

# Joint Cap-and-Trade Program Workshop

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NOVEMBER 16, 2023

*Environnement,  
Lutte contre  
les changements  
climatiques,  
Faune et Parcs*

Québec 



# Workshop Information: MELCCFP

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- Workshop materials are available at MELCCFP webpage:
  - [Assessment of the operating parameters of the Cap-and-Trade System |MELCCFP](#)
- To submit feedback to MELCCFP:
  - Comments must be submitted in writing before **December 15** using the web form available at [Assessment of the operating parameters of the Cap-and-Trade System](#).
  - The comments received will be published entirely on the web page following the pre-consultation period. Only the e-mail address will not be published.

# Workshop Information: CARB

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- Meeting materials and comment docket available at Cap-and-Trade Meetings and Workshops webpage
  - <https://ww2.arb.ca.gov/our-work/programs/cap-and-trade-program/cap-and-trade-meetings-workshops>
- Written feedback may be submitted to comment docket open through Friday, **December 15**

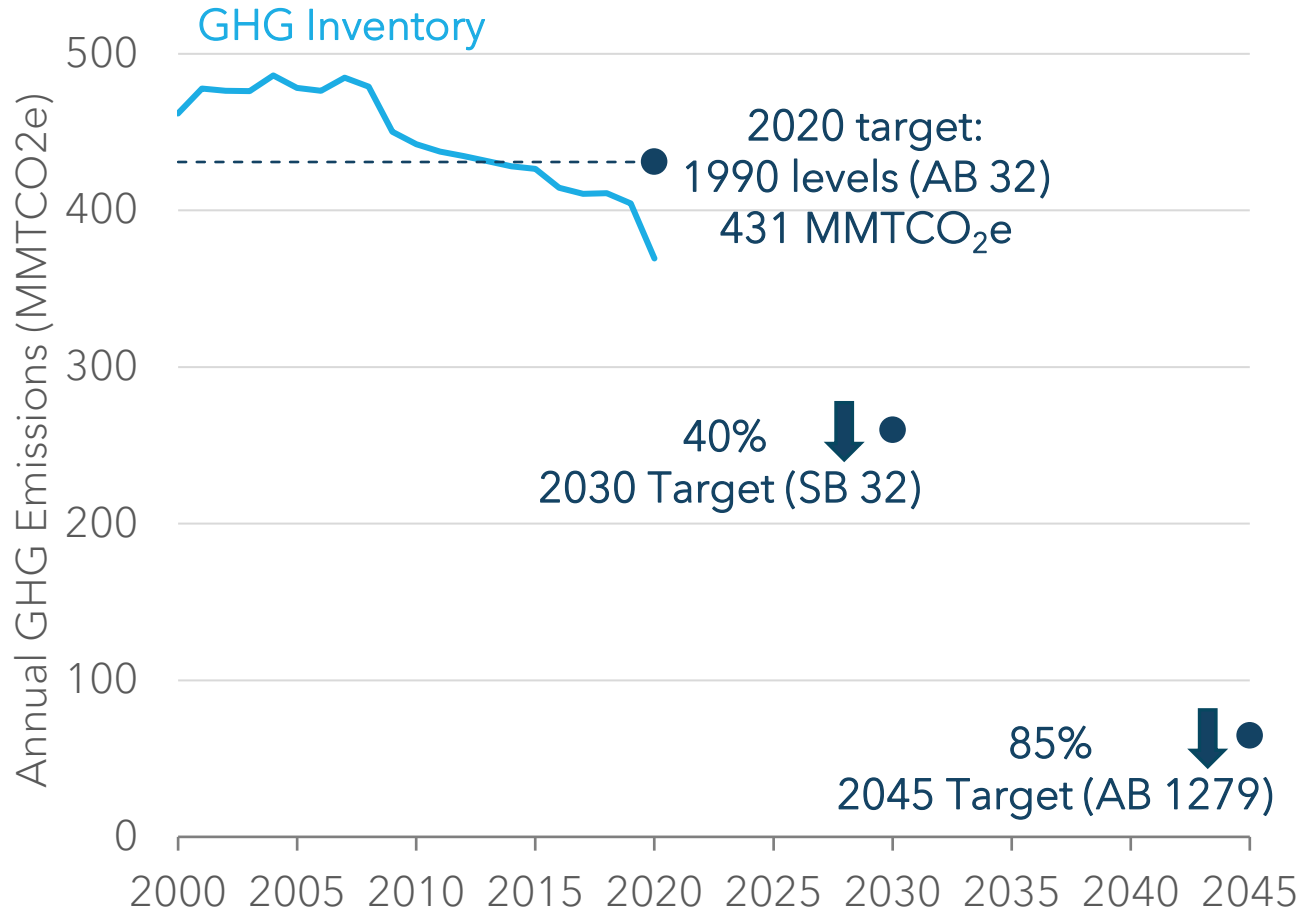
# Agenda

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- First session (9:30 a.m. - 11:00 a.m.)
  - Introduction and overview
  - Modeling by UC Davis
  - Modeling by Québec Ministry of Finance
  - Public comments
- Break
- Second session (11:00 a.m. - 12:30 p.m.)
  - Cost-containment
  - Joint market rules
  - Public comments

# California GHG Reduction Targets

*Achieved AB 32 target in 2014*



ACHIEVING  
**CARBON**  
NEUTRALITY  
BY **2045**

GHGs included in statute: Carbon dioxide (CO<sub>2</sub>), Methane (CH<sub>4</sub>), Nitrous oxide (N<sub>2</sub>O), Hydrofluorocarbons (HFCs), Perfluorocarbons (PFCs), Sulfur hexafluoride (SF<sub>6</sub>), Nitrogen trifluoride (NF<sub>3</sub>).

# California Context for Cap-and-Trade Program Updates

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- 2022 Scoping Plan (SP) Update approved by the Board December 2022
  - Assesses progress toward achieving State climate targets
  - Incorporates targets and actions needed to achieve State's GHG targets
  - Provides economy-wide data to inform review of the Cap-and-Trade Program
- Updated AB 32 GHG Emission Inventory
  - Latest published GHG Emission Inventory included adjustments to align all sector emissions with third-party verified data
- Consider updates to reflect implementation needs, new legislation, Executive Orders, and policies

# California Allowance Budget Scenario Development Process to Date

**Feb 2023**  
CARB issued market notice of upcoming pre-rulemaking activities.

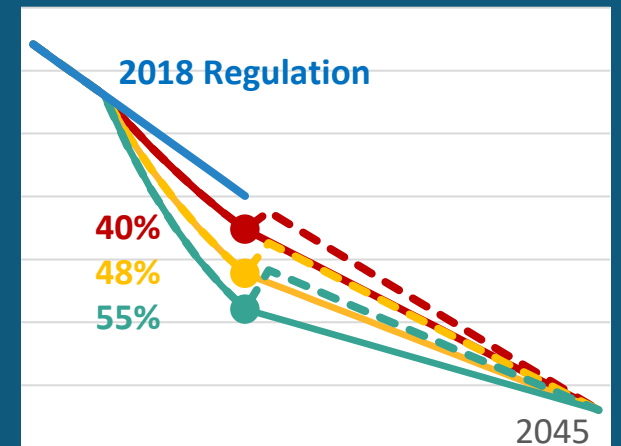
**June 2023  
Joint Workshop**  
Provided context and scope for potential amendments

**40% by 2030:** Adjusted GHG Inventory warrants a review of existing caps  
**48% by 2030:** 2022 Scoping Plan Update highlighted accelerated 2030 target  
**55% by 2030:** Represents an upper bound

**July 2023  
California Workshop**  
Introduced allowance budget scenarios

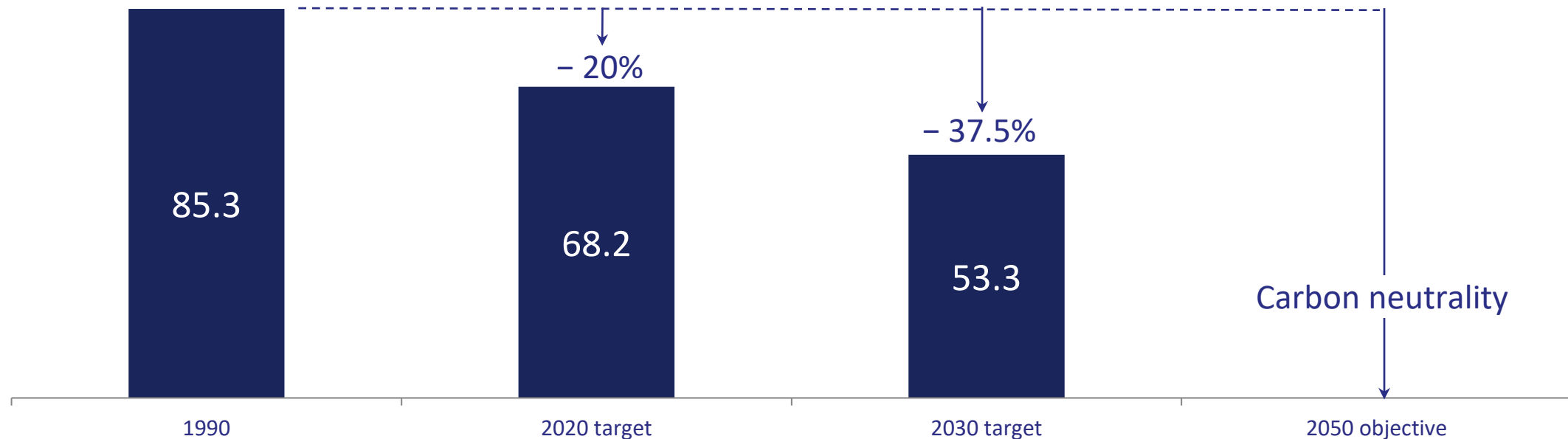
Target	2021-2030 Allowances	Removed from Budget
40%	2,490	115
48%	2,340	265
55%	2,215	390

**October 2023  
California Workshop**  
Allowance budget scenario concepts: Potential Cap Adjustment Factors, EDU allocation, post-2030 budgets



# Québec GHG emission reduction targets

- 1990 emissions, reduction targets and objectives (in millions of tons of CO<sub>2</sub> equivalent)





# Québec Context for Updates

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- Objectives of the approach:
  - Ensuring efficient operation of the carbon market to reduce GHG emissions in Québec
  - Contribute to achieving the greenhouse gas emissions reduction target by 2030
  - Contribute to achieving carbon neutrality by 2050

# Québec Assessment Process Overview

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## **February 2023 Market notice**

MELCCFP issued market notice of upcoming discussions with stakeholders

## **June 2023 Joint Workshop**

Provided context and scope for potential amendments

## **September 2023 Workshop**

Publication of market data  
Duration of compliance periods  
Partial compliance  
Global warming potentials

## **October 2023 Workshop**

Limit on the use of offset credits for compliance  
Role of offset credits for the post-2030 period

# Today: Allowance Price Modeling

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- Initial estimates for allowance<sup>1</sup> prices under different allowance budget scenarios
- Two coordinated but independent modeling efforts
  - California: UC Davis team contracted by CARB
  - Québec: Québec Ministry of Finance, Directorate for Modelling, Economic Analysis, and Climate Change
- Every model has different sources of uncertainty, structural differences, and some different inputs
- The model outputs allow for comparison across scenarios but **may not** represent actual allowance prices in the Program

1. The term “allowance” used in this presentation refers to allowances in California’s regulation and emission units in Québec’s regulation.

# Overview of Jointly Modeled Scenarios

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- **Alternative 1: 40% by 2030:** Lower bound with all allowances removed from price containment accounts (CA) or all removal from future budgets (Québec)
- **Alternative 2: 55% by 2030:** Upper bound with maximum removal from future budgets (CA, Québec)
- **Alternative 3(a): 48% by 2030:** Intermediate approach with all removal from future budgets (CA, Québec)
- **Alternative 3(b): 48% by 2030:** Intermediate approach removing the maximum amount from price containment accounts and the remainder from future budgets (CA only)
- **California Post 2030:** Alternative scenarios decline linearly from a 2030 value consistent with the emission reduction target for the scenario to the 2045 target (CA: 30.3 million allowances)
- Variations in scenarios modeled by Québec Ministry of Finance (Alt 2, Alt 3a):
  - Removal of 17 million allowances for Québec
  - Enhancement of the offset program

# Considerations for the Modeling Exercises

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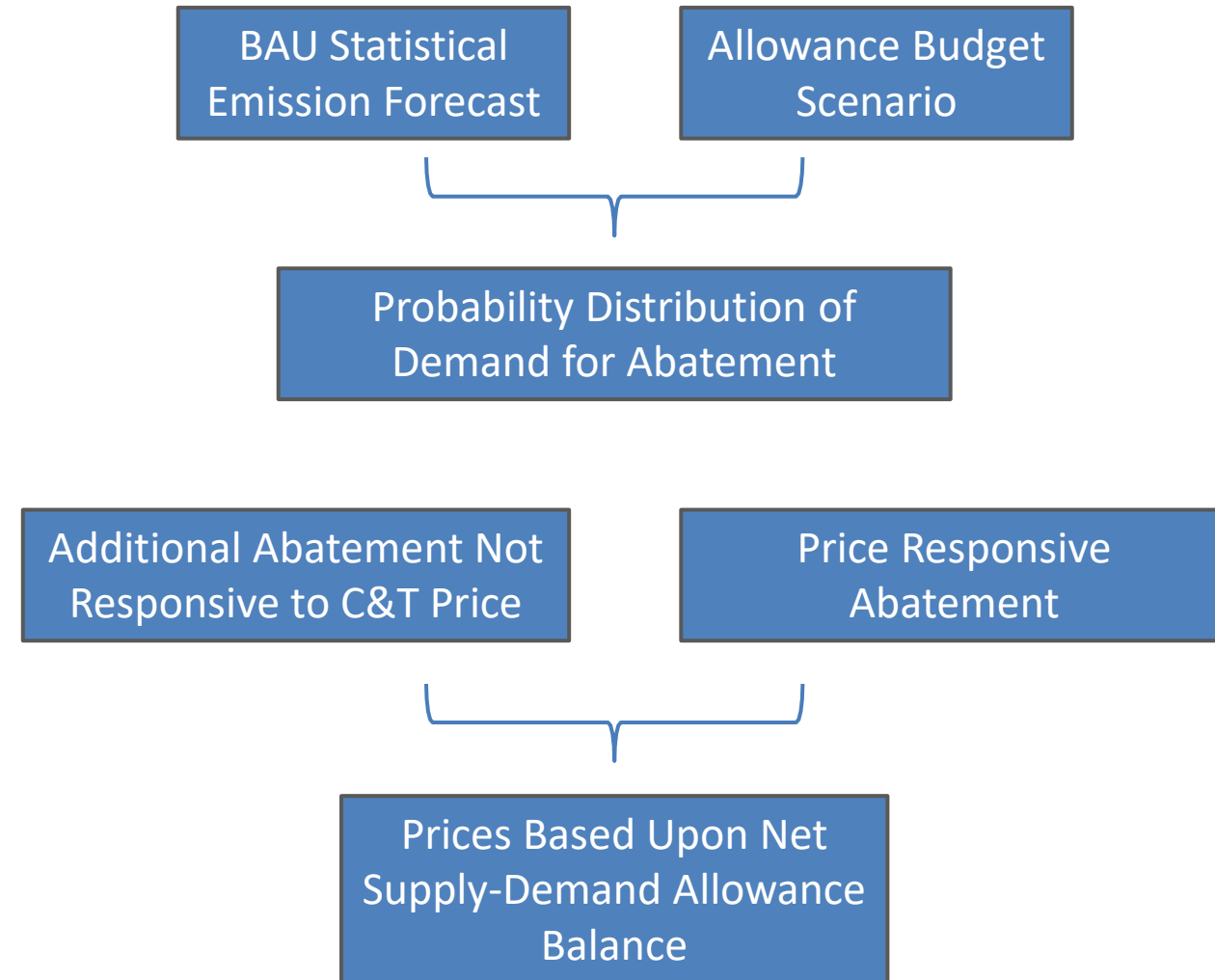
- The **models are illustrations suggesting** the impact of different carbon market parameters over the long term.
- They **do not constitute a forecast or an opinion of the Québec or California governments**, but rather a projection of how the market might evolve in response to various potential measures that may or may not be implemented.
- **Simulations are based on information available in October 2023**, and
  - **Québec modeling from the 2023-2028 Implementation Plan** of the 2030 Plan for a Green Economy (May 2023).
  - **California modeling from the 2022 Scoping Plan Update** (December 2022)
- In reality, **a number of other factors will affect results**, such as changes in economic and financial conditions in Québec, California, and elsewhere in the world and new abatement opportunities such as CCS.

# Allowance Supply and Demand in California's Cap-and-Trade Market: Initial Results

James Bushnell, Aaron Smith, Wuzheqian  
Xiao, Julie Witcover UC Davis

# Overview of UCD Modeling Work

- Quantify the range of potential emissions outcomes
- Combine with projected levels of additional abatement from complementary policies
- Produce a distribution of allowance demand
  - Compare to allowances made available under various scenarios
- Allowance price projections based upon expectations of allowance surpluses or shortfalls
  - Probability market ends up at Price floor, APCR tiers or Ceilings.



# Part I

2023-2040 BAU Forecast and  
Projecting Demand for  
Emissions Abatement



# Forecasting Emissions

- We forecast evolution of CA covered emissions
  - “business as usual” (BAU) in the sense that past trends inform evolution of future emissions
  - Does not account for *new* policies that might “bend the curve”
- Statistical model estimates relationships between key factors and emissions and projects both through 2030 or 2040
  - Drawing on data from 1990 – 2022

# 8 Variable Statistical Forecast Model

Let  $X_t = (X_{1t}, X_{2t}, \dots, X_{8t})'$  denote the vector composed of the eight annual magnitudes included in the Vector Auto-Regression (VAR) for year  $t$ ,  $t=1990, 1991, \dots, 2022$ . The elements of  $X_t$  are:

## Three Measures of Emissions Creating Activities

$X_{1t}$  = California Electricity Production net of Hydro Generation

$X_{2t}$  = Total Vehicle Miles Travelled (VMT)

$X_{3t}$  = CO<sub>2</sub>e Emissions from Industrial, Nat Gas, and Other sources

## Three Measures of Economic Drivers of Emissions

$X_{4t}$  = Real Gross State Product

$X_{5t}$  = Real California Gasoline Price

$X_{6t}$  = Real Natural Gas Price

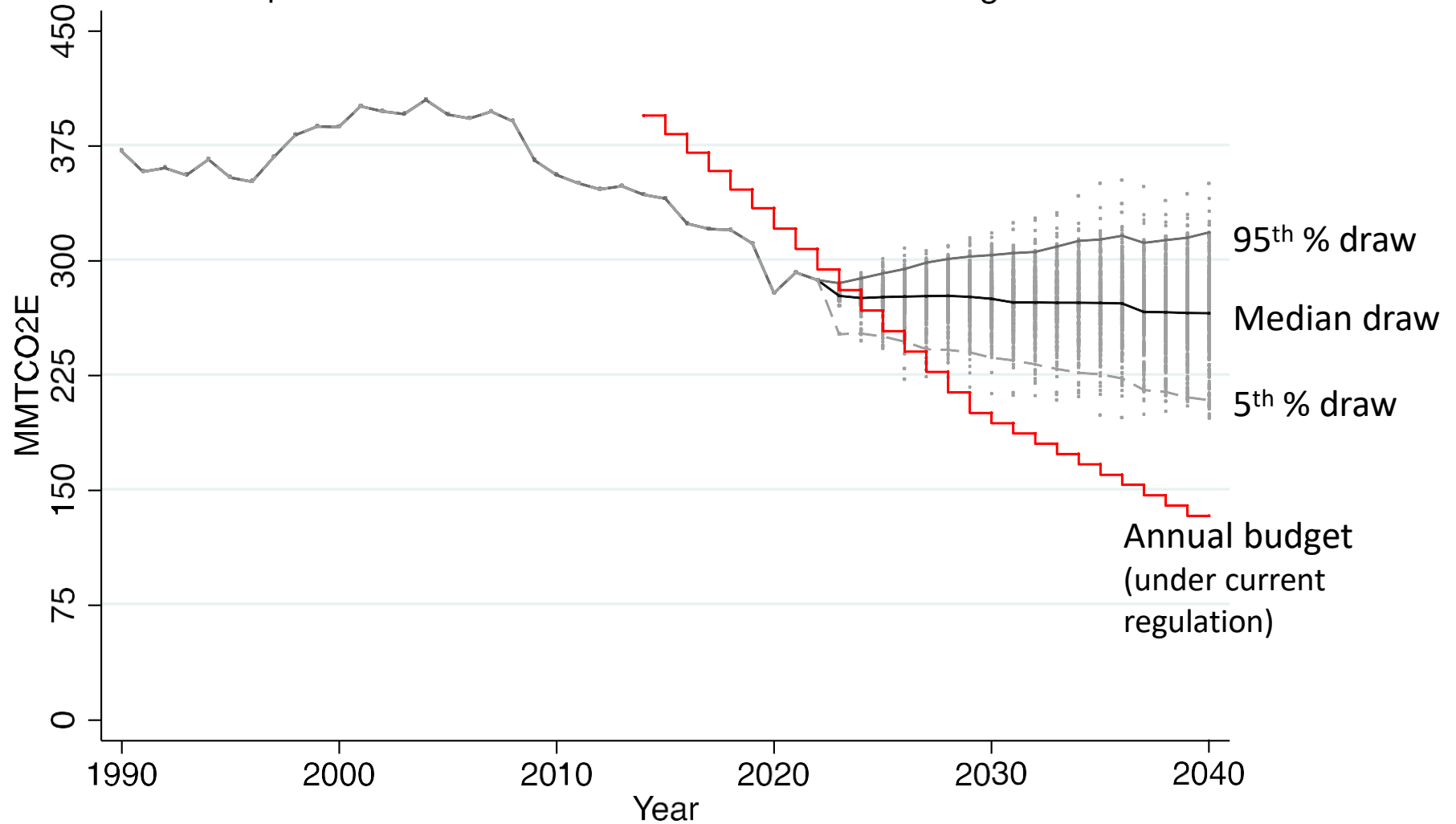
## Two Measures of Emissions Intensity

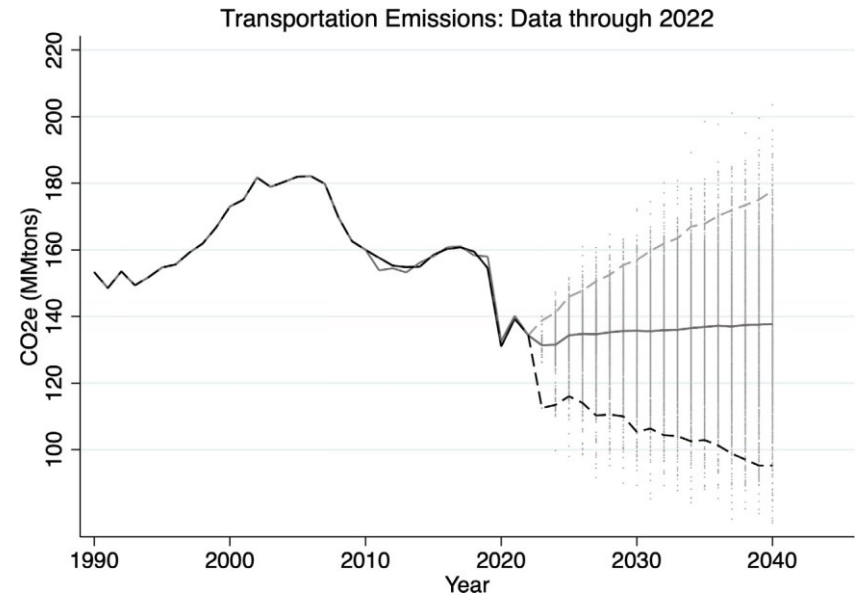
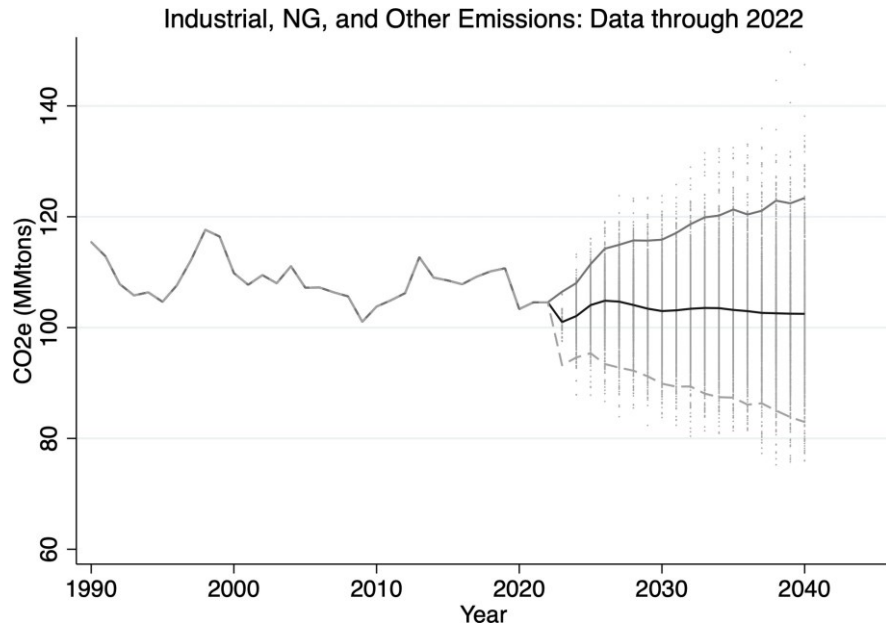
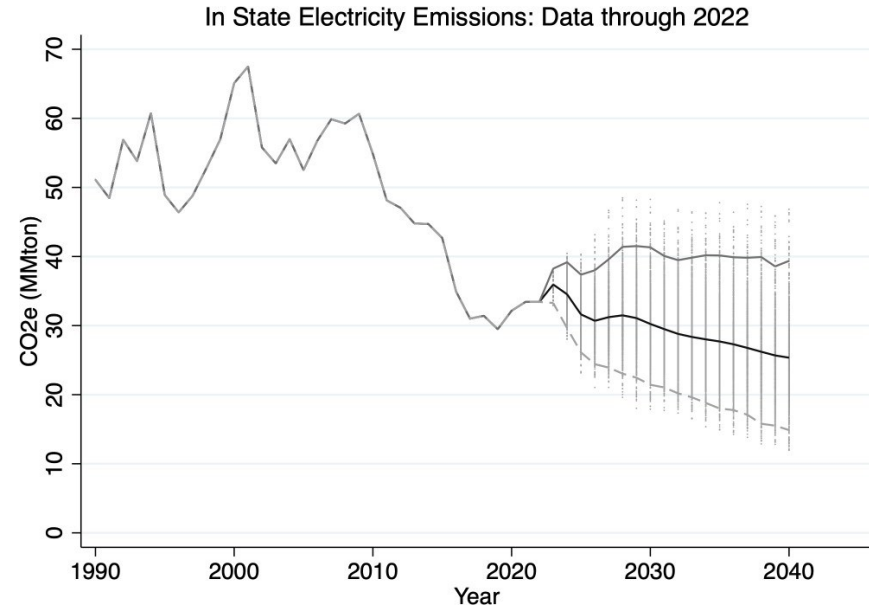
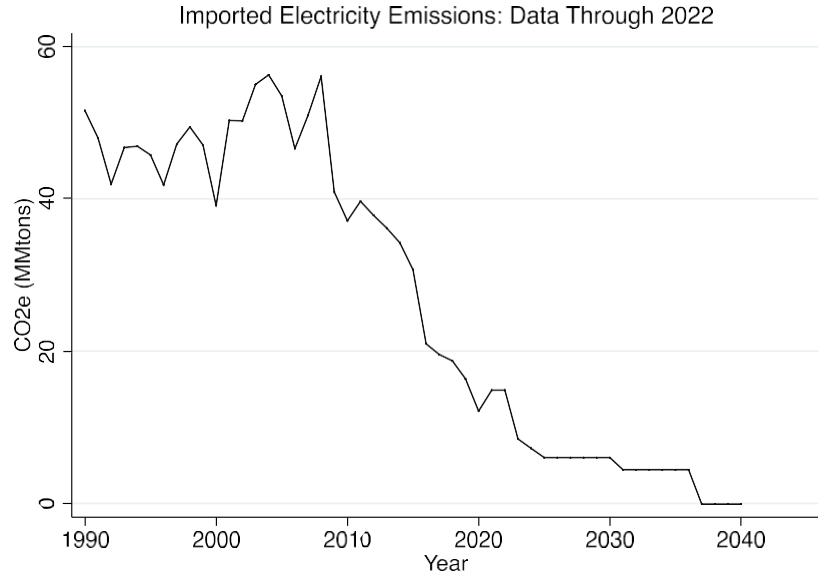
$X_{7t}$  = Gallons of Gasoline Equivalent (GGE) per VMT from all transport fuels

$X_{8t}$  = CO<sub>2</sub> Intensity of electricity generation (carbon/TWh)

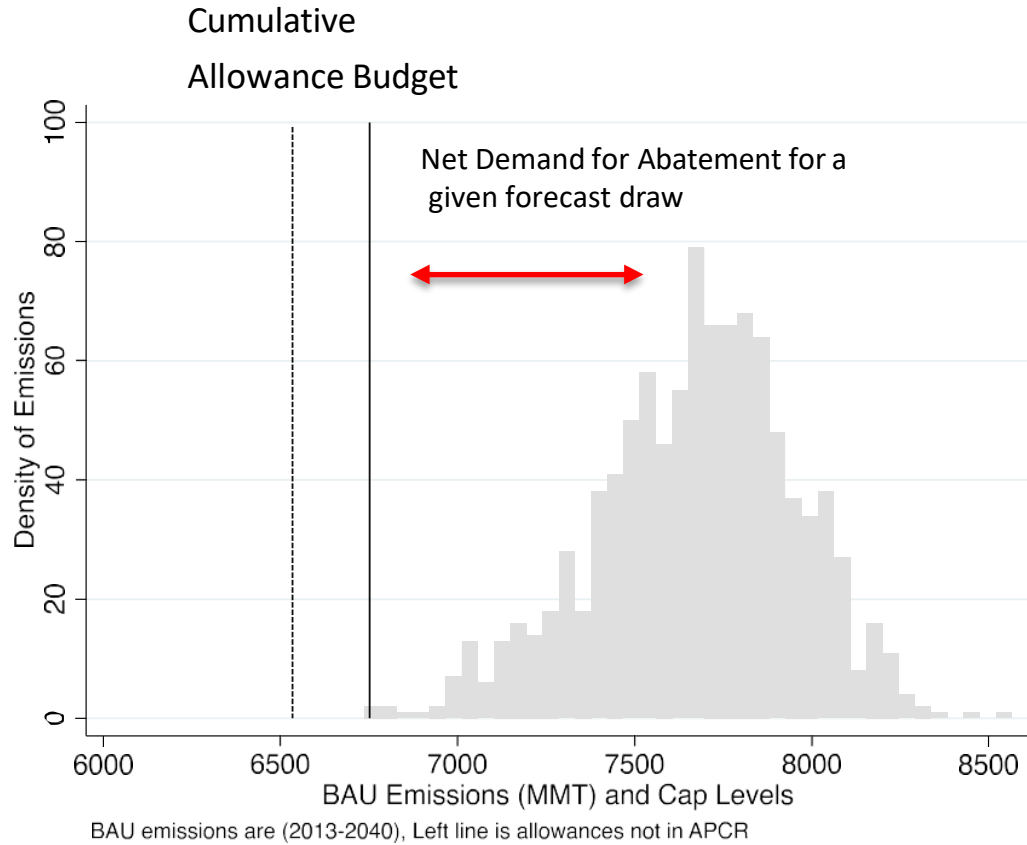
# BAU Forecast Through 2040

Cap-and-Trade Covered Emissions: Data Through 2022

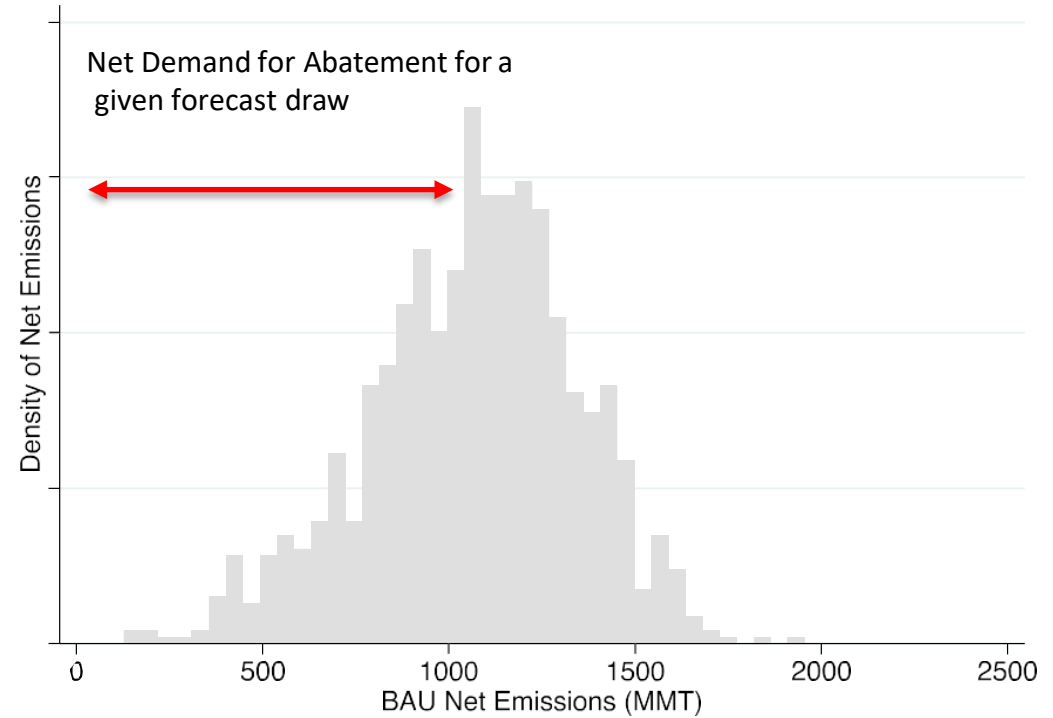




# Total and Net Emissions



Total Emissions



Emissions Net of the Budget

# Part II

## Abatement Assumptions and Results

# Sources of Abatement

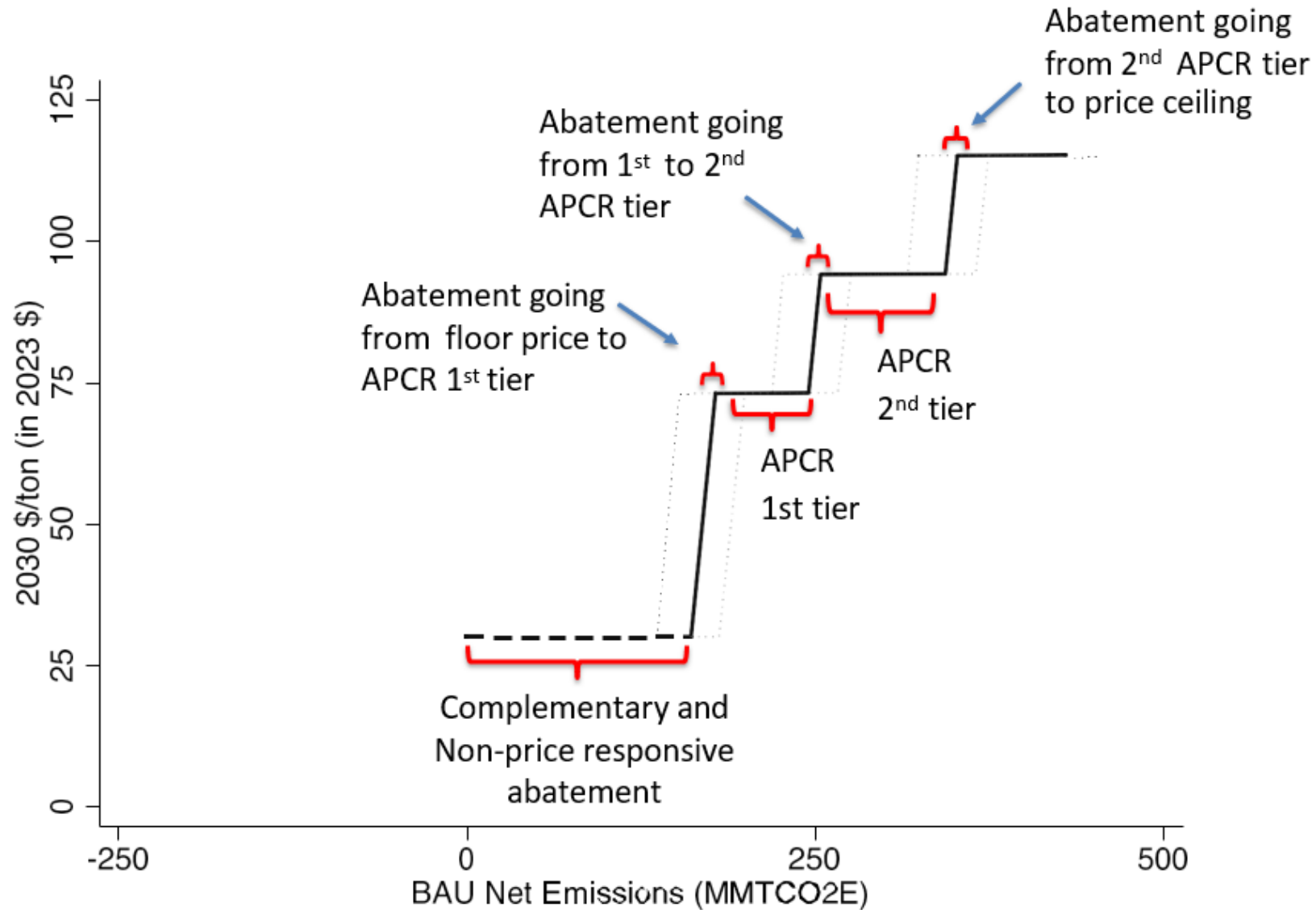
- Abatement from “complementary” policies
  - LCFS, ZEVs, RPS, residential electrification
- Abatement & adjustments independent of prices
  - offsets, cement, net Québec demand
- Abatement at costs between floor and ceiling prices
  - Driven by energy price changes
  - Changes slope of abatement curve
    - Captures reductions in fuel use, fuel switching
    - Does not capture reductions in emissions not linked to reductions in fuel use (e.g. CCS)

# Summary of Price Response Assumptions

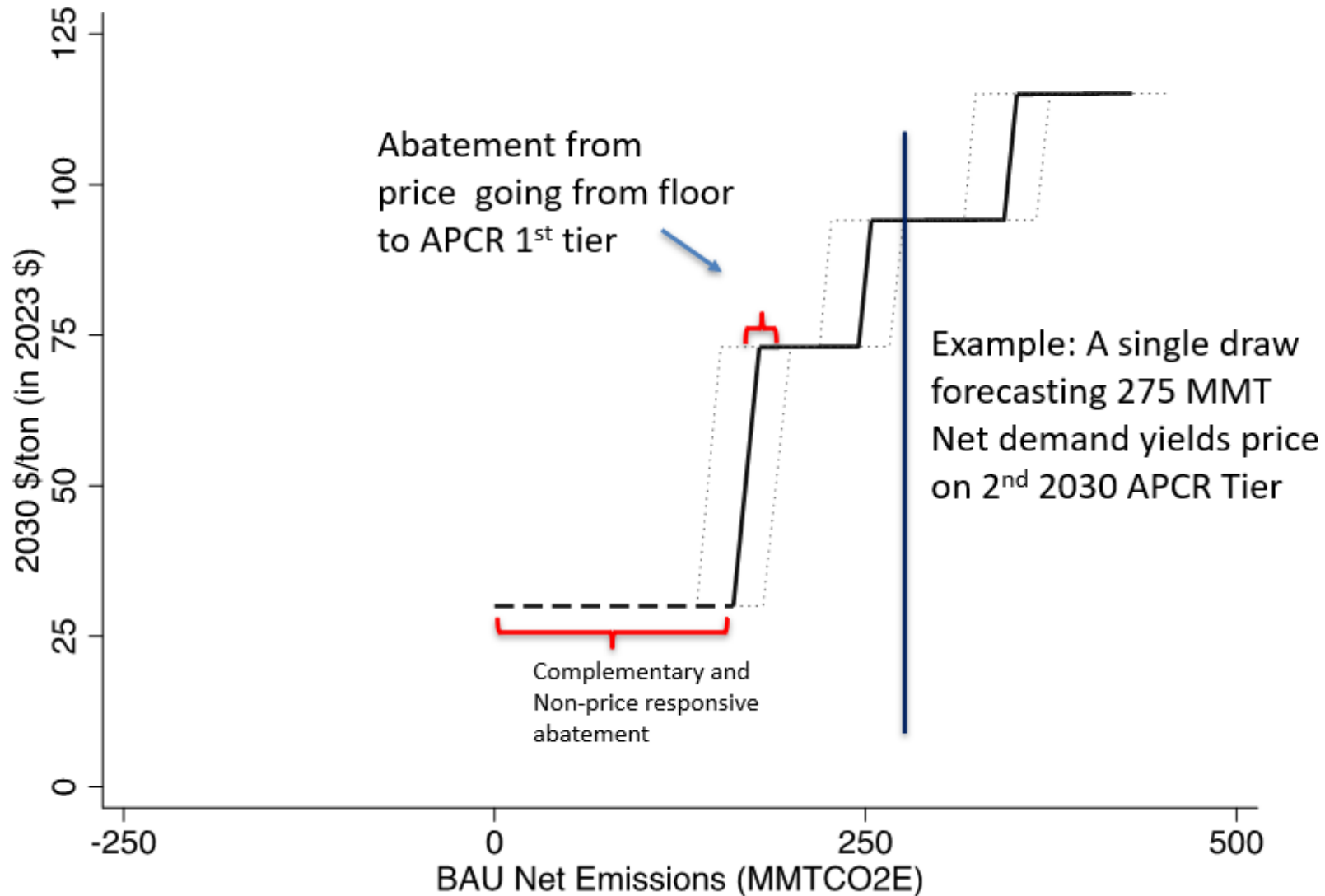
Fuel	Retail Price change per \$/ton CO2	Mean Elasticity (short-run) <b>long-run</b>
Gasoline/Diesel (\$/gallon)	0.009	(-0.2) <b>-0.4</b>
Electricity (\$/MWh)	0.183	(-0.15) <b>-0.2</b>
Natural Gas (\$/mmbtu)	0.053	(-0.2) <b>-0.4</b>



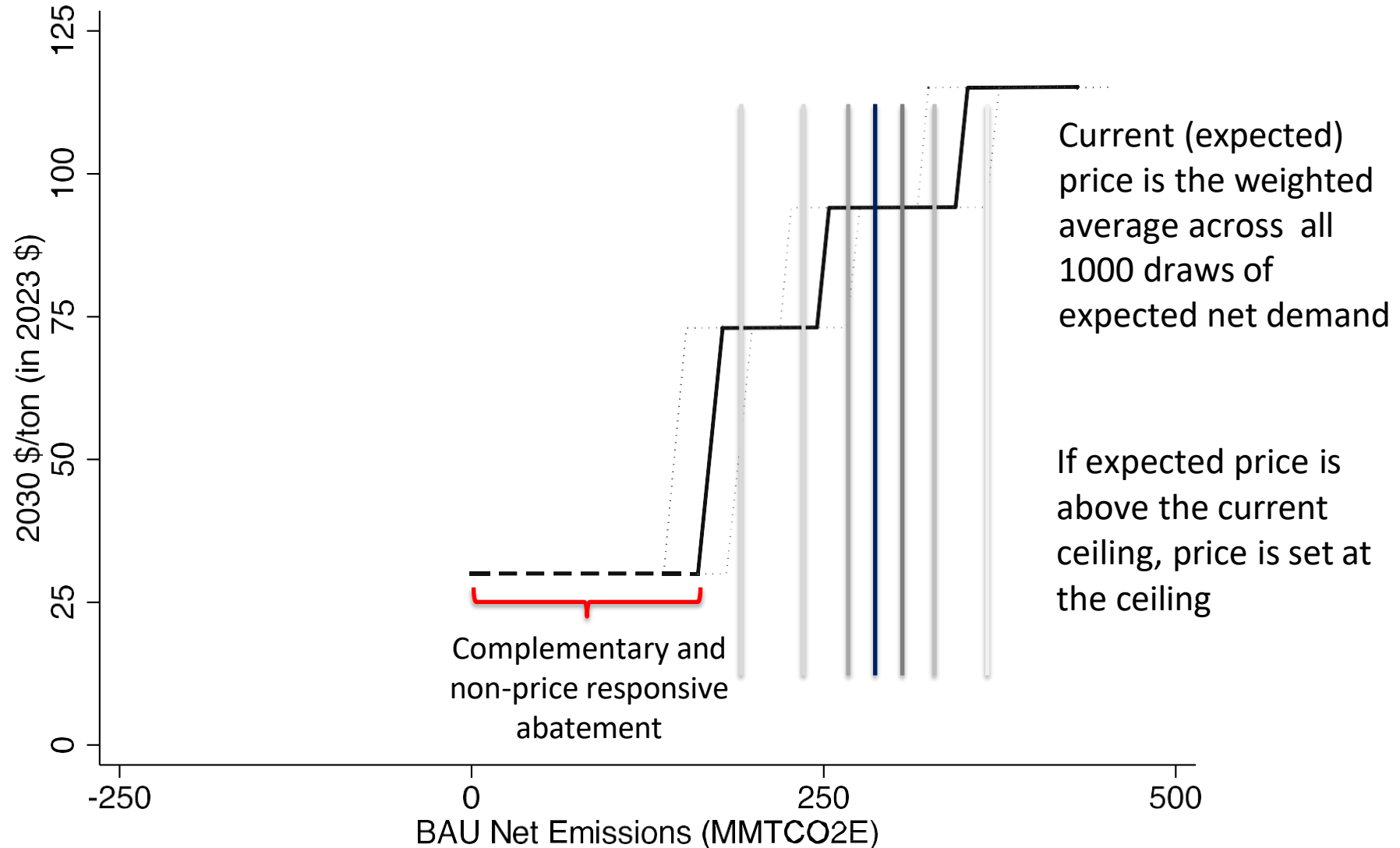
# Abatement (and APCR) Supply Through 2030



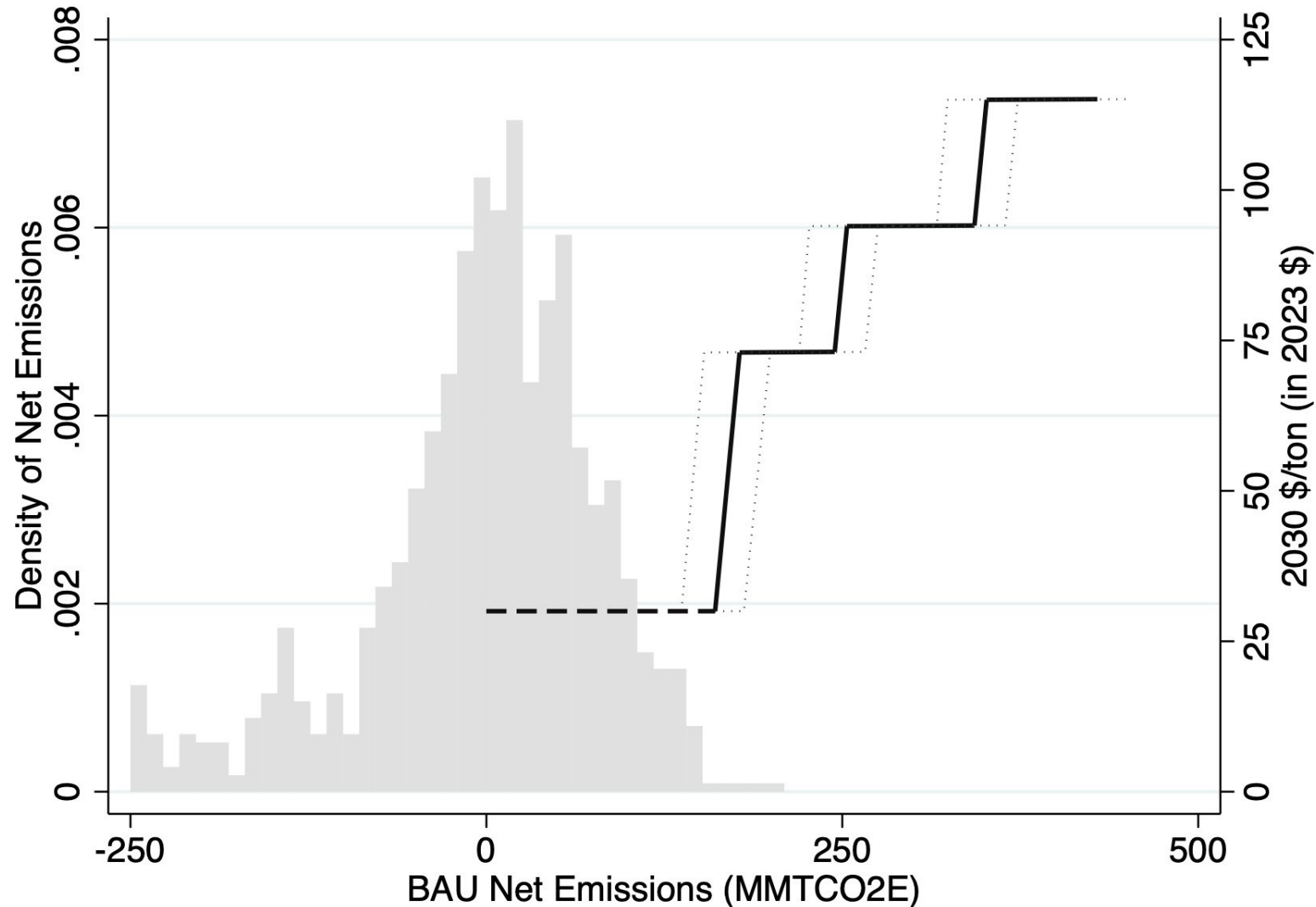
# Prices Based Upon Supply Demand Balance for a Given Forecast Draw



# Expectation of 2030 (or 2040) price

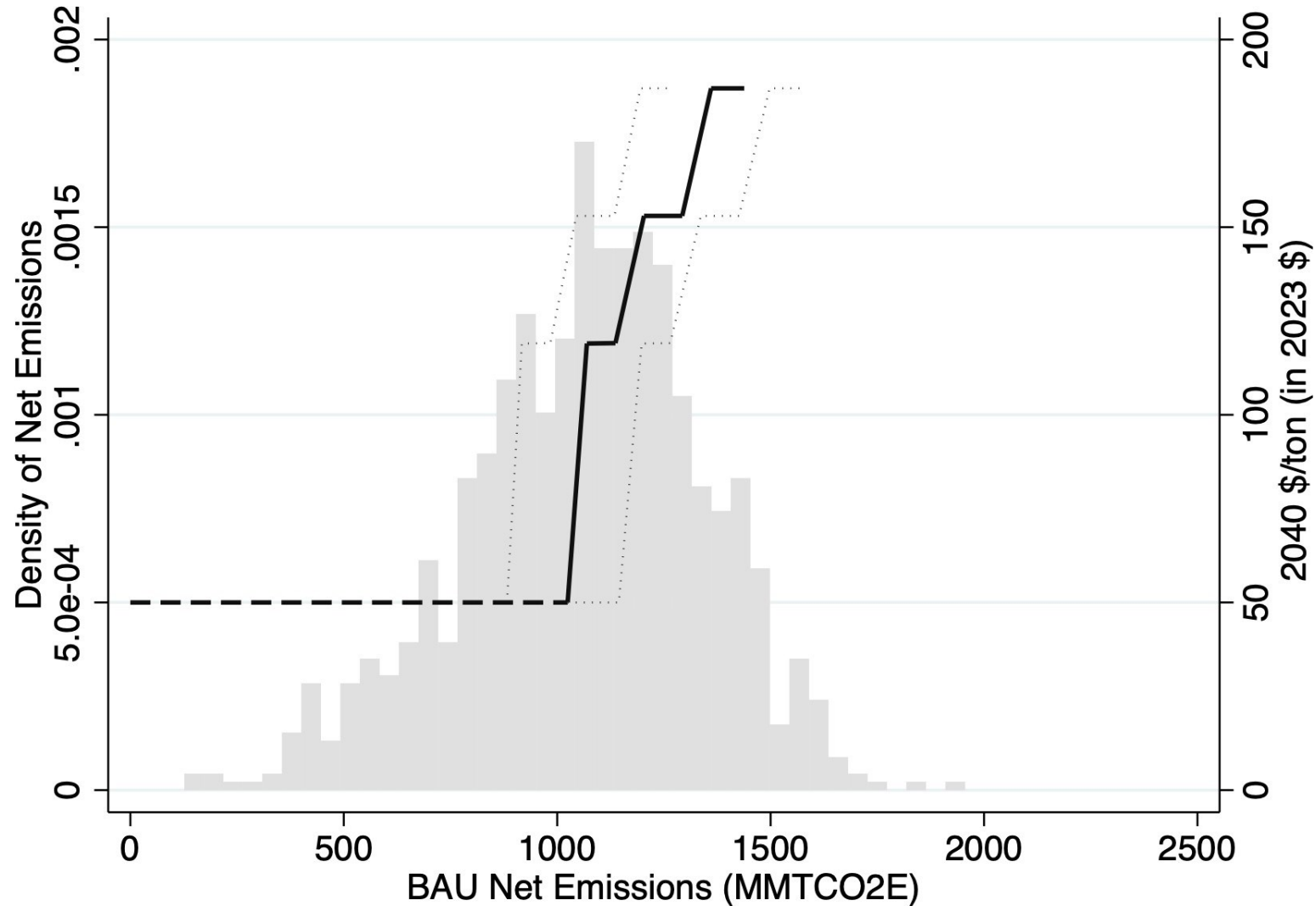


# Net Demand and Supply: Current Regulation, Market Through 2030



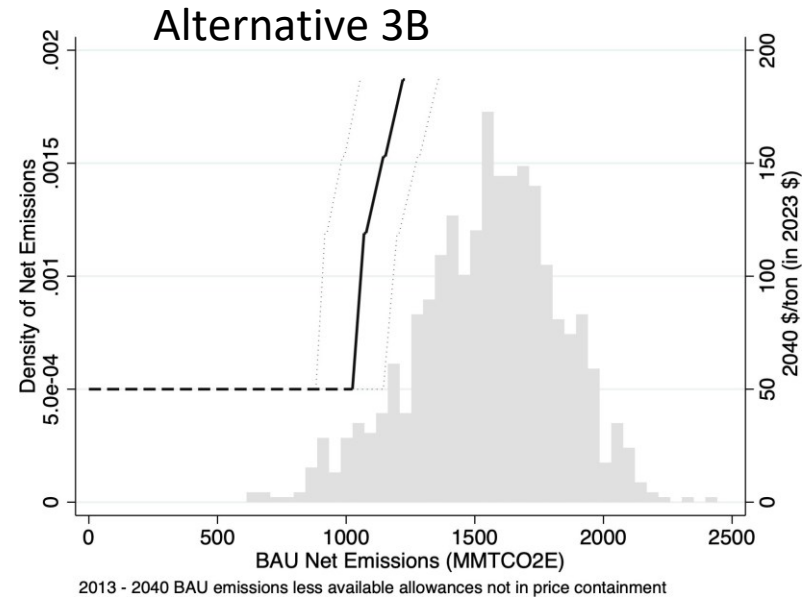
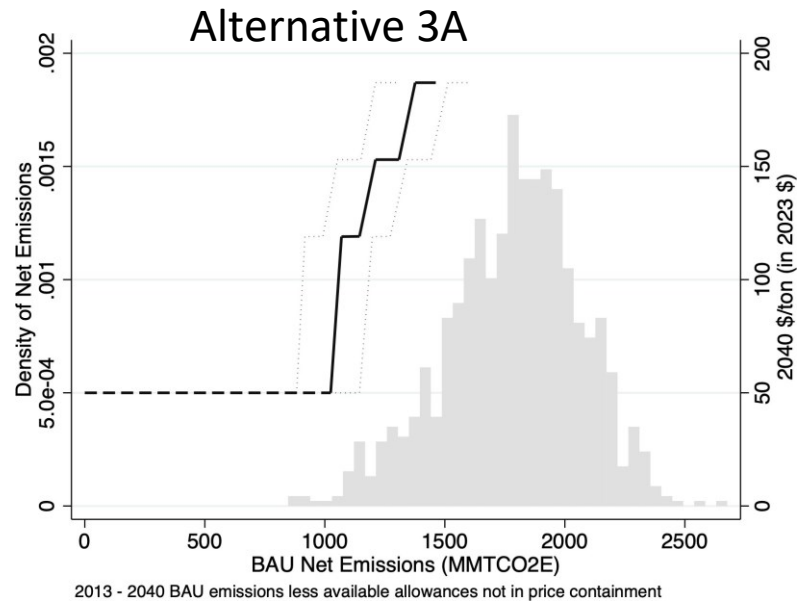
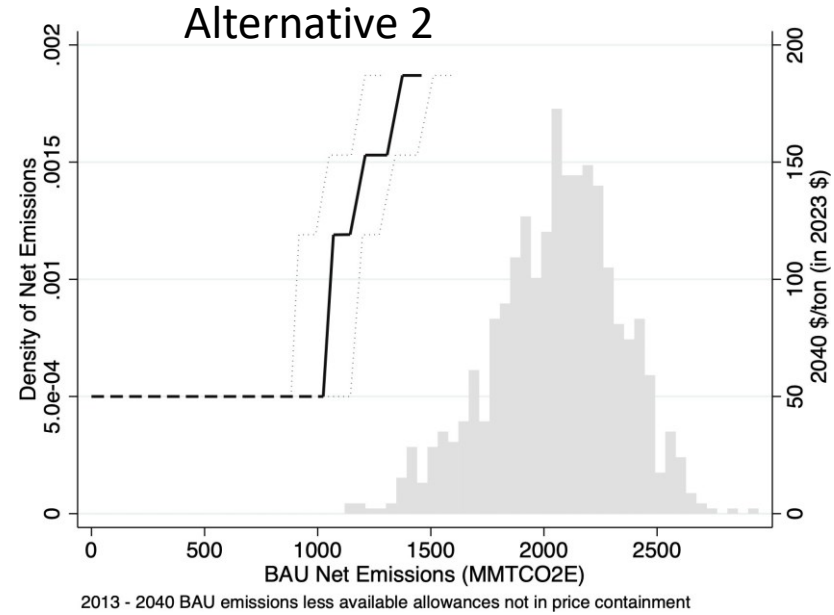
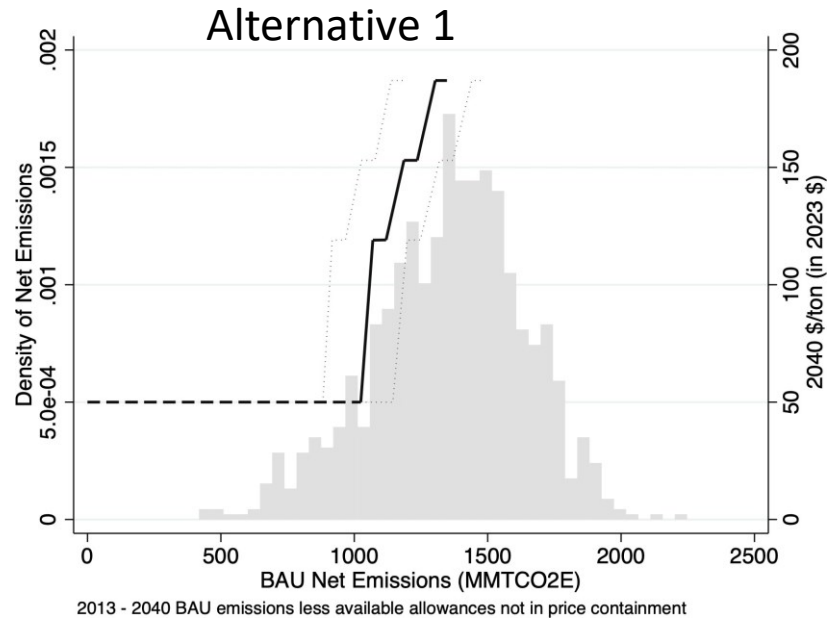
BAU net emissions are (2013-2030) BAU emissions less allowances not in APCR

# Net Demand and Supply: Current Regulation, Market Through 2040



2013 - 2040 BAU emissions less available allowances not in price containment

# Net Demand and Supply Through 2040



# Modeled Scenarios

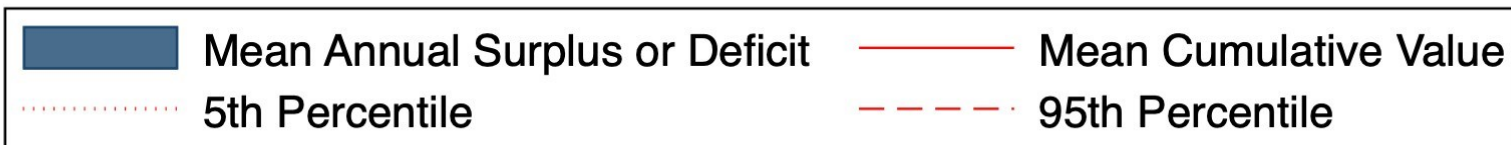
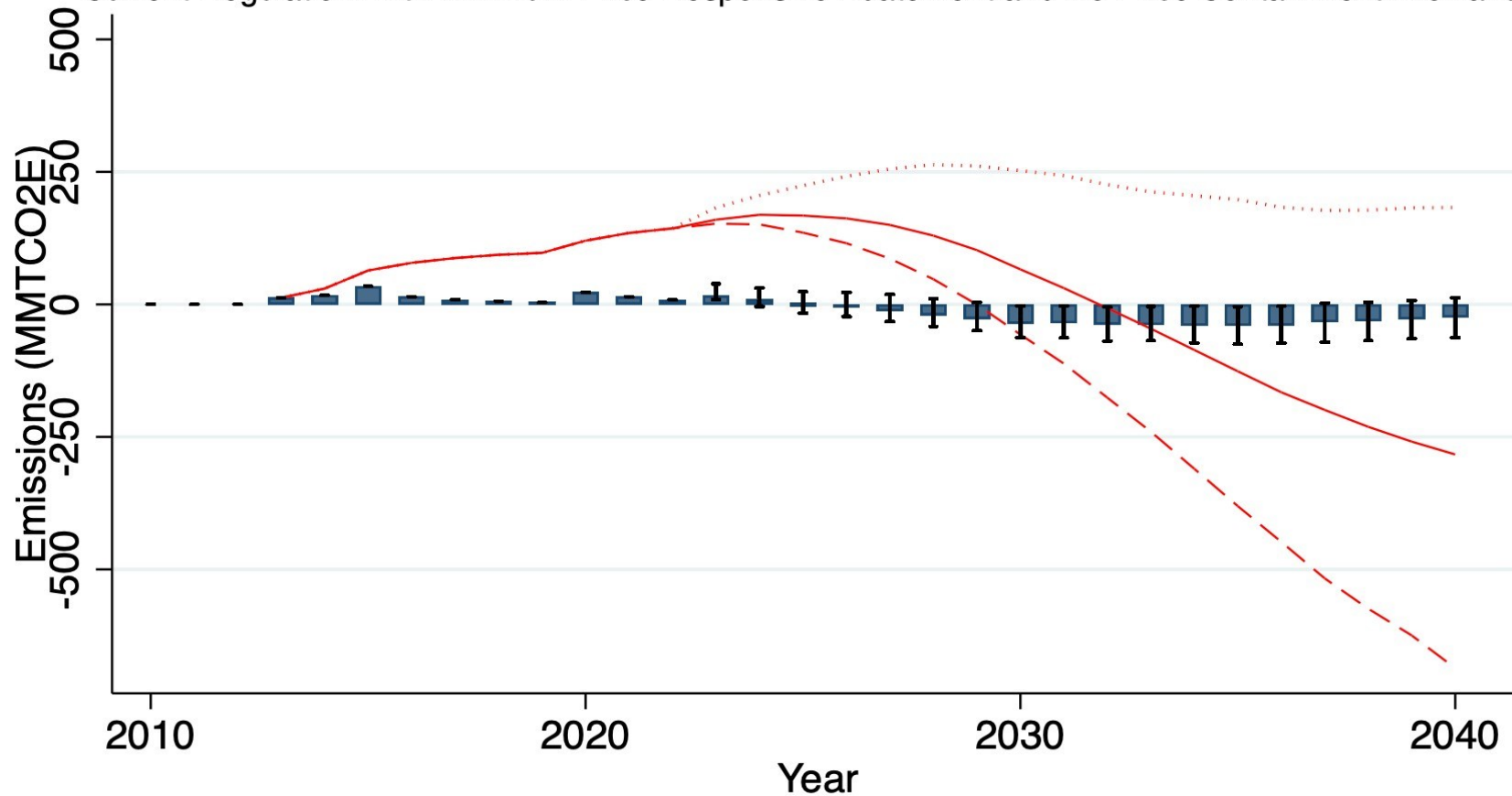
Scenario	2030 Target	Allowances Removed From 2013-2030 Budget		2013-2030 Total Allowance Budget	2013-2040 Total Allowance Budget	Description
		Price Containment Accounts	Auction and Allocation Budget			
Current Regulation	40%	-	-	5115	6750	2018 Regulation
Alt. 1	40%	115		5000	6370	A lower model bound. Minimum removal from future budgets and all removal from price containment accounts
Alt. 2	55%		390	4725	5780	An upper model bound. Maximum removal from future budgets
Alt. 3a	48%		265	4850	6055	An intermediate approach. All removal from future budgets
Alt. 3b	48%	235	30	4850	6055	An intermediate approach. Remove the maximum amount from price containment accounts and the remainder from 2025-2030 allowances available for auction or allocation

All alternative scenarios use the emission target method for determining 2031-2040 budgets. Scenarios decline linearly from a 2030 value that is consistent with emission reduction target for the scenario to the 2045 target (30.3 million allowances).

\*Values shown are million allowances. All values are rounded.

# Annual and Cumulative Net Surplus of Allowances

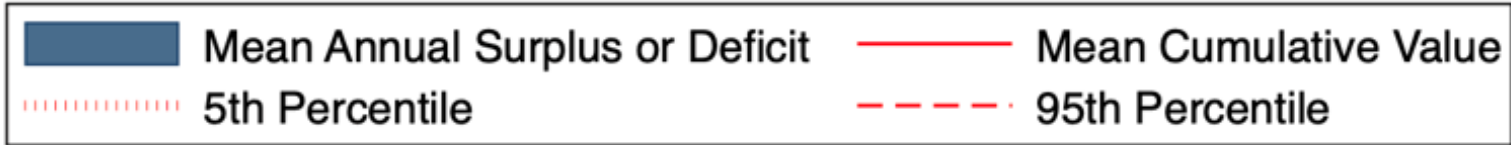
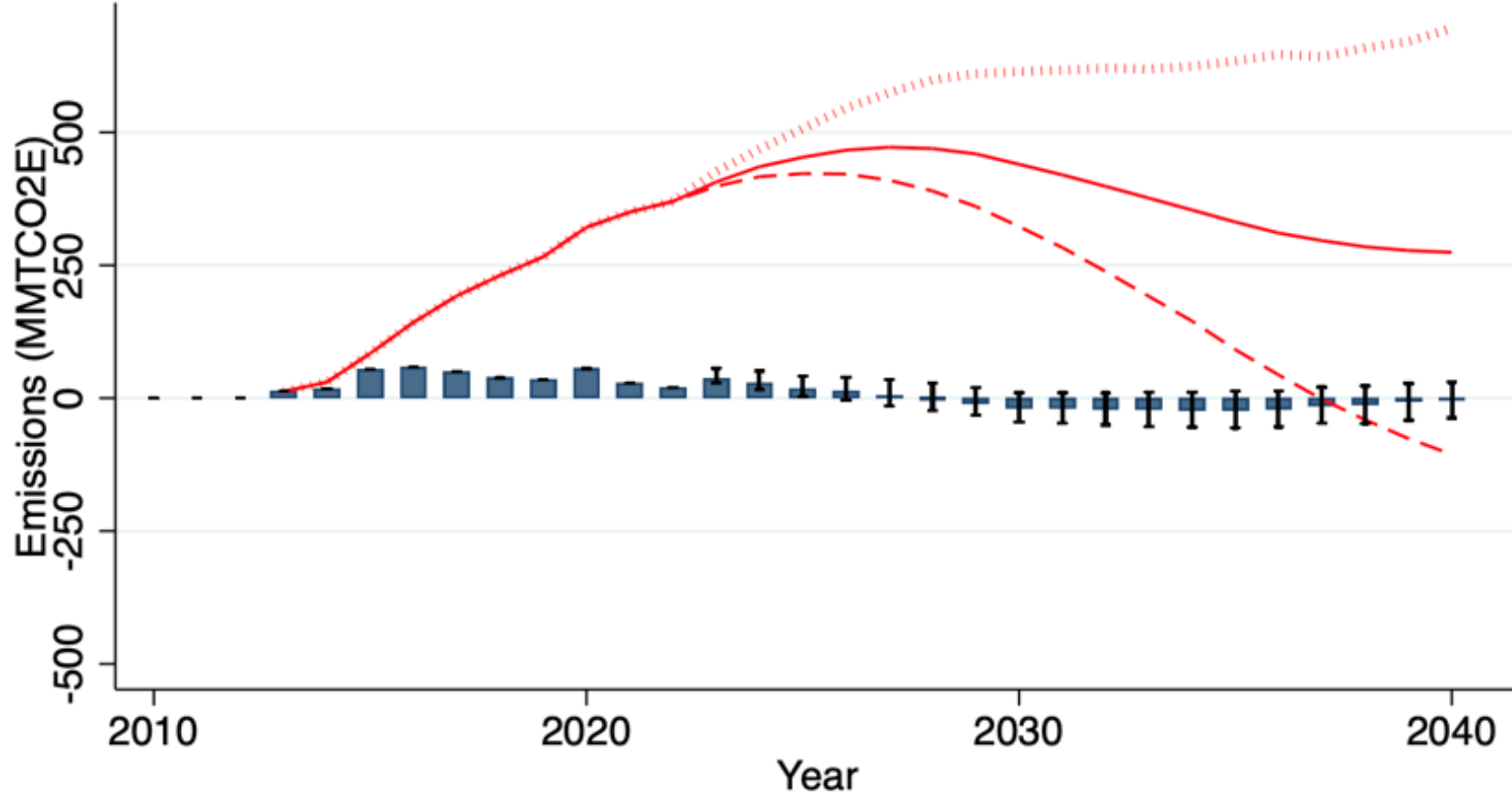
Current Regulation: with Minimum Price Responsive Abatement and No Price Containment Allowances



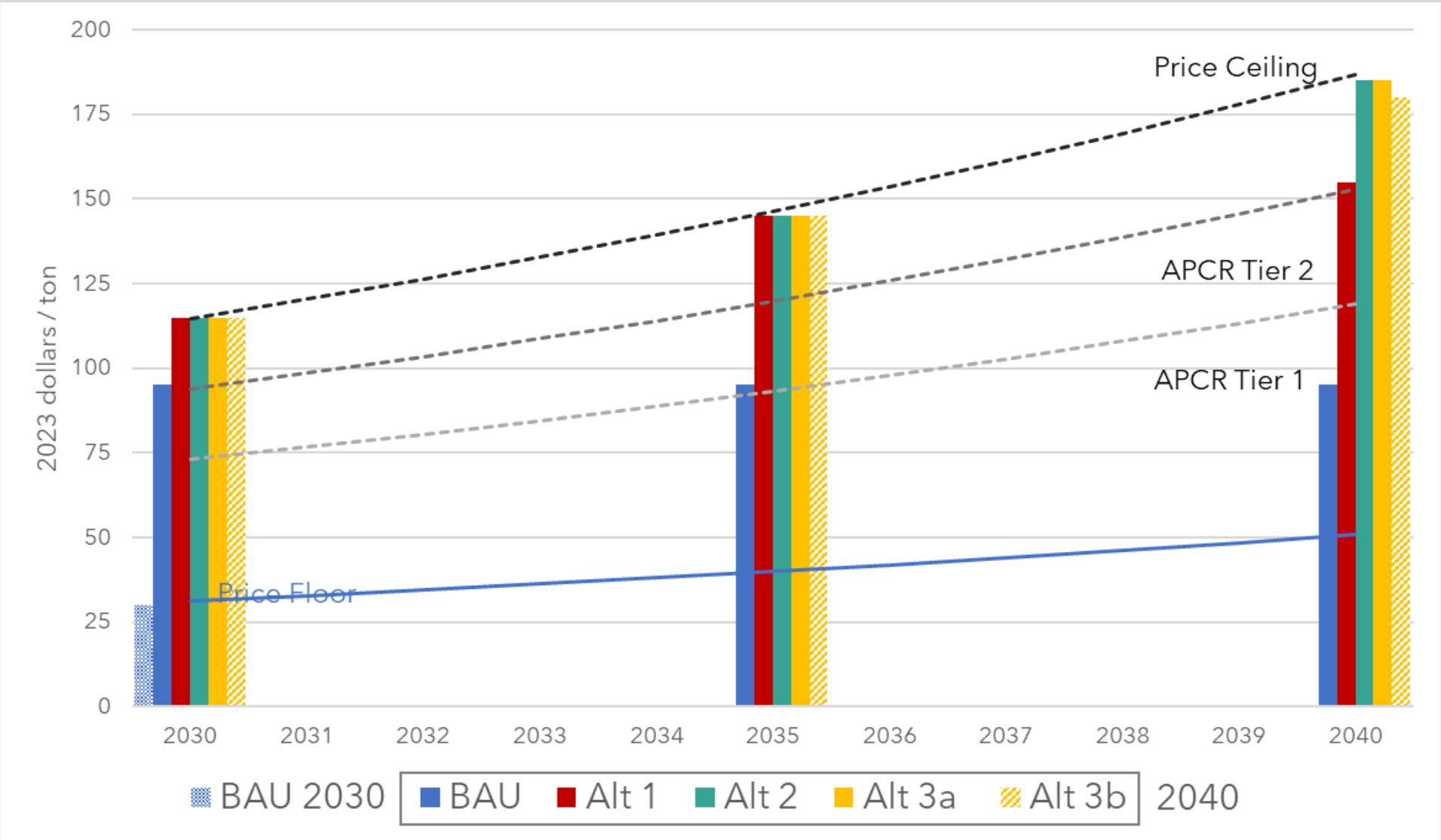


# Annual and Cumulative Net Surplus of Allowances

Current Regulation: with Maximum Price Responsive Abatement and Price Containment Allowances



# Modeled Prices Under Different Scenarios



# Summary of Model Results

- Modeled prices are largely determined by price bounds in the Current Regulation (floor, APCR, ceiling) and expectations of allowance supply-demand balance
- Model results forecast a likely net surplus of allowances through 2030, absent a reduction in allowance budgets
- Annual net deficits begin decreasing any unused allowances by 2030
- Model results are strongly influenced by the model end year
  - If the model end year is 2040, then post-2030 demand results in higher Program prices than if the model end year is 2030
- Most alternative scenarios yield prices that follow the price ceiling through at least 2035

# Potential changes to the cap-and-trade system for greenhouse gas emission allowances

Economic impact and GHG emissions analysis

November 16, 2023

Québec 

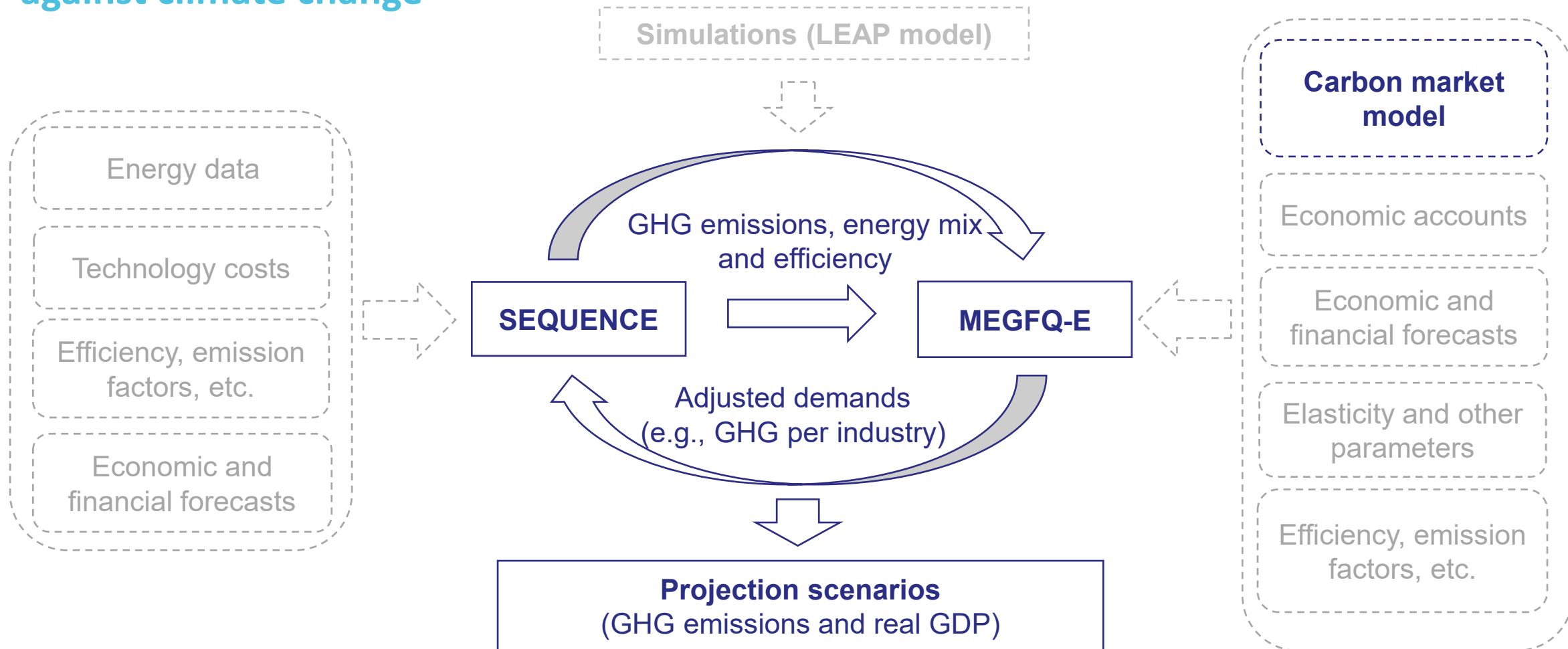
# Introduction

## Agenda

1. Modelling tools used
2. Scenarios modelled
3. Impact of scenarios

# Modelling tools used

## An integrated vision of the economic analysis associated with the fight against climate change



# Modelling tools used

## General information about the scenarios

- The **models are illustrations to provide an idea** of the impact of different carbon market parameters over the long term.
- They **do not constitute a forecast or an opinion of the Québec government**, but rather a projection of how the market might evolve in response to various potential measures that may or may not be implemented.
- The **simulations are based on information available in October 2023, as well as on modelling from the 2023-2028 Implementation Plan** of the 2030 Plan for a Green Economy, published in May 2023.
- In reality, **a number of other factors will affect actual results**, such as changes in economic and financial conditions in Québec and elsewhere in the world.
- All prices are in **Canadian dollars**

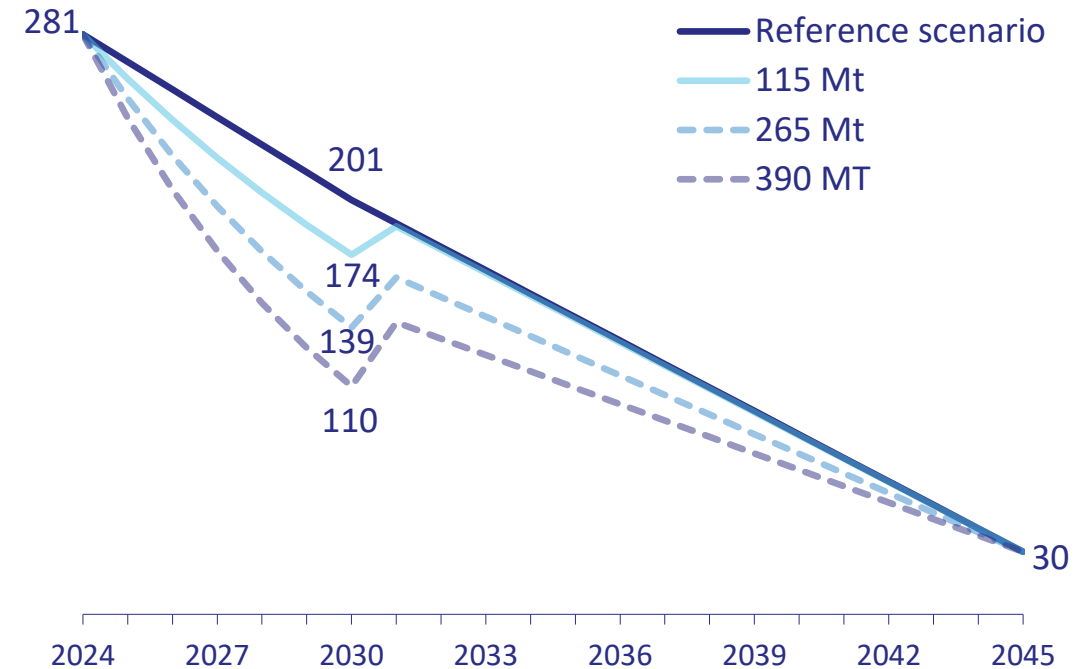
# Scenarios modelled – California

A reduction of the emission budgets from 115 Mt to 390 Mt

- **Reference scenario**  
Current market parameters
- **Three potential reduction scenarios illustrated :**
  1. -115 Mt (inventory correction)
  2. -265 Mt (target of -48% below 1990)
  3. -390 Mt (target of -55% below 1990)

## Illustration of emission budgets reduction scenarios in California

(millions of tonnes of CO<sub>2</sub>e eq.)



Source : California Air Resources Board.



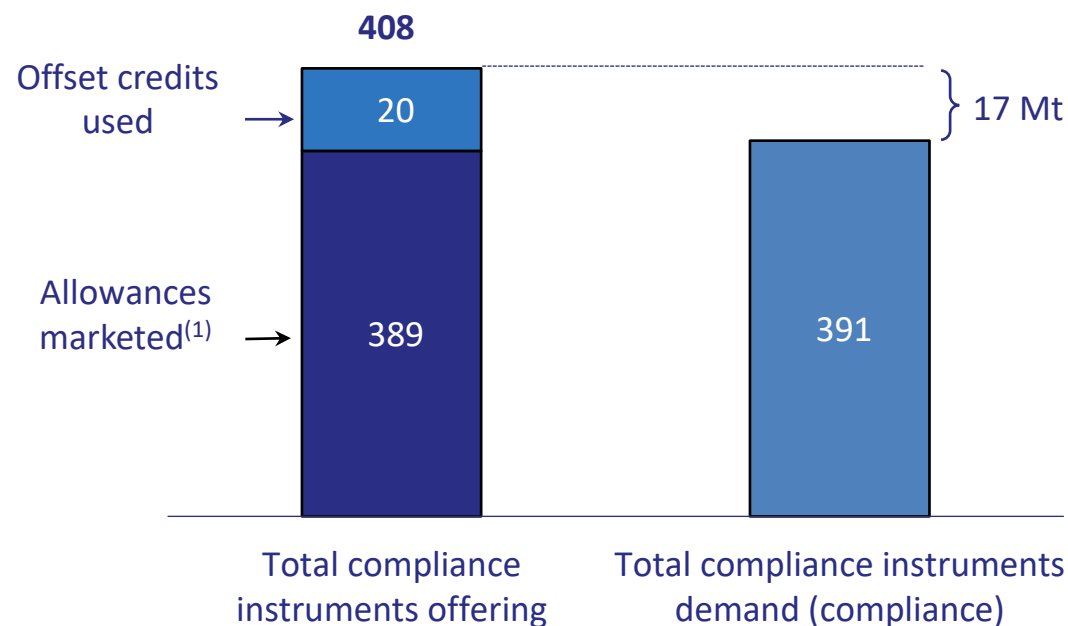
# Scenarios modelled – Québec

## Strengthening the Québec market: what form might this take?

- From 2013 to 2020, the number of allowances released onto the market in Québec was equivalent to GHG emissions.
- However, there is a gap of 17 Mt between total supply and total demand for compliance instruments in Québec.
- This gap corresponds essentially to the number of offset credits surrendered by Québec emitters.

### Illustration of the gap between supply and demand for compliance instruments in Québec – 2013 to 2020

(millions of tonnes of CO<sub>2</sub> eq.)



Note : Totals may not add due to rounding.

(1) 389 Mt includes allowances marketed over the 2013-2020 period and early reductions credits.

Sources : Ministère de l'Environnement, de la Lutte contre les changements climatiques, de la Faune et des Parcs and Ministère des Finances du Québec.

# Scenarios modelled – Québec

## Two scenarios analyzed

- **Reference scenario**  
Current carbon market parameters
- **Two types of changes considered:**
  1. a reduction of 17 Mt in the number of allowances auctioned;
  2. an enhancement of the offset program (credits) by 2030.
- **Enhancement of the offset program**
  - Transfer to a purchasing program funded by the 2030 Plan for a Green Economy.
- Effect similar to a reduction of 10 Mt of allowances in the market from 2025 to 2030.

# Scenarios modelled – Québec

## More GHG emission reductions in Québec

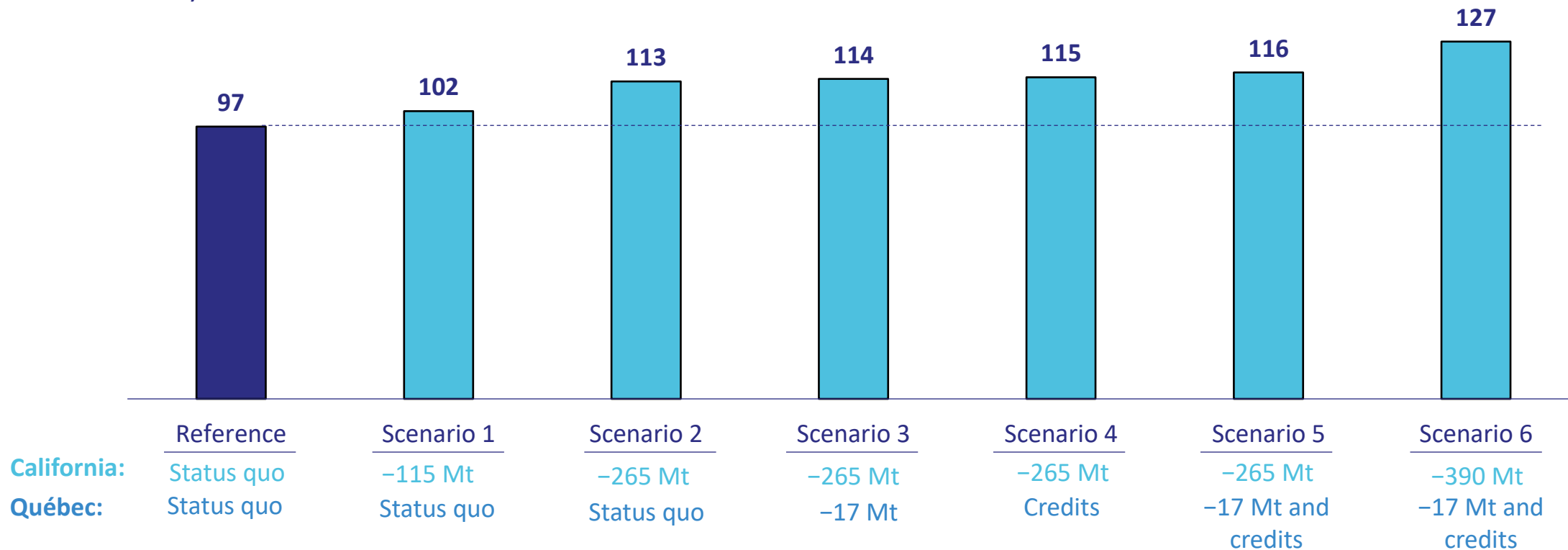
- Overall, **the more the supply of compliance instruments is reduced over the period 2025-2030 :**
  - the higher the price of carbon;
  - the greater the reductions in GHG emissions in Québec and California.
- In 2030, the different scenarios modelled present:
  - a **carbon price** variation between 102 \$ and 127 \$ per ton (current projected price of 97 \$ per ton);
  - **GHG emission reductions in Québec** of 18.7 Mt to 20.0 Mt.

# Impact of scenarios

An upward effect on the price of carbon...

## Illustration of the impact of scenarios on the carbon market price in 2030

(Canadian dollars)



Note : Illustration to give an idea of the effect of different carbon market parameters over the long term. Estimate based on most recent information as of October 2023.

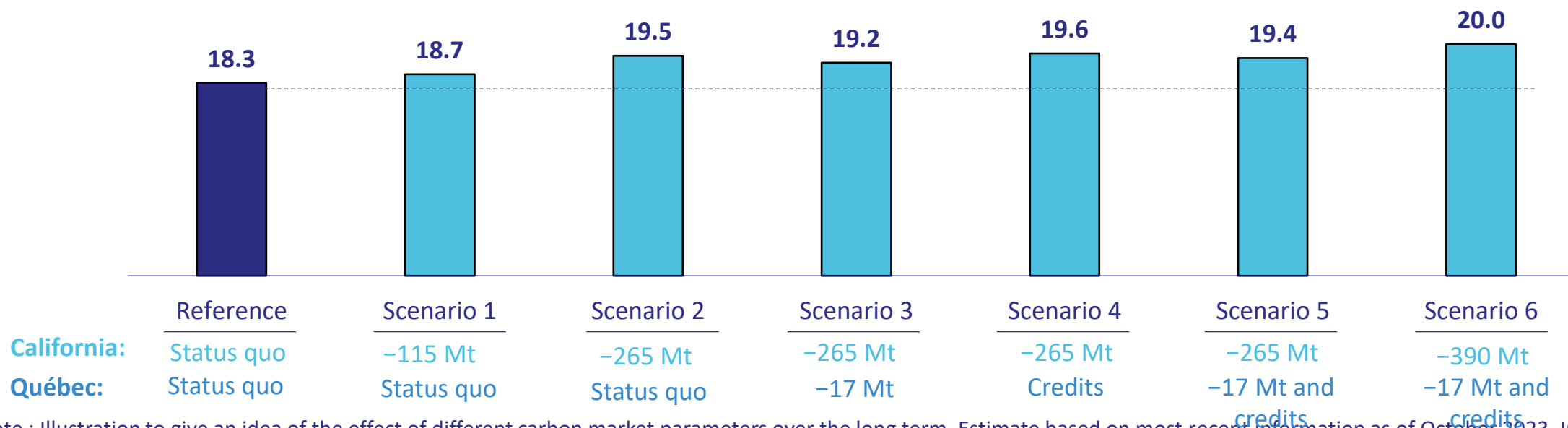
Sources : Ministère de l'Environnement, de la Lutte contre les changements climatiques, de la Faune et des Parcs and Ministère des Finances du Québec.

# Impact of scenarios

... resulting in additional emission reductions in Québec

## Illustration of the impact of scenarios on GHG emission reductions in Québec in 2030

(millions of tonnes of CO<sub>2</sub> eq.)



Note : Illustration to give an idea of the effect of different carbon market parameters over the long term. Estimate based on most recent information as of October 2023. Includes the effect of carbon pricing and reinvestment of additional revenues. Reductions are presented according to a projection scenario in the absence of action to fight climate change in Québec as of 2021, which takes into account projected economic growth and technological trends (disengagement scenario). For more information, see: [http://www.finances.gouv.qc.ca/documents/Autres/en/impact\\_analysis\\_implementation\\_plan\\_2023\\_2028.pdf](http://www.finances.gouv.qc.ca/documents/Autres/en/impact_analysis_implementation_plan_2023_2028.pdf).

Sources : Ministère de l'Environnement, de la Lutte contre les changements climatiques, de la Faune et des Parcs and Ministère des Finances du Québec.

# Questions and Feedback Session

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- Public Comment Instructions
  1. Use the "Raise Hand" function in the toolbar at bottom of your screen
  2. When your name is called, please "Unmute" yourself and proceed to introduce yourself
  3. Commenters will be given 2 minutes, no ceding time to others
- Submit written feedback to CARB
  - Use comment docket open through December 15 at 11:59 p.m. Pacific Time on [Cap-and-Trade Meetings and Workshops page](#)
- Submit written feedback to MELCCFP
  - Comments must be submitted in writing before December 15 using the web form available at [Assessment of the operating parameters of the Cap-and-Trade System.](#)
  - Comments received will be published entirely on the web page following the pre-consultation period. Only the e-mail address will not be published.

# BREAK

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# Agenda

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- First session (9:30 a.m. - 11:00 a.m.)
  - Introduction and overview
  - Modeling by UC Davis
  - Modeling by Québec Ministry of Finance
  - Public comments
- Break
- Second session (11:00 a.m. - 12:30 p.m.)
  - Cost-containment
  - Joint market rules
  - Public comments



# UC Davis

## Initial Allowance Price Modeling Summary

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- UC Davis modeled a business-as-usual (BAU) scenario through 2040 under four scenarios of removing allowances from future budgets
  - Alternative 1: 40%; minimizing allowance removals
  - Alternative 2: 55%; maximizing allowance removals
  - Alternative 3A: 48%; minimizing allowance removals
  - Alternative 3B: 48%; maximizing allowance removals
- The 2040 UC Davis modeling results show mean allowance prices
  - BAU scenario: \$95 (2023 dollars) through 2040
  - Alternative scenarios: Generally, follow the price ceiling through 2040 (\$145 in 2035 and ~\$180 in 2040), except Alt. 1 which is near APCR Tier 2 in 2040 (\$155)
- All caveats around the modeling of allowance prices from slide 13 continue to apply to information on this slide

# Ministère des Finances du Québec

## Allowance Price Modeling Summary

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- The Ministère des Finances du Québec modeled a reference scenario plus six scenarios for removing allowances from budgets that are complementary to the California's scenarios

	<u>Reference</u>	<u>Scenario 1</u>	<u>Scenario 2</u>	<u>Scenario 3</u>	<u>Scenario 4</u>	<u>Scenario 5</u>	<u>Scenario 6</u>
<b>California:</b>	Status quo	-115 Mt	-265 Mt	-265 Mt	-265 Mt	-265 Mt	-390 Mt
<b>Québec:</b>	Status quo	Status quo	Status quo	-17 Mt	Credits	-17 Mt and credits	-17 Mt and credits

- According to the different scenario modelled:
  - The carbon price** would fluctuate between 102\$CAD and 127 \$CAD per tonne (status quo, 97 \$CAD per tonne);
  - GHG emission reductions in Québec** would be between 18,7Mt and 20,0Mt.

# Potential Pools to Retire Allowances

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Vintage	Allowance Pool
2013-2020	Price Ceiling
2013-2030	APCR
2025-2030	Auction and Allocation

- California is evaluating all pools for potential removal of allowances
- Québec does not have Price Ceiling Allowance Pool and is evaluating potential removals from Auction and APCR

# Potential Changes to the Allowance Cap May Affect the Linked Carbon Market

- The jurisdictions are considering removing allowances from the budget for auction/allocation and from cost-containment accounts
  - Changes account for California's updated GHG Inventory and to increase ambition and for Québec's potential allowance removal
- Removing allowances from the market may affect market dynamics
- Staff are assessing market rules and cost-containment provisions to support an efficient and steady program

Target Scenario	Estimated Total 2021-2030 Allowances (CA and QC combined)	Estimated Allowances Removed (CA and QC combined)
<i>Current Regulations</i>	~3,100	--
Potential Update: 40%	~2,970	132
Potential Update: 48%	~2,820	282
Potential Update: 55%	~2,700	407

# Cost-Containment Overview

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- Cost-effectiveness is an important element of program design for both California and Québec
  - AB 32 requires CARB to consider cost-effectiveness in program design
- Elements to optimize cost-effectiveness:
  - Multi-year compliance periods
  - Allowance banking, subject to strict holding limits
  - Limited use of offset credits
  - Allowance Price Containment Reserve (APCR)
    - California: two-tier reserve sales
    - Quebec: three-tier reserve sales by mutual agreement
  - In AB 398, the California Legislature directed inclusion of a price ceiling to bolster cost-containment

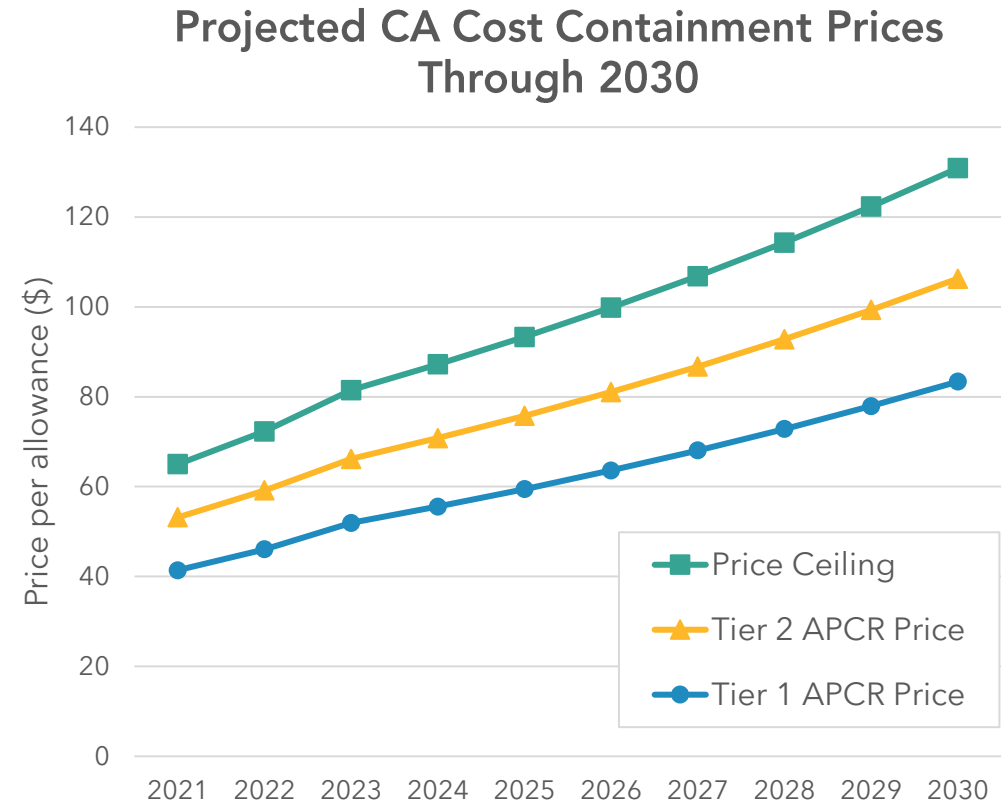
# AB 398 Direction on Cost-Containment

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- In 2017, the California Legislature directed CARB to implement a two-tier price-containment reserve and a new price ceiling mechanism
- Per AB 398, CARB balanced the following factors when setting a price ceiling for the Cap-and-Trade Program:
  - Adverse impacts to the economy and households
  - Emissions leakage
  - The full social cost of carbon
  - Costs to achieve GHG emissions reductions
  - Cost-containment tier prices in 2020
  - Auction reserve price relative to price ceiling

# CA Reserve Tiers and Price Ceiling Overview

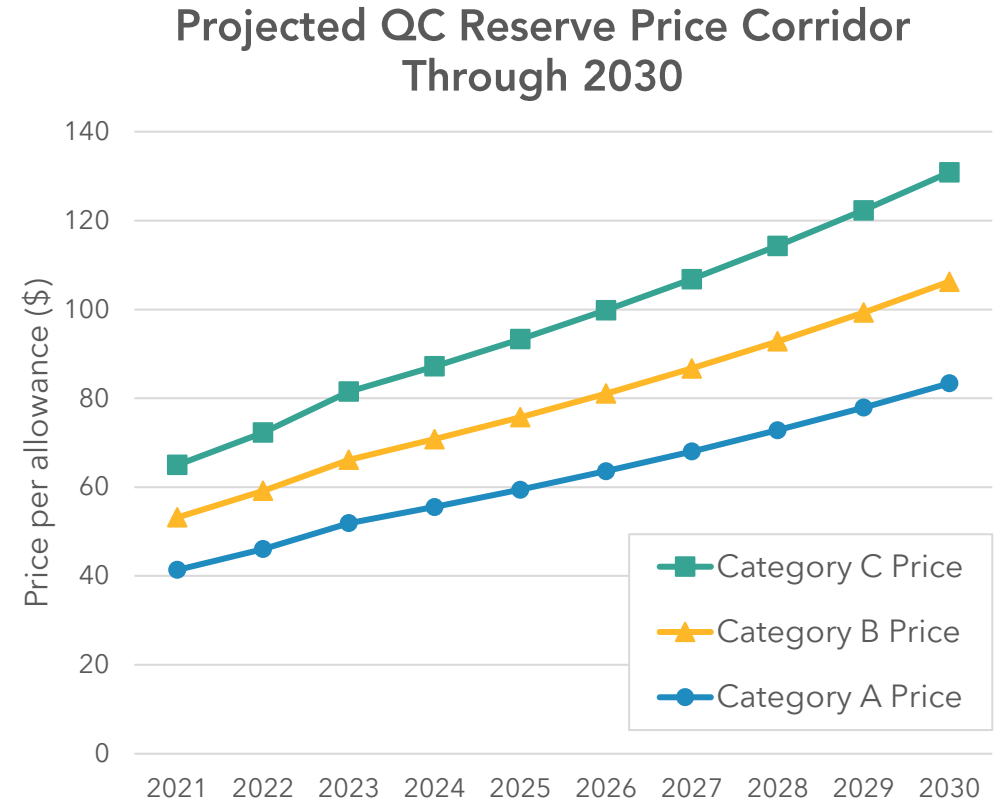
- In 2021, 2-tier reserve prices were set at \$41.40 and \$53.20, and the price ceiling was set at \$65
  - Price increases 5% plus inflation each year
- A price ceiling sale is only accessible after both APCR tiers are exhausted
- CA Reserve sales are offered when:
  - An auction settles at greater than or equal to 60% of the APCR Tier 1 price
  - During Quarter 3, each year
- No APCR sales have been held to date
- Only compliance entities are eligible to apply



For illustrative purposes, projected prices are based on 2023 prices adjusted annually by 5% plus 2% (target inflation rate)

# QC Sale by Mutual Agreement Overview

- In 2021, 3-tier reserve prices were set at \$41.40, \$53.20, and \$65 (\$CAD)
  - Price increases 5% plus inflation each year
- If California prices are higher, the allowances are sold at the highest
- For QC, Sale by mutual agreement are offered when:
  - Before the November 1 compliance deadline
  - At the discretion of the Minister, at most 4 times per year
- No SMA sales have been held to date
- Only compliance entities are eligible to apply



For illustrative purposes, projected prices are based on 2023 prices adjusted annually by 5% plus 2% (target inflation rate)

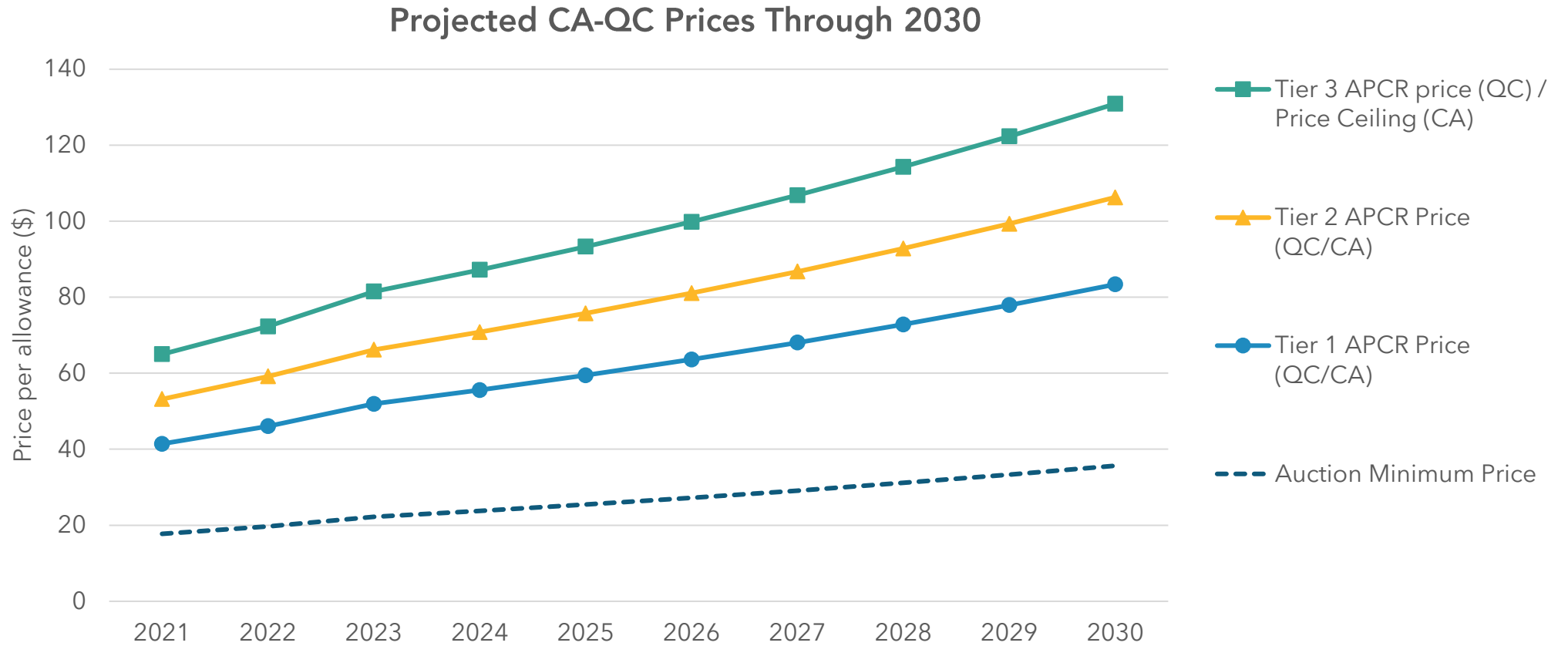


# Joint Auction Overview

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- Format of quarterly joint auctions
  - A specific number of allowances are offered at every auction
  - Each year, all allowances remaining after allowance allocation for that vintage year are made available at auction
  - The auction supply decreases each year
- Auction Reserve Price
  - Minimum bid price accepted at auction to purchase allowances
  - Enables market valuation and supports a steadily increasing price signal
  - Provides market price certainty and addresses market demand
- Unsold allowances are withheld and reintroduced to auction only after two consecutive auctions have a settlement price above the Auction Reserve Price
  - Jurisdiction-owned allowances that remain unsold after certain periods are transferred to each jurisdiction's reserve (CA: 24 months; QC: 3 years)

# CA-QC Auction and Cost Containment Price Projections



For illustrative purposes, projected prices are based on 2023 prices adjusted annually by 5% plus 2% (target inflation rate)

# Cost-Containment Considerations and Feedback

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- Considerations
  - Minimize costs without compromising the environmental integrity of the Program
  - If prices rise, ensure that they rise steadily allowing the market time to react and find additional GHG reduction technologies or opportunities
  - Cost-containment prices must be coordinated across linked jurisdictions
- Questions for Stakeholders
  - What are the implications for cost-containment associated with removing allowances from future budgets and/or from the APCR tiers and price ceiling?
  - How can cost-containment features reflect a real-time valuation of allowance prices and be designed to enhance price stability?
  - Should the jurisdictions create a new mechanism where auction supply reflect recent auction settlement price(s)?
    - Increasing the supply if the auction settlement price is high
    - Reducing the supply if the auction settlement price is low

# Market Monitoring and Program Integrity

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- Jurisdictions must establish strong market rules to ensure the market is free from manipulative and disruptive activities
- Jurisdictions are responsible for operating the market, implementing program requirements, and monitoring participant activities and behaviors
- Jurisdictions are seeking feedback on market rules and changes to program requirements that will:
  - Promote program integrity by strengthening market mechanisms and, business relationship disclosure requirements
  - Enhance market performance, and
  - Protect market participants

# Well-Functioning Market Components

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- A well-functioning market offers liquidity and transparent pricing to stakeholders
- Market liquidity implies:
  - Efficient price discovery
  - Prices that reflect supply and demand fundamentals
  - Trades have low transaction costs
- Transparent pricing implies:
  - Prices reflect changes in market fundamentals and economic conditions
  - Reliable carbon price signal to promote investments in cleaner technology for GHG reductions
  - Minimizing price volatility and avoiding adverse impacts on households, businesses, and the economy

# Market Rule Considerations

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- Holding limits and limited exemption
- Business relationships and corporate associations
- Market protection and trading requirements
- Allowance banking and usage

# Holding Limits and Limited Exemption Overview

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- The **holding limit** is the maximum number of allowances held by an entity or a group of affiliated entities
  - Prevents a market participant or a group of market participants from cornering a large share of the allowances in the market
  - Decreases each year based on the decreasing annual allowance budget as set by the holding limit equation
  - Separate holding limits exist for current vintages and future vintages
  - Applies equally to covered participants and voluntary participants and is not entity-specific
- The **limited exemption** is the number of allowances excluded from the holding limit and only applies to covered entities
  - Supports banking and holding allowances to meet compliance obligations
  - Applies only to covered participants and is calculated on an entity-specific basis

# Holding Limits and Limited Exemption Equations

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- Holding limit equation:

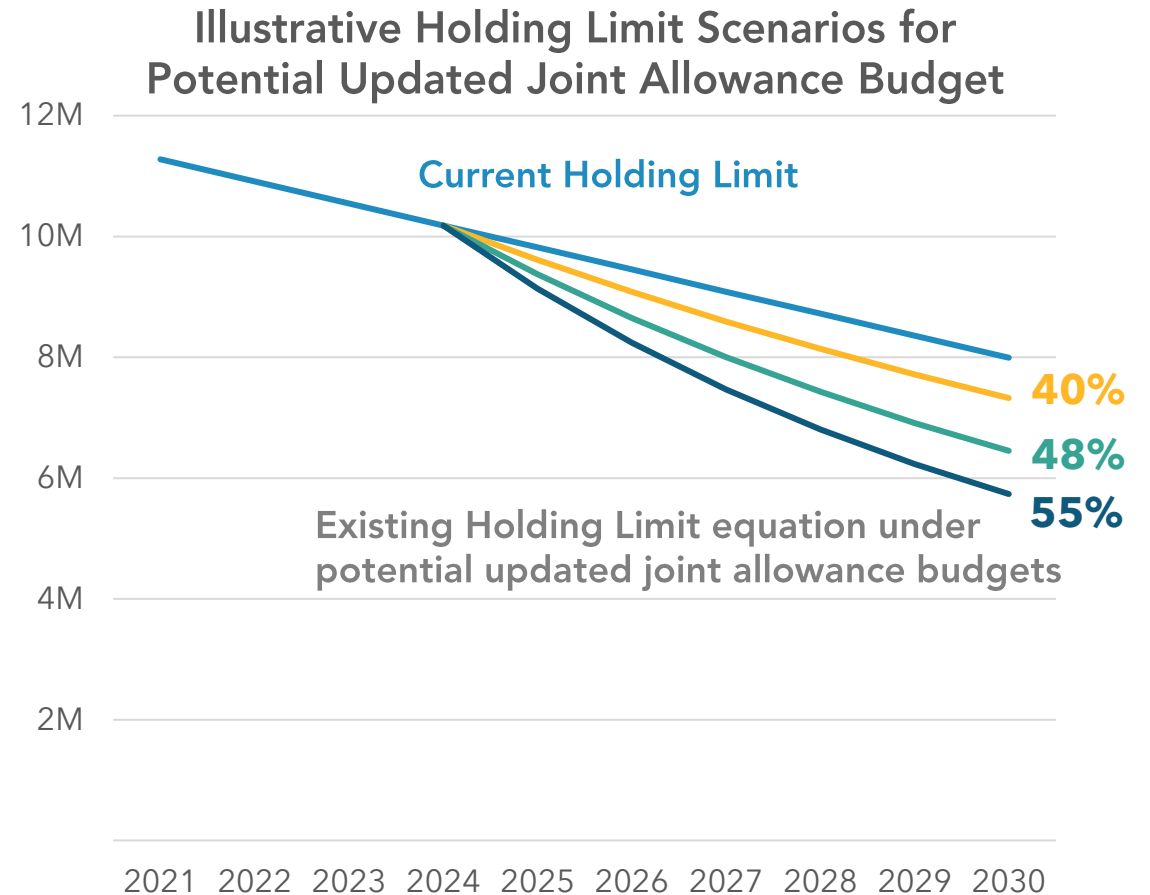
$$\text{Holding Limit} = 0.1 \times \text{Base} + 0.025 \times (\text{Annual Allowance Budget} - \text{Base})$$

- “Base” equals 25 million metric tons of CO<sub>2</sub>e, and
  - “Annual Allowance Budget” is the total number of allowances issued for a budget year in the linked programs
- Limited exemption equation:
    - The limited exemption is assigned each year based on recently verified covered emissions
    - Not applicable to voluntarily associated entities
    - Entity-specific, and based on annual reported and verified emissions data



# Holding Limits Under Potential Updated 2025-2030 Joint Allowance Budgets

- The jurisdictions are considering potential changes to the 2025-2030 allowance budgets
- Because the annual allowance budget is part of the holding limit equation, changing future allowance budgets changes future holding limits under the current Regulation
- Changes to future allowance budgets may prompt a need to evaluate the holding limit equation applicable to current and future vintage allowances



# Holding Limits and Limited Exemption Considerations and Feedback

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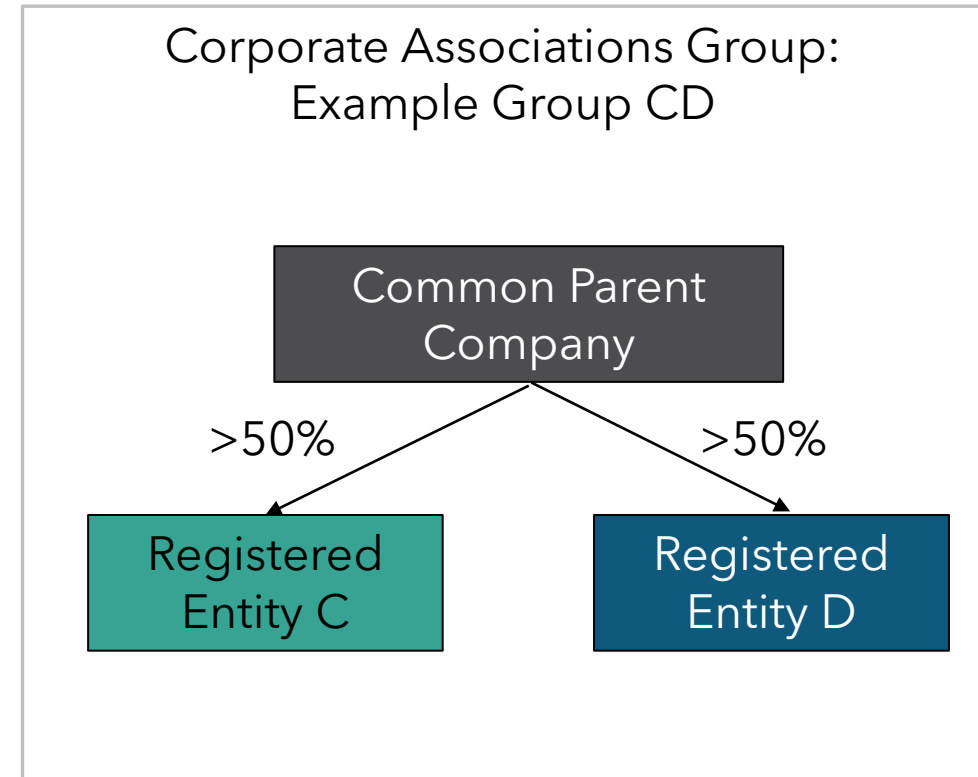
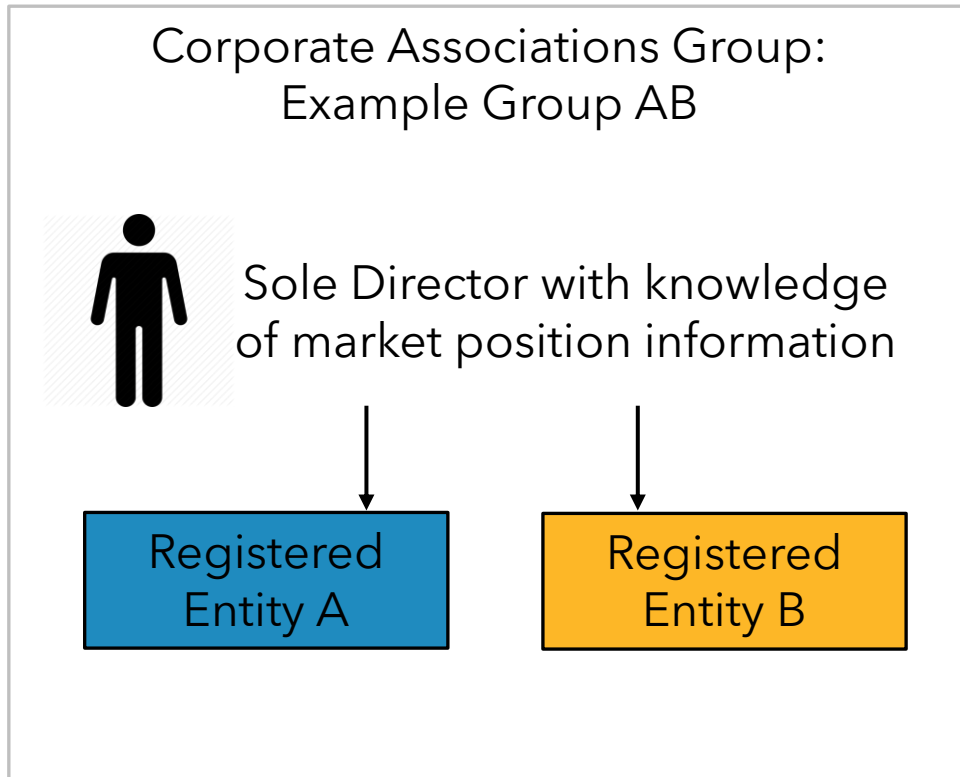
- Considerations
  - Goal is to reduce opportunities for market manipulation
  - Must have the same holding limit rules across linked jurisdictions
- Questions for Stakeholders
  - Should the holding limit equation and/or limited exemption equation be updated in the context of adjusted allowance budgets?
  - Should covered emissions or any other entity-specific factor be considered in the holding limit equation?
  - Should any changes to the holding limits be immediate or phased in over time?
    - If gradual, how long should the delay be, and what factors should be considered?
  - Are there other changes or factors that the jurisdictions should consider?

# Business Relationships and Corporate Associations

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- Entities in a corporate association (e.g., with a common parent company) share a holding limit and an auction purchase limit
- Accurate disclosure of corporate associations is essential for market monitoring and mitigation of manipulative behaviors
- Disclosure of business relationships and corporate association groups:
  - Market participants must disclose associations with other registered entities
  - Jurisdiction staff track and monitor indicators of ownership and control to identify corporate association groups (CAGs)
  - Entities must disclose Cap-and-Trade consultants/advisors. Also, in CA, individuals with access to market position, which includes knowledge of covered emissions and account holdings
  - Members of a covered entity CAG must share a 25% purchase limit and members of a voluntarily associated entity CAG must share a 4% purchase limit

# Corporate Associations Group Examples



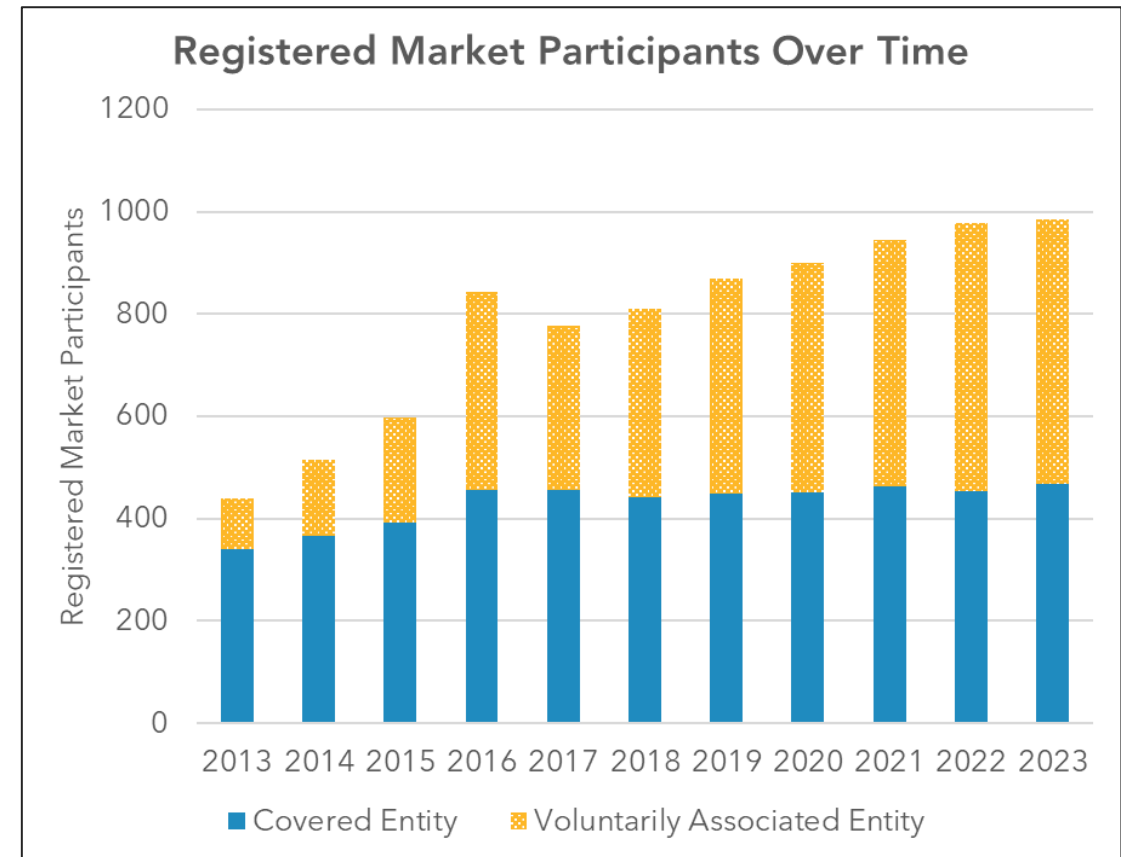
# Business Relationships and Corporate Associations: Considerations and Feedback

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- Considerations
  - The jurisdictions must ensure strong corporate association disclosure rules to mitigate market power and prevent market manipulation
- Questions for Stakeholders
  - Are there other indicators of control and/or ownership that should be considered to support determining if a corporate association exists?
    - For example, the ability to appoint or the power to effectuate a director/officer, account manager or administrative or managing company
  - Should the jurisdictions consider any CAG exemptions for account representatives or viewing agents on multiple CITSS accounts?

# Market Activities and Staff Observations

- There has been a steady increase of market participants over time, illustrative of current market conditions
- Long-term allowance holdings or investments may reduce market liquidity considering the potential reductions in allowances
- There is no current duration limit on holding allowances or a time limit to using allowances



# Banking and Trading Requirements

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- Since the inception of the Cap-and-Trade Program, the jurisdictions have included rules allowing entities to bank allowances for later compliance use
- Banking helps to:
  - Reduce compliance costs and mitigate concerns about price volatility
  - Create compliance flexibility,
  - Incentivize early emissions reductions, and
  - Encourage a long-term commitment from market participants
- In the context of adjusted allowance budgets, there may be a need to evaluate new trade rules to enhance market liquidity while also supporting banking

# Banking and Trading Considerations and Feedback

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- Considerations
  - Accurate and stable prices, along with liquidity, indicate a well-functioning market
  - Allowances are designed to be used for compliance, and allowances must be available for covered entities
  - Banking and trading rules must be coordinated across linked jurisdictions
- Questions for Stakeholders
  - Could changes to market rules enhance liquidity and protect against price volatility?
    - Modified banking rules
    - Minimum trade activity requirements
    - Duration limits on allowance holdings
  - How could any such provision be designed to limit gaming or avoidance?



# Questions and Feedback Session

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- Public Comment Instructions
  1. Use the "Raise Hand" function in the toolbar at bottom of your screen
  2. When your name is called, please "Unmute" yourself and proceed to introduce yourself
  3. Commenters will be given 2 minutes, no ceding time to others
- Submit written feedback to CARB
  - Use comment docket open through December 15 at 11:59 p.m. Pacific Time on [Cap-and-Trade Meetings and Workshops page](#)
- Submit written feedback to MELCCFP
  - Comments must be submitted in writing before December 15 using the web form available at [Assessment of the operating parameters of the Cap-and-Trade System](#).
  - Comments received will be published entirely on the web page following the pre-consultation period. Only the e-mail address will not be published.

# Next Steps

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## CARB

- Meeting materials and comment docket available at Cap-and-Trade Meetings and Workshops webpage:  
<https://ww2.arb.ca.gov/our-work/programs/cap-and-trade-program/cap-and-trade-meetings-workshops>
- Comment docket open through December 15

## MELCCFP

- Meeting materials and comment docket available at Cap-and-Trade Meetings and Workshops webpage:  
<https://www.environnement.gouv.qc.ca/changementsclimatiques/evaluation-parametres-fonctionnement-spede-en.htm>
- Comments must be submitted in writing through December 15