEQA Compliance*



**AIR QUALITY  
CONSULTANTS**  
ENVIRONMENTAL CREDIT BROKERAGE  
& ENVIRONMENTAL ENGINEERING



# AIR QUALITY CONSULTANTS

Founded in 1984, AQC has been providing emissions brokerage, environmental permitting, and compliance services to a variety of industrial and commercial clients throughout the state of California.

## Emissions Brokerage

- Regional Emissions Markets
  - Emission Reduction Credits
  - RECLAIM Trading Credits
- Greenhouse Gas Markets
  - California Carbon Allowances
  - California Carbon Offsets
  - Greenhouse Gas Offsets for CEQA

## Consulting Services

- AB 32 Strategic Management
- Regional Emissions Credit Management
- ERC Emissions Appraisals
- Emissions Quantification/Qualification
- Risk Review and Management Assessments
- Environmental Due Diligence & Liability
- Title V
- Water Quality/Stormwater

## Compliance Software

- VOC- CALC
- New and Upgrade Software Installations
- Software Support Services
- Software Training Services

# LEGISLATIVE FRAMEWORK

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- Executive Order S-3-05 – GHG reductions of 80% below 1990 levels by 2050
- AB 32 - In 2006, the Global Warming Solutions Act was passed, creating a host of measures to reduce greenhouse gases in CA to 1990 levels by 2020
- AB 32 Scoping Plan – establishes an framework for the measures that will adopted to meet the state’s reduction goals; includes energy efficiency programs, renewable portfolio standard, and Low Carbon Fuel Standard
- Executive Order B-30-15 – GHG reductions of 40% below 1990 levels 2030



- AB 398 – Extends cap-and-trade regulations through 2030, establish compliance instrument taskforce, and independent market advisory committee
  - Cap-and-Trade amendments were signed by the OAL on October 1, 2017
    - Cap-and-Trade extension bill through 2030
    - Focus on Cost Containment Mechanisms
      - Establish a price ceiling post 2020
      - Allowances that are unsold in the auction after 24 months will become untrabable and move to the Reserve Auction
    - Extension of current free allowance methodology
    - Limits local Air District's from regulation GHG's
    - New limits on offset usage

# PROGRAM UPDATES

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- The program is implemented over 8 phases or compliance periods: 2013-2014 (phase 1); 2015-2017 (phase 2); 2018-2020 (phase 3); 2021-2022 (phase 4); 2023-2024 (phase 5); 2025-2027 (phase 6); 2028-2029 (phase 7); 2030-2031 (phase 8)
- In 2014, Quebec linked their GHG program with California's and have successfully hosted joint auctions, and Ontario had merged with the program, and has recently announced that they will be leaving the program.

# COMPLIANCE INSTRUMENTS



## ALLOWANCES

Allowances are issued by the ARB

Allocated to industry or through ARB-hosted quarterly auctions

Irrevocable when used for compliance

Allowances have vintages associated with them that restrict usage

## OFFSETS

Offsets can only come from projects under approved protocols

Quantitative usage limit of 8%

Vintage-less and can be used at anytime for compliance

Buyer Liability Risk



# MEETING COMPLIANCE

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- Each verified emission reported = 1 compliance instrument
- Annual and triennial compliance obligations
  - Deadline for compliance is November 1<sup>st</sup> of the year following – Ex. 30% of 2018 reported emissions had to be in Compliance Account November 1, 2019
- No borrowing from future years - Must be from the allowance budget year within or before
  - For example, a vintage 2013 allowance may be used for compliance for any compliance year throughout the program, you can procure a 2019 compliance instrument, but cannot use it for compliance until 2019 and after
  - Limited use exemption for “true up” allowances, allowances purchased from the Auction Reserve, and offsets
  - Allowances purchased from the Allowance Price Containment Reserve Sale

# ALLOWANCE/OFFSET MARKETS



- Auction – CCAs – Primary Market
  - 4 Quarterly Auctions
  - Auction floor price increases by CPI + 5%
- Offsets
  - OTC Contract with developer
  - Investor
- California Carbon Allowances - Secondary Market
  - OTC Agreement with Seller
  - Exchange Traded Futures Contract on ICE
- Procurement Process

A.) Freely allocated

B.) Auction participation

C.) Procure in secondary market

Bilateral Contract

Exchange Trade  
– Futures contracts

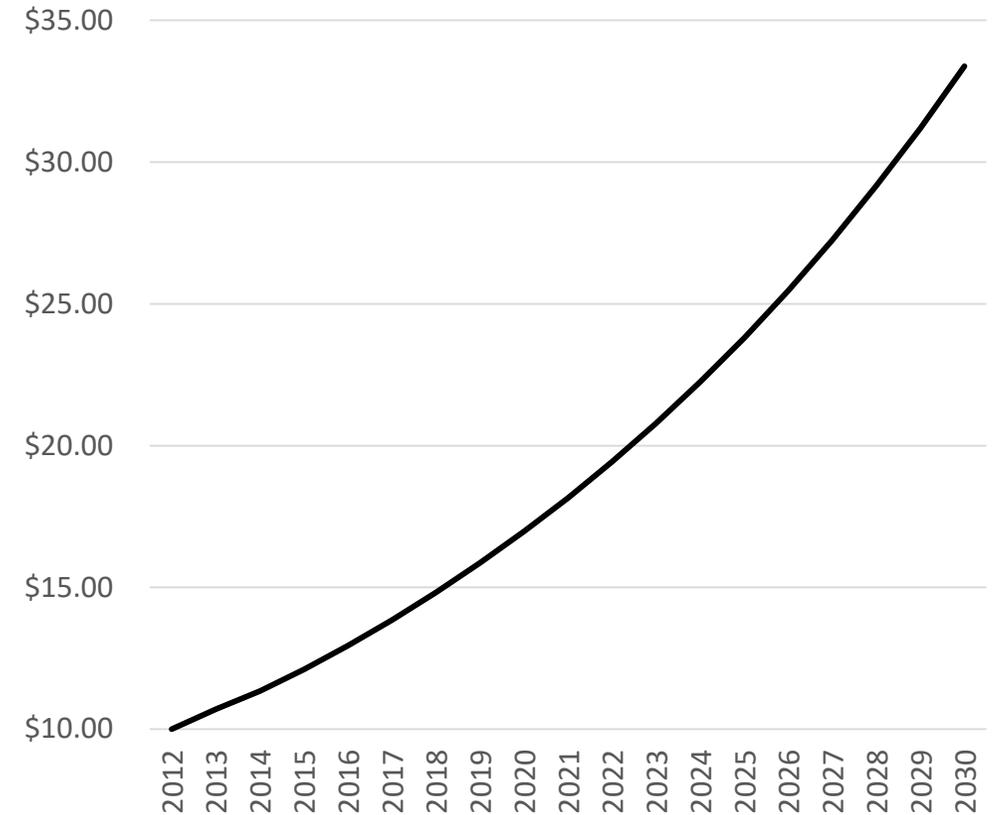
# AUCTION FORMAT



## ARB Hosted Quarterly Auction

Frequency	Quarterly Auction
Available for sale	Current vintage, allowances not sold in past auctions and advanced auction tons
Format	Single-round, sealed-bid, uniform price format, bid quantities of 1,000 allowances
Who can participate	Anyone
Floor Price (2018, 2021)	Currently \$14.53 2019 - \$~15.60
Floor Prices (2014+)	Increases every year by CPI+ 5%

## Floor Price Assuming 2% CPI + 5%

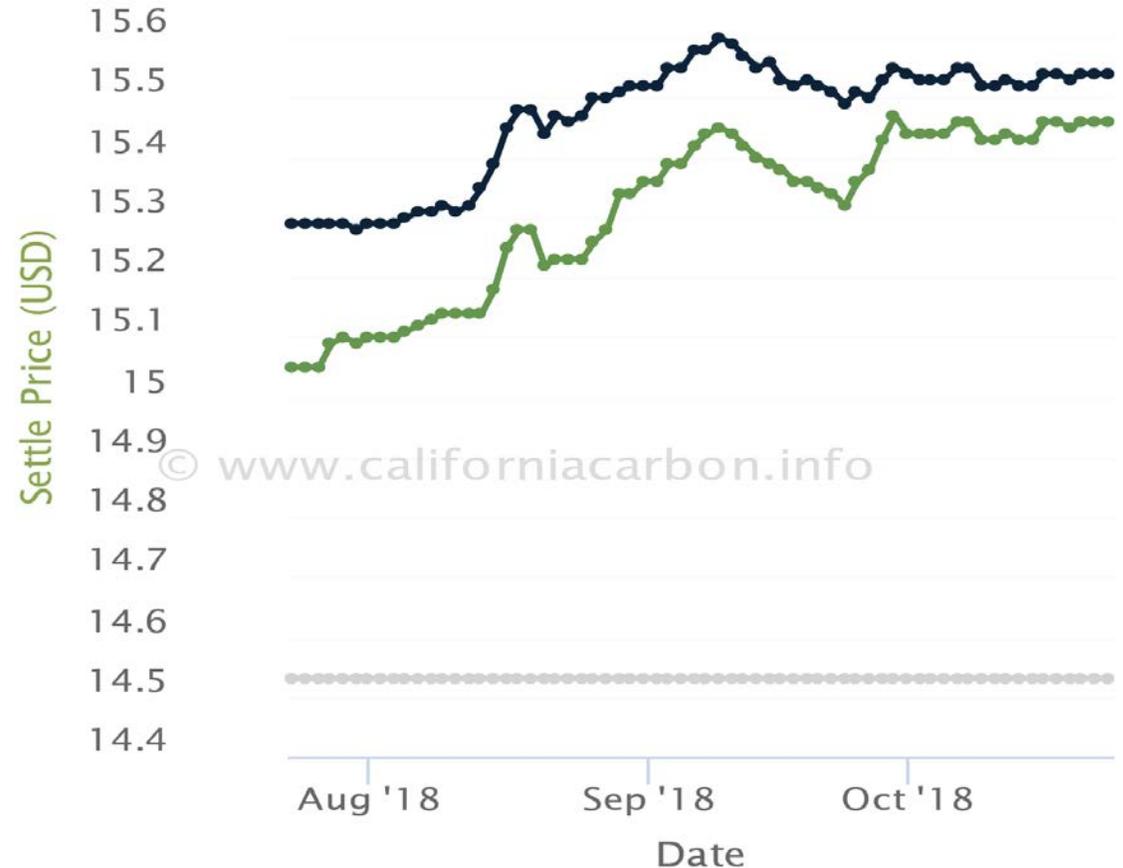


# ALLOWANCE PRICING



## Intercontinental Exchange ("ICE")

- Operates futures and over the counter markets
  - California Carbon Allowances – represent one metric ton of CO<sub>2</sub> having a vintage of any year
  - Liquid market that can be pointed to for pricing reimbursement
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- Vintage 2018 Spot  
~\$15.46/CCA
  - Vintage 2018 Dec 2018 ~  
\$15.54



# OFFSETS

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- CCO – Non – Guaranteed
  - Buyer takes liability risk
  - Payment occurs upon delivery into Buyer's CITSS Holding Account
  - 3-8 year invalidation period
  - Bilateral Agreement
  - Specified delivery date
  - ~ \$ 12.00-\$13.50
- “Golden” CCO
  - Seller takes liability risk and replaces with an offset/allowance if invalidated
  - Payment occurs upon future delivery into Buyer's CITSS Holding Account
  - Specified delivery dates
  - ~\$14.50 - \$14.68

# POST 2020 AMENDMENTS



- Post 2020 Allowance Budget
  - Regardless of the allocation methodology, an industrial will receive 50-75% of what they received in the start of the program.
  - More aggressive declining cap – 5% annually

Compliance Period	Budget Year	Annual Allowance Budget (millions of CA GHG allowances)
4	2021	320.8
	2022	307.5
5	2023	294.1
	2024	280.7
6	2025	267.4
	2026	254.0
	2027	240.6
7	2028	227.3
	2029	213.9
8	2030	200.5
	2031	193.8

# POST 2020 AMENDMENTS

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- Offset Usage – Low-Cost Compliance Instruments
  - 4% for years 2021-2055 – 50% of which have to derive a direct benefit to the state of CA
  - 6% for years 2026 – 2030 – 50% of which have to derive a direct benefit to the state of CA
  
- Establishing New Benchmarks
  - As a response to changing the allocation methodology to EDUs
  - Industrials benchmarks may decrease allocations moving forward, and current post 2020 uncertainty

# POST 2020 AMENDMENTS



- Establishing a Price Containment Reserve Pool - Hedge
  - Current Reserve Sales Prices
    - 4% of annual allocation budget
    - Three Tiers starting at \$45 in 2013, expected third tier to be priced at ~\$65.00 in 2020
  - Considering moving to a 2 tier pricing structure increasing by CPI plus 5% annually, or a flat rate of \$60 above the auction floor price
  - 2021 value of the post 2020-reserve price was based on the third tier price at 2020, and the single reserve sales price will be \$84.46 by 2030
  - Putting 213 million into the post 2020 single reserve

Table 3. Current Regulation Distribution of Allowances

Tier	Current Reserve (through 2020)	Post-2020 Reserve (Single Tier)
	(millions)	
1	53.6 <sup>a</sup>	213.2 <sup>b</sup>
2	53.6 <sup>a</sup>	
3	53.6 <sup>a</sup>	
<b>Total Allowances</b>	160.8	213.2 <sup>b</sup>

<sup>a</sup> Includes an estimated 39M (divided equally in each tier) pre-2021 allowances that currently remain unsold at auction for greater than 24 months.

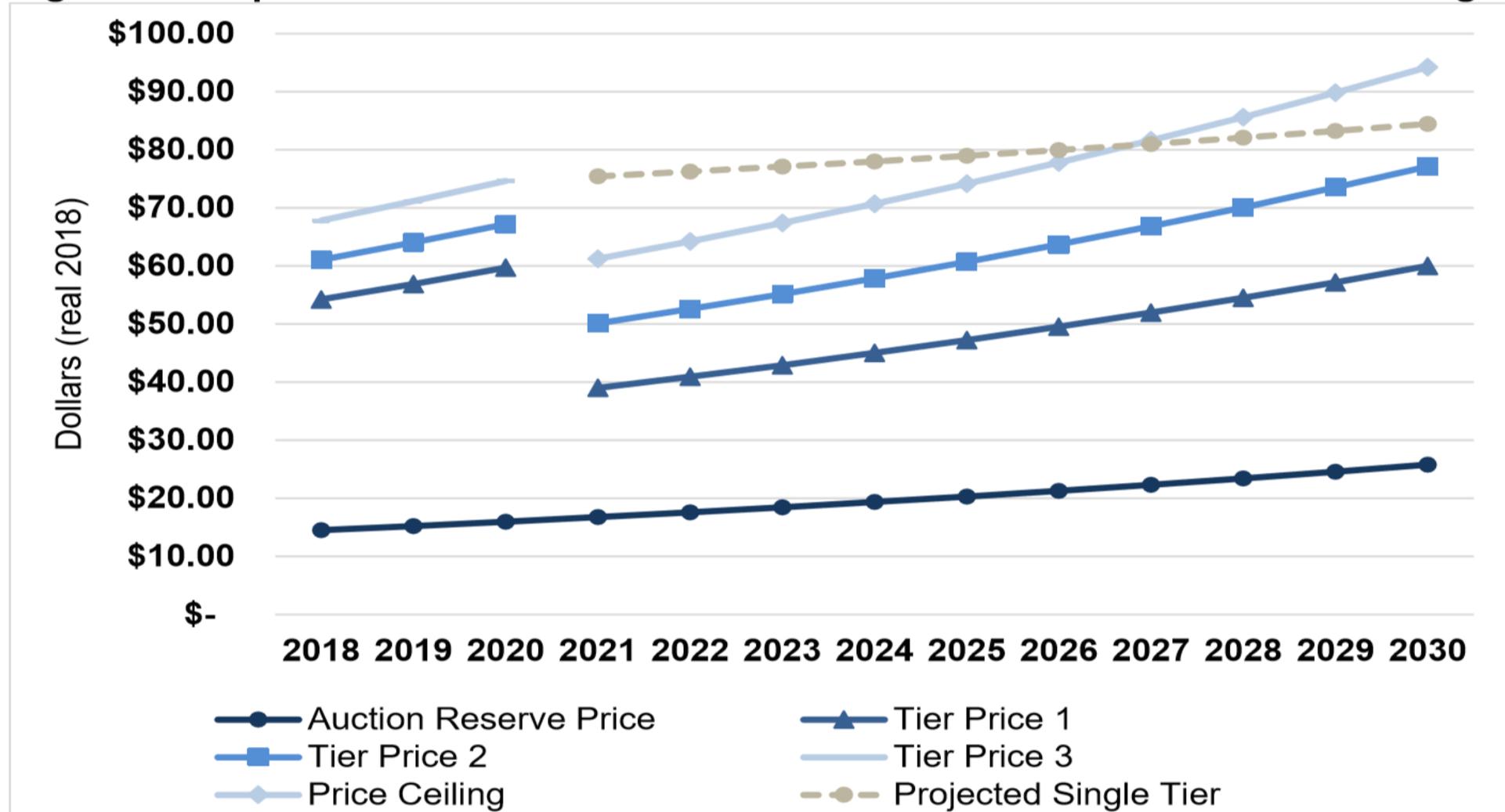
<sup>b</sup> Includes addition of 52.4M allowances designated to the Reserve by the existing Regulation starting in 2021.

Source: CARB staff estimates

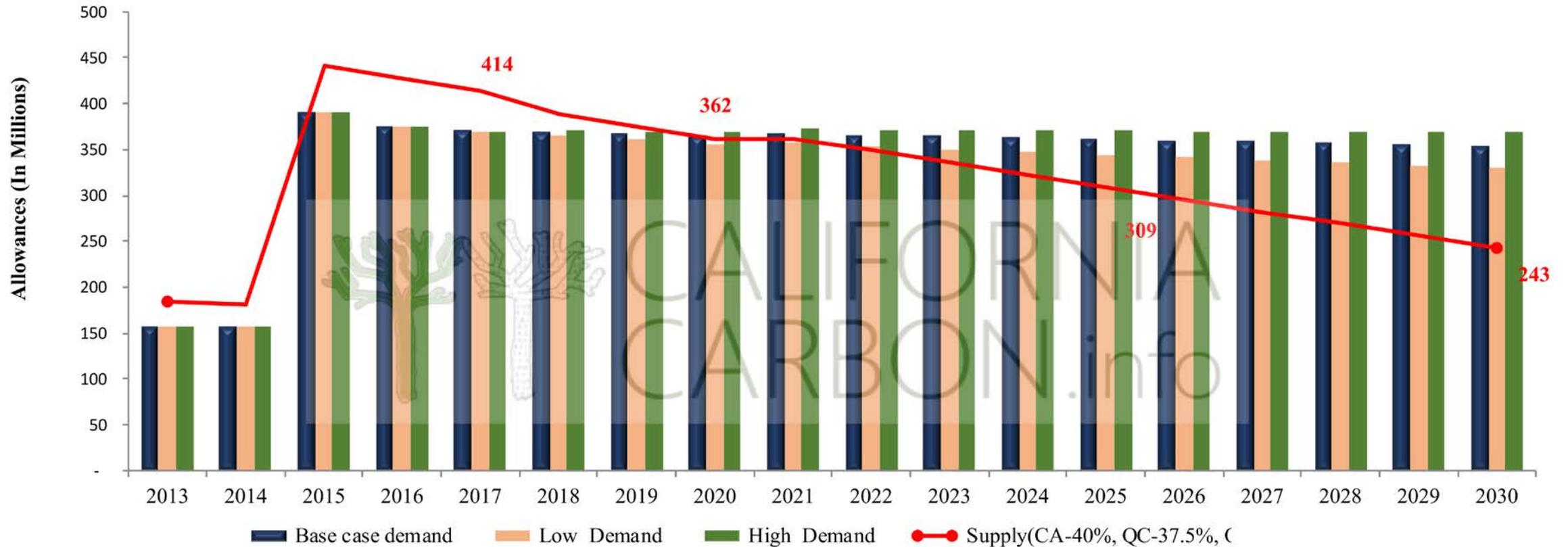
# POST 2020 AMENDMENTS



Figure C. Proposed Price Structure for New Post-2020 Reserve and Price Ceiling



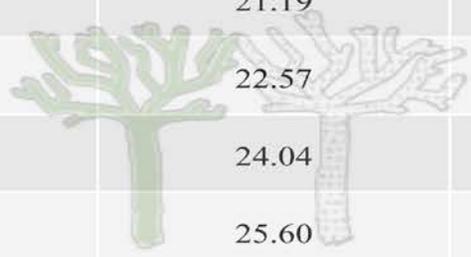
# WCI SUPPLY DEMAND ANALYSIS



# PRICE FORECAST



CCA Price Forecast (USD)					
Year	Price Reserve	Base Case	Low Emissions	High Emissions	Price Ceiling
2021	17.55	18.80	18.73	18.82	63.00
2022	18.69	19.97	19.88	20.02	67.10
2023	19.90	21.25	21.12	21.32	71.46
2024	21.19	22.66	22.46	22.79	76.10
2025	22.57	24.26	23.92	24.55	81.05
2026	24.04	26.26	25.53	44.72	86.32
2027	25.60	66.94	27.34	71.36	91.93
2028	27.26	80.71	29.65	80.39	97.90
2029	29.03	83.00	75.55	86.64	104.26
2030	30.92	92.66	89.54	93.38	111.04
Average Price (2021-2030)	23.68	45.65	35.37	48.40	85.01



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# STRATEGY CONSIDERATIONS

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- Primary vs. Secondary Markets
  - Cost of Capital
  - Ability to Post Collateral – Forward contracts
- Risk Tolerance
  - Offsets
- Stay abreast of regulatory and legislative changes
- Market behavior
  - Post 2020 considerations
  - Price increase prior to compliance deadline
  - Adjustments for increase in floor price
  - Investing in abatement technology, renewables, renewable natural gas

# PROCUREMENT OPTIONS



- Auction participation:
  - Procure compliance instruments in the quarterly auction
    - Post collateral – letter of credit, bond, or wire transfer
- Auction Index Product
  - An Agreement with a credit worthy entity to purchase a specified volume of CCAs at the auction clearing price plus a premium (\$.06-\$.10)
- Offset Optimization
  - Utilize the 8% offset usage limit
    - Opportunity for revenue creation when reimbursed at allowance price
    - Swap
    - Sell excess CCAs or Bank for future compliance demand
- Procure in Secondary Market
  - Lock in price and delivery of product
  - Diminishes the risk of being subject to auction clearing price

# GHG OFFSETS FOR CEQA



- The California Environmental Quality Act (CEQA) is a California statute that requires state and local agencies to identify the significant environmental impacts of their actions and to avoid or mitigate those impacts, if feasible. Generally the least expensive mechanism to meet compliance is to purchase greenhouse gas offset credits
  - *“Measures to mitigate the significant effects of greenhouse gas emissions may include, among others: • (3) Off-site measures, including offsets that are not otherwise required, to mitigate a project’s emissions” (CEQA Guidelines §15126.4(c)(3))*

# GHG OFFSETS FOR CEQA

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- Climate Action Reserve & American Carbon Registry Offsets
  - They're often less expensive than reducing emissions at the source or locally
  - High-quality, reasonably priced offsets available
  - Non-compliance credits are selling in the \$2-4 range
  - Offset 1 to 1
- SJVAPCD Carbon Exchange
  - The SJVCE program allows facilities to register actual GHG emission reductions to generate a SJVCE CO<sub>2</sub>e metric ton/year Emission Reduction Credit (“ERC”)
  - Current market prices have ranged from \$15-\$45 per ton
  - Offset on an annual basis – represent a perpetual offset

# *CONTACT INFORMATION*

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