

California-Quebec Cap-and-Trade: Will it Make it to 2030?

Pierre-Olivier Pineau
HEC Montréal, Canada
February 15, 2021 – 10 – 11 am



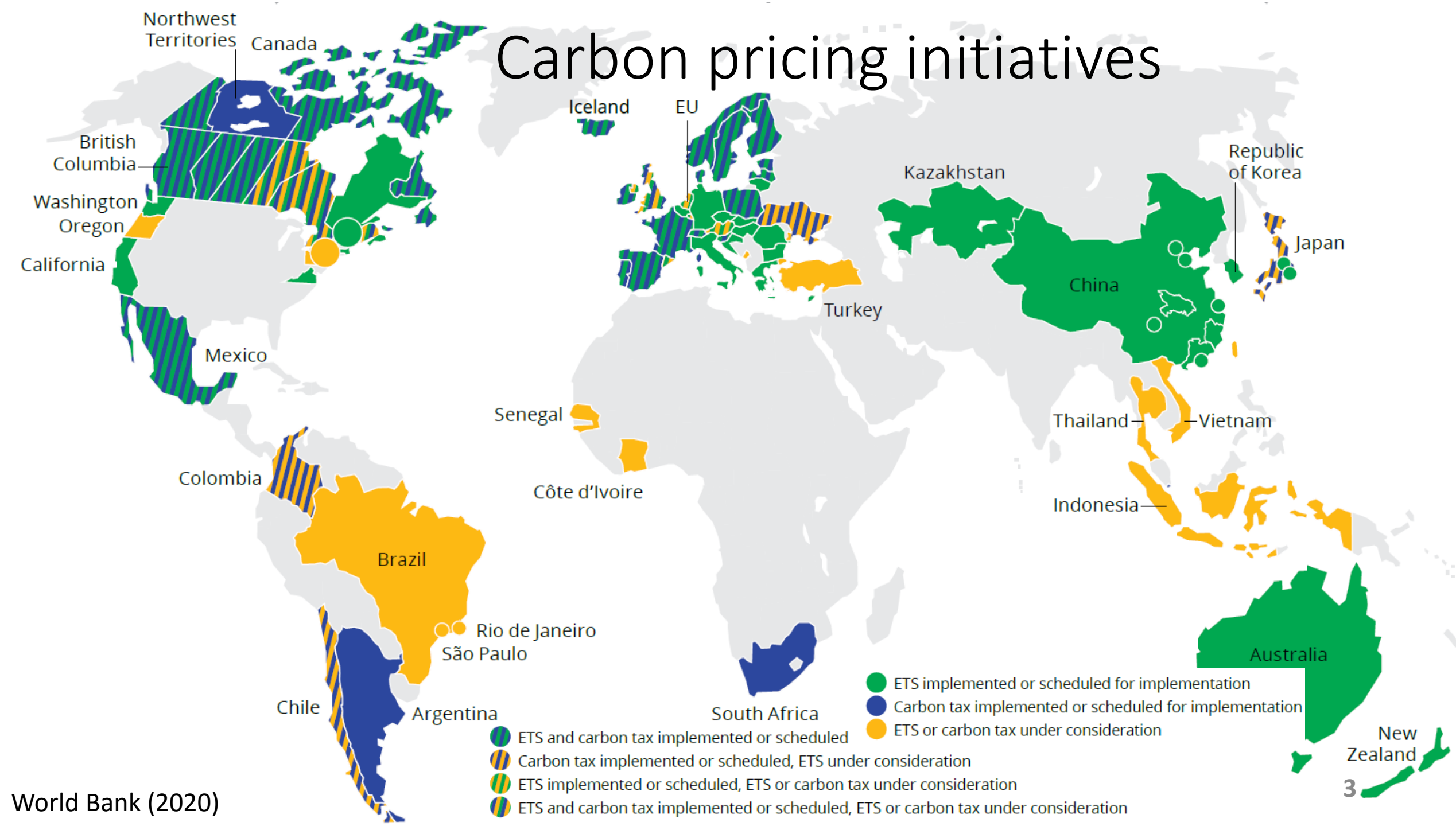
CAEE

Canadian Association for Energy Economics
Association canadienne de l'économie de l'énergie

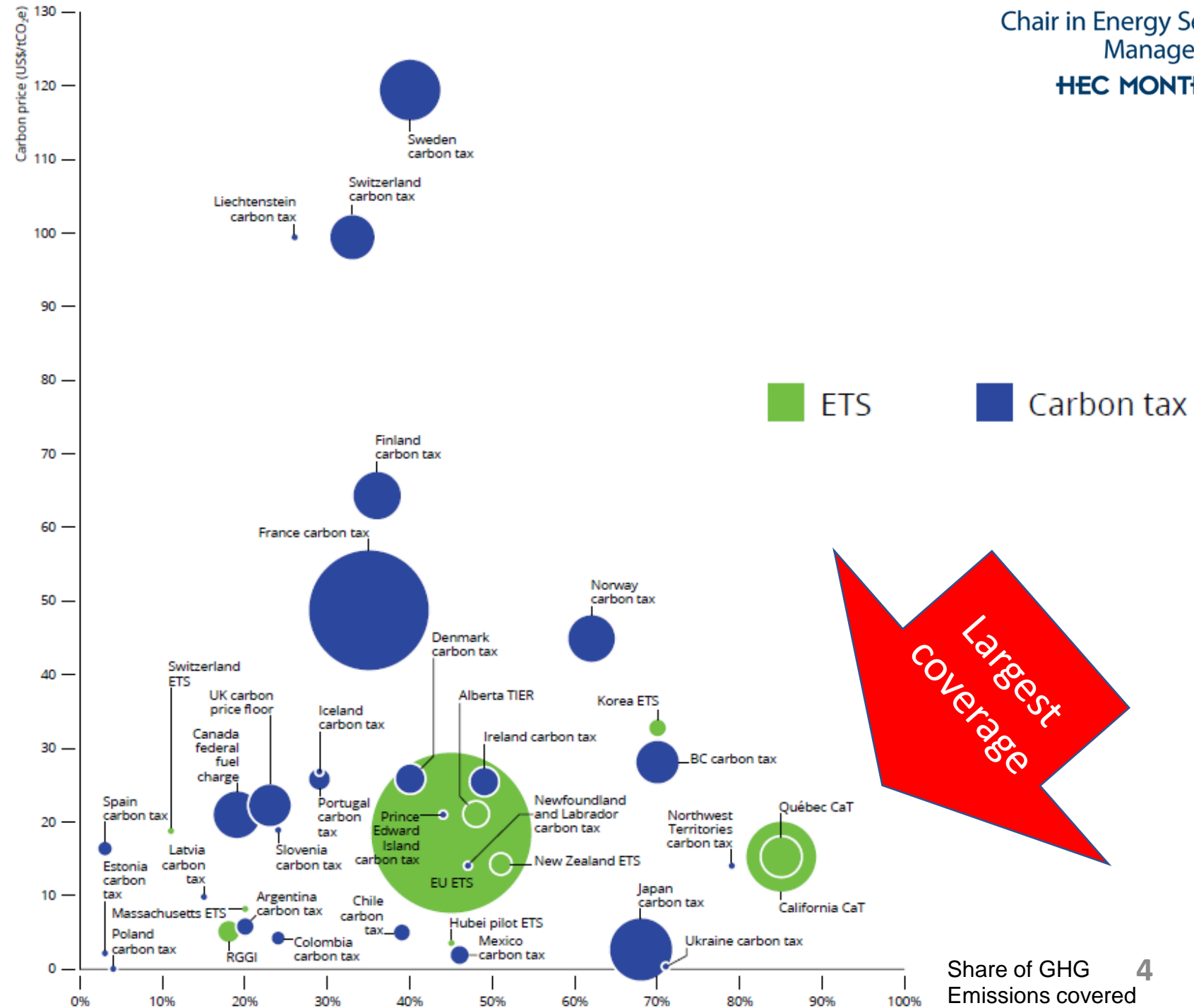
Outline

1. Carbon pricing and the Western Climate Initiative
2. Emissions and caps in California and Quebec
3. What to expect in the next 10 years?
4. Conclusion

Carbon pricing initiatives



Carbon prices & Coverage of emissions



Western Climate Initiative (WCI)

U.S. Partner jurisdictions comprise 19% of the total U.S. population and 20% of the U.S. GDP
Canadian Partner jurisdictions comprise 79% of the total Canadian population and 76% of the Canadian GDP.

Manitoba

GDP 49 Billion C\$
Population 1,186,700
Largest Source of Emission ... Transportation

British Columbia

GDP 190 Billion C\$
Population 4,380,300
Largest Source of Emission ... Transportation

Washington

GDP 311 Billion US\$
Population 6,468,424
Largest Source of Emission ... Transportation

Oregon

GDP 158 Billion US\$
Population 3,747,455
Largest Source of Emission ... Transportation

California

GDP 1,813 Billion US\$
Population 36,553,215
Largest Source of Emission ... Transportation

Arizona

GDP 247 Billion US\$
Population 6,338,755
Largest Source of Emission ... Electricity*

* includes tribal lands

Ontario

GDP 582 Billion C\$
Population 12,803,900
Largest Source of Emission ... Transportation

Quebec

GDP 298 Billion C\$
Population 7,700,800
Largest Source of Emission ... Transportation

Nova Scotia
Population 1 M

Montana

GDP 34 Billion US\$
Population 957,861
Largest Source of Emission ... Electricity

Utah










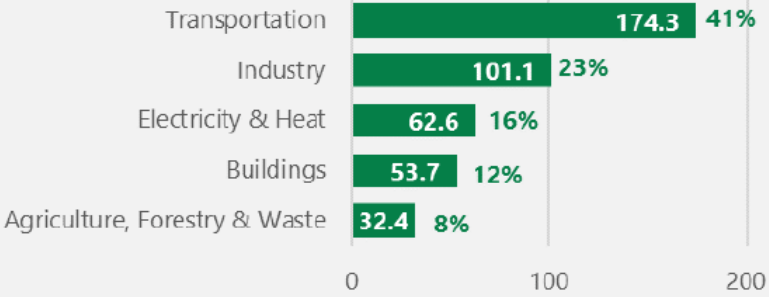
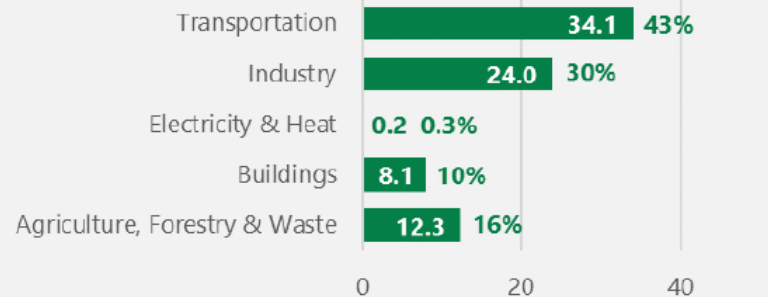


GDP 106 Billion US\$
Population 2,645,330
Largest Source of Emission ... Electricity

New Mexico

GDP 76 Billion US\$
Population 1,969,915
Largest Source of Emission ... Electricity

Partners Observers

- Created in 2007
- Initial members:
Arizona, California,
New Mexico, Oregon,
and Washington
- Initial goal: 15% below
2005 emission levels by
2020
- Many partners and
observers have been
included, *at one point*

	California (USA) 	Québec (CAN) 																														
	Program initiated: 2012 Linkage: Québec (2014)	Program initiated: 2013 Linkage: California (2014)																														
1. Primary Language 	English	French																														
2. Time Zone 	Pacific	Eastern																														
3. Area Size 	163,696 square miles / 423,970 km ²	643,907 square miles / 1,667,712 km ²																														
4. Gross Domestic Product (GDP) in 2018 	USD 2,968 billion / CAD 3,846 billion	USD 338 billion / CAD 439 billion																														
5. Population (Millions) in 2020 	39.94	8.55																														
6. Overall GHG emissions in 2017 excluding LULUCF ¹ 	424.0 MtCO ₂ e, see inventory & trends	78.7 MtCO ₂ e, see inventory & trends																														
7. Overall GHG emissions in 2017 by sector (MtCO ₂ e) 	 <table> <tr><td>Transportation</td><td>174.3</td><td>41%</td></tr> <tr><td>Industry</td><td>101.1</td><td>23%</td></tr> <tr><td>Electricity & Heat</td><td>62.6</td><td>16%</td></tr> <tr><td>Buildings</td><td>53.7</td><td>12%</td></tr> <tr><td>Agriculture, Forestry & Waste</td><td>32.4</td><td>8%</td></tr> </table>	Transportation	174.3	41%	Industry	101.1	23%	Electricity & Heat	62.6	16%	Buildings	53.7	12%	Agriculture, Forestry & Waste	32.4	8%	 <table> <tr><td>Transportation</td><td>34.1</td><td>43%</td></tr> <tr><td>Industry</td><td>24.0</td><td>30%</td></tr> <tr><td>Electricity & Heat</td><td>0.2</td><td>0.3%</td></tr> <tr><td>Buildings</td><td>8.1</td><td>10%</td></tr> <tr><td>Agriculture, Forestry & Waste</td><td>12.3</td><td>16%</td></tr> </table>	Transportation	34.1	43%	Industry	24.0	30%	Electricity & Heat	0.2	0.3%	Buildings	8.1	10%	Agriculture, Forestry & Waste	12.3	16%
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8. GHG ² Reduction Targets 	<ul style="list-style-type: none"> - By 2020: Return to 1990 level - By 2030: 40% below 1990 level - By 2050: 80% below 1990 level (By 2045: carbon neutrality) 	<ul style="list-style-type: none"> - By 2020: 20% below 1990 level - By 2030: 37.5% below 1990 level - By 2050: 80-95% below 1990 level 																														
9. GHG Cap (2020) & Overall Emissions Coverage 	<div>334.2 MtCO₂e Covered ~80 % (2017)</div> <div>~ 20 % Not Covered</div>	<div>50.7 MtCO₂e Covered ~77 % (2017)</div> <div>~ 23 % Not Covered</div>																														

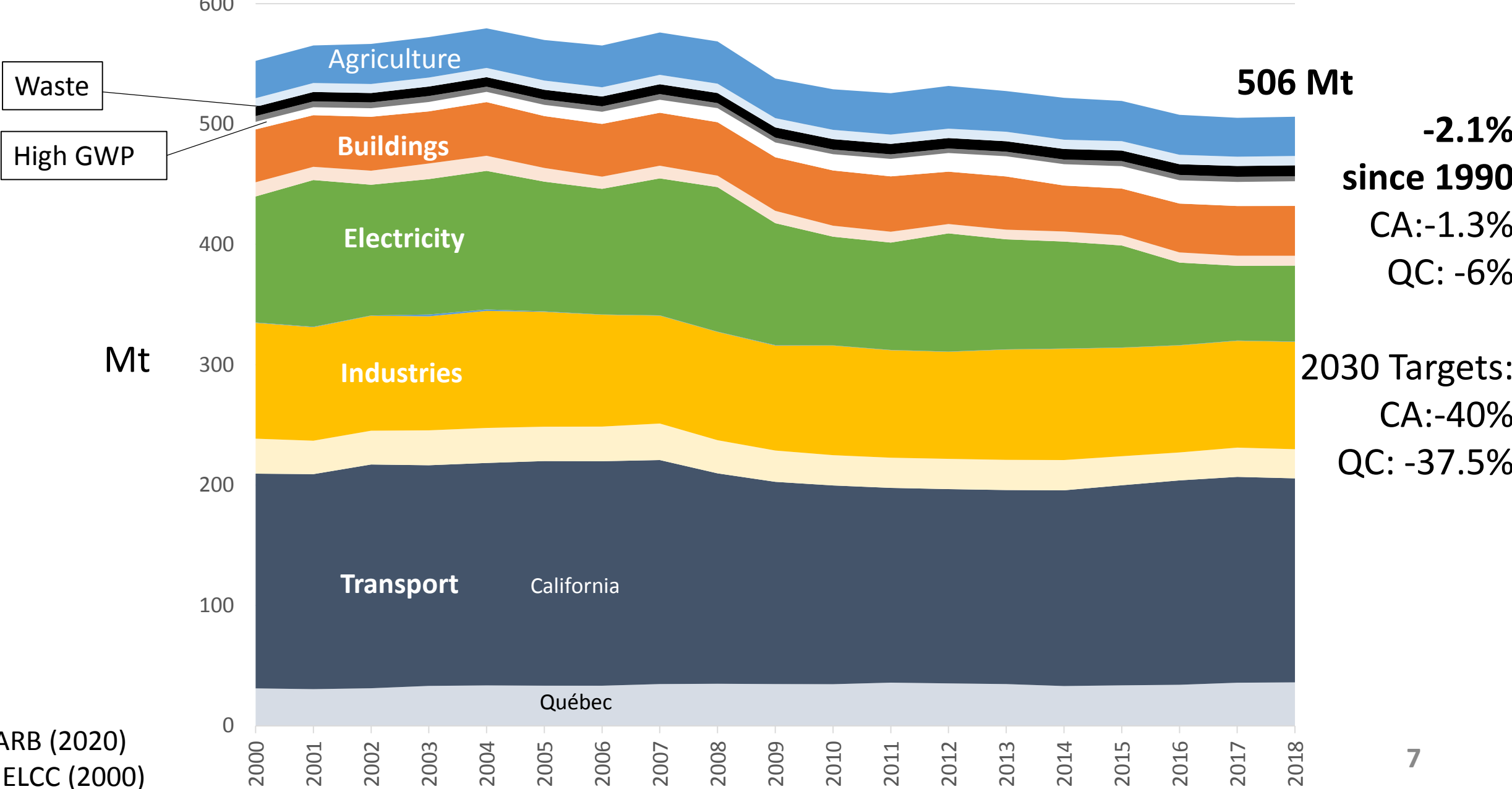
10.6 t per capita

US: 16.6

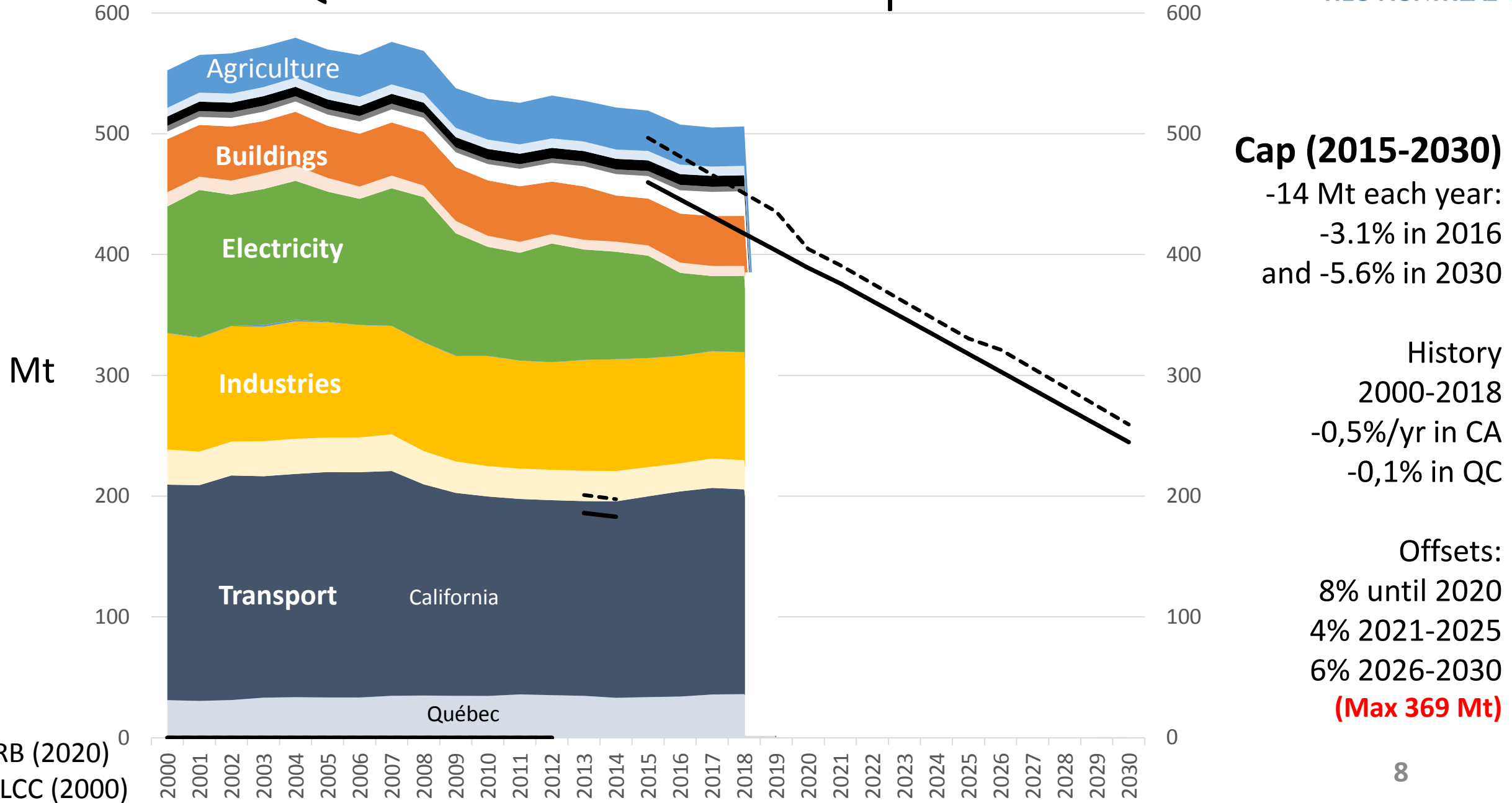
9.2 t per capita

Canada: 19.7

California and Quebec Emissions, 2000-2018



CA+QC Emissions and Cap until 2030

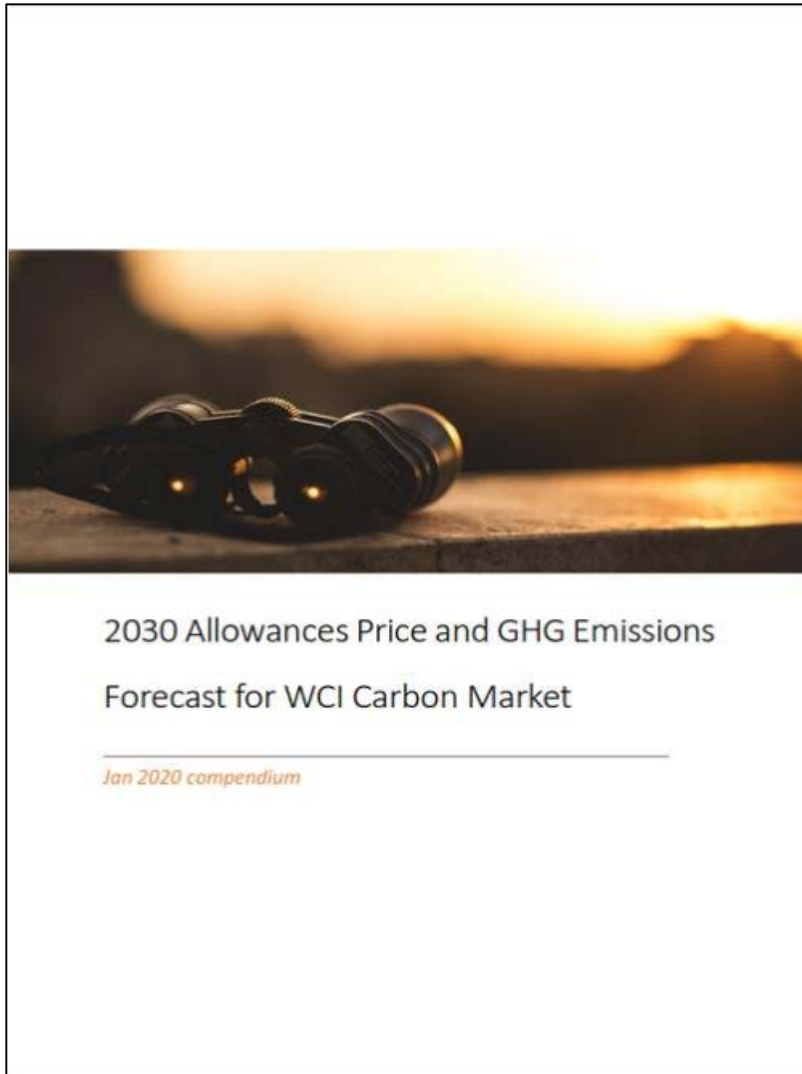


Key question

When will scarcity hit the market? (Will it Make it to 2030?)

When will the box be too small?





January 2020, 57 Pages, €6,450

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2030 WCI Emissions and Price Forecast | Analyst Note

January 25, 2021 by Anant Jain

We have modelled 3 scenarios in this note: (a) Likely Scenario, (b) Slow-economy scenario and (c) Heroic Climate Action scenario. The scenarios are built around potential linkages between different key variables. The scenarios take into account the interplay between policies, technologies, economic progress, and other carbon interventions in California and...

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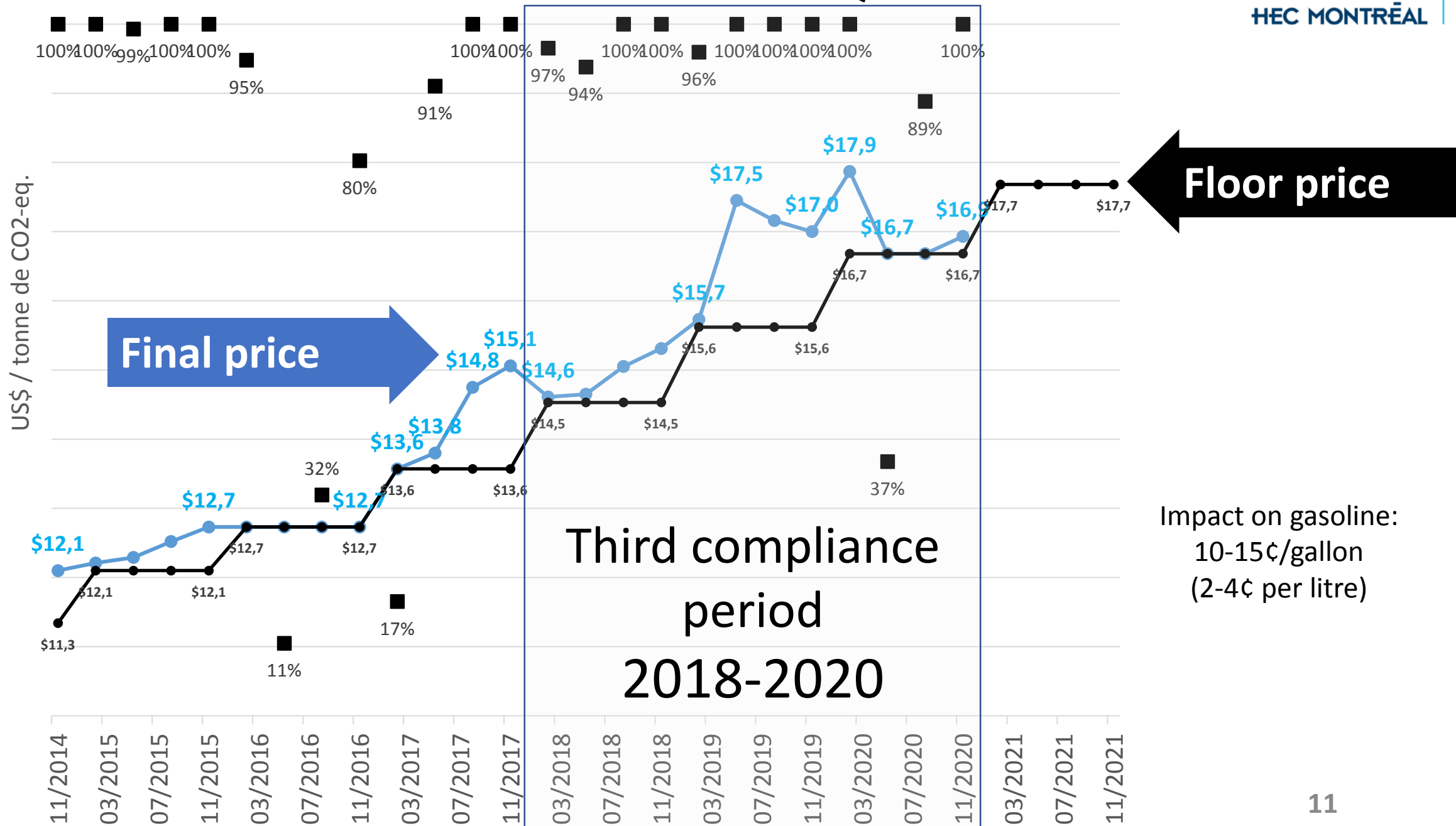
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Membership: starting at US\$1,200/year

Results for the 25 first California-Québec auctions



Joint CA+QC Carbon Budget: 2013-2030

Government created
allowances:

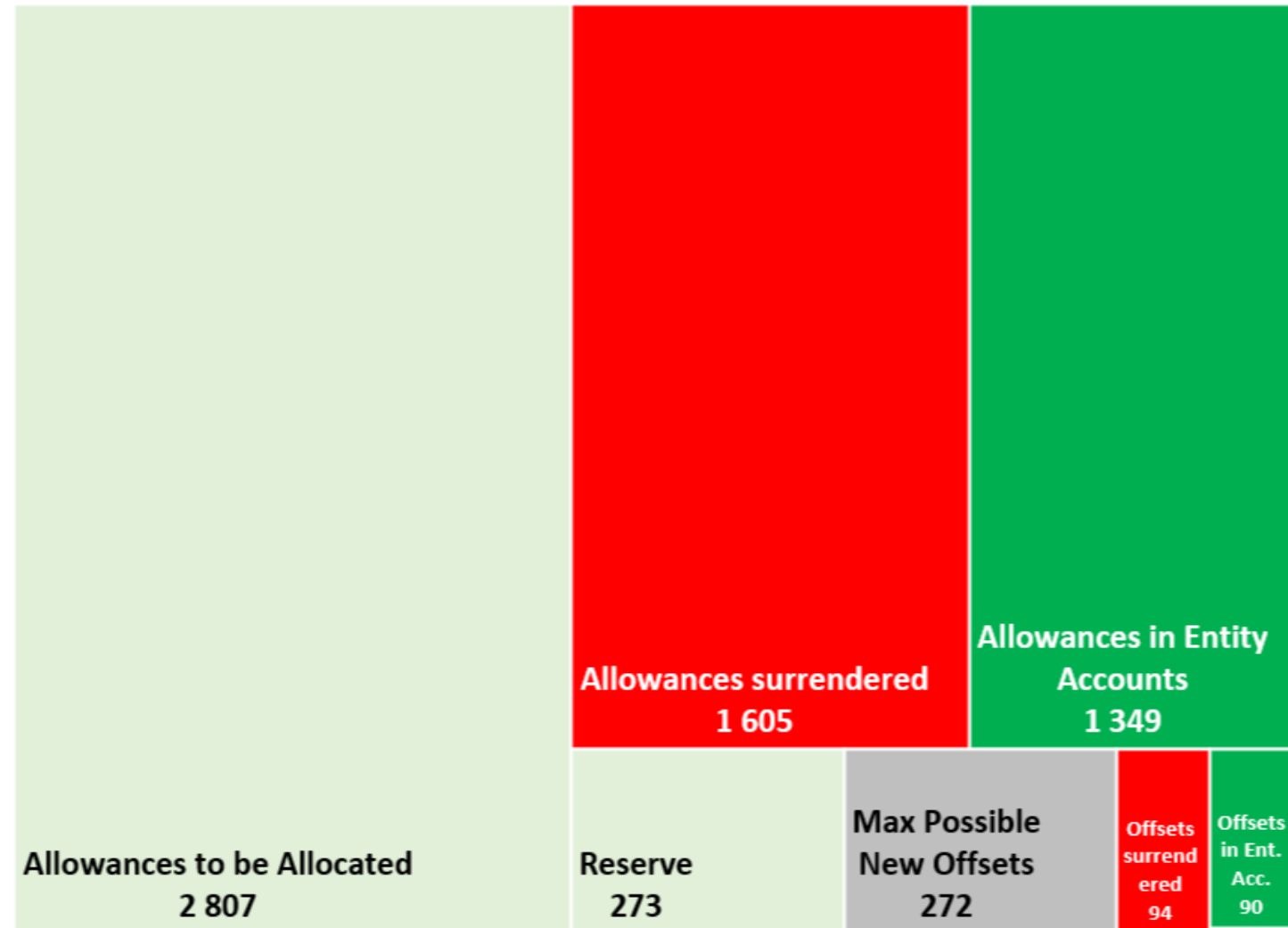
6 034 Mt

Maximum offsets:

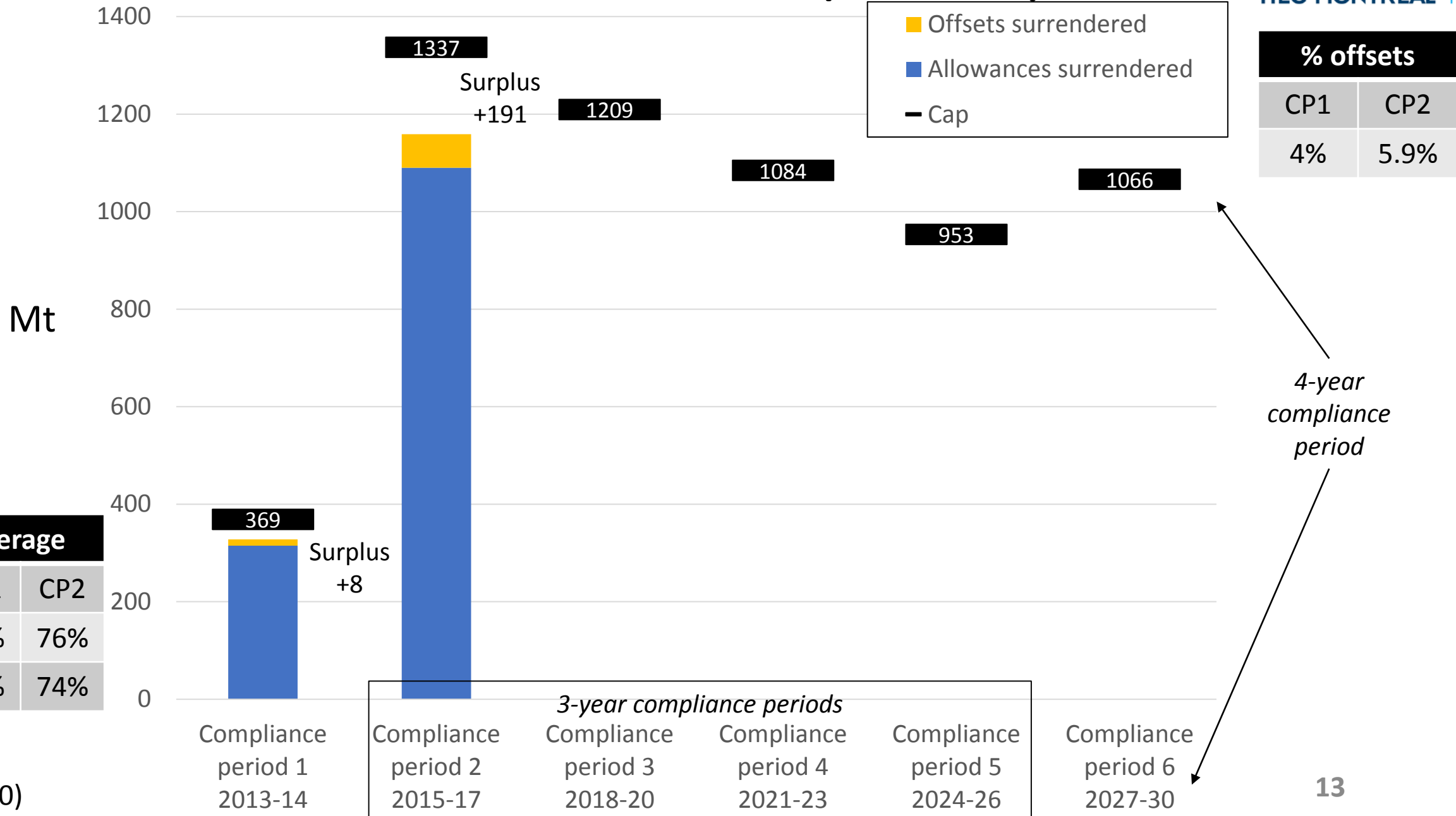
369 Mt

Total: 6 403 Mt

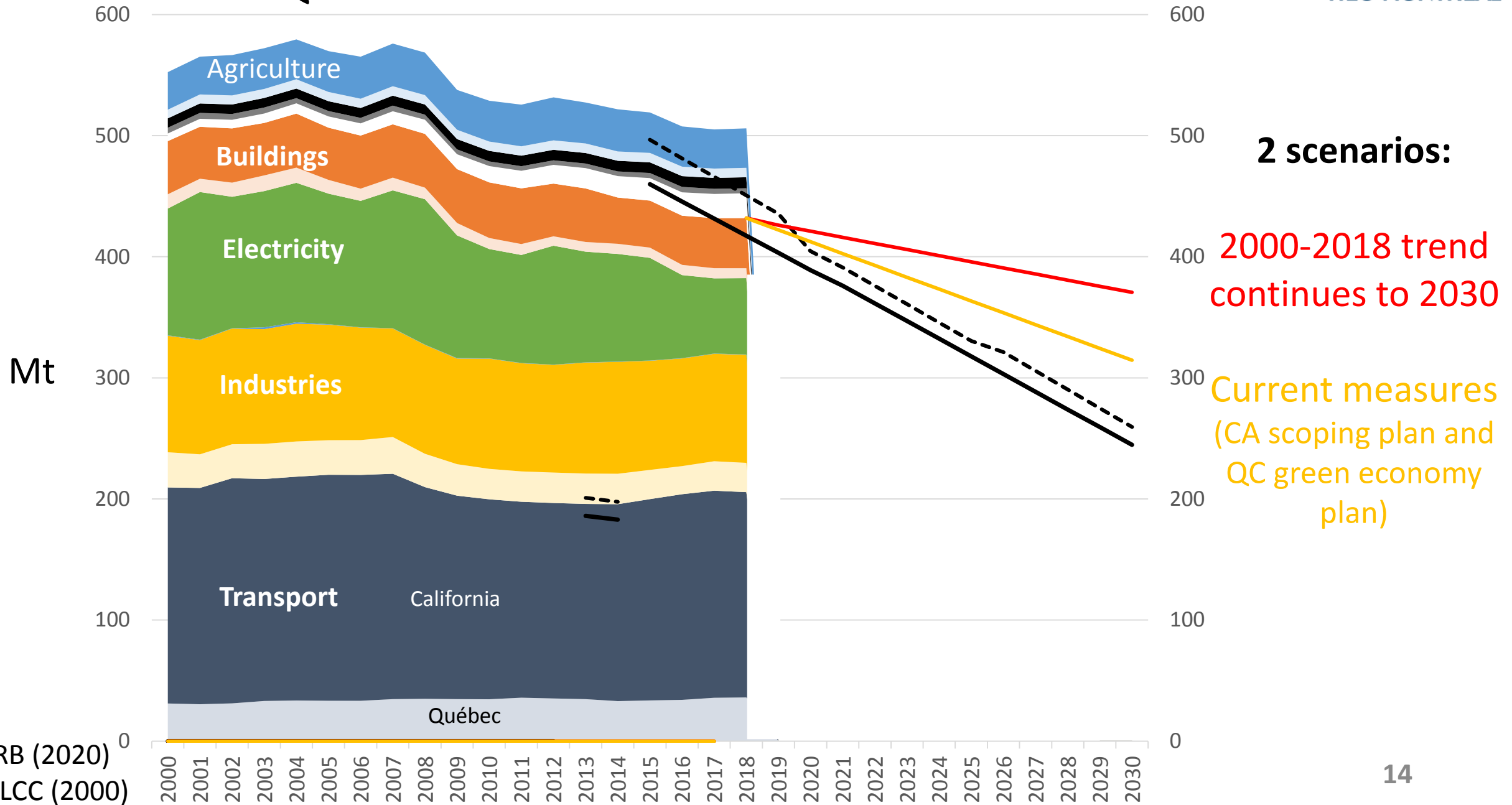
2013-2018 emissions
from CA+QC official inventories:
3 087 Mt



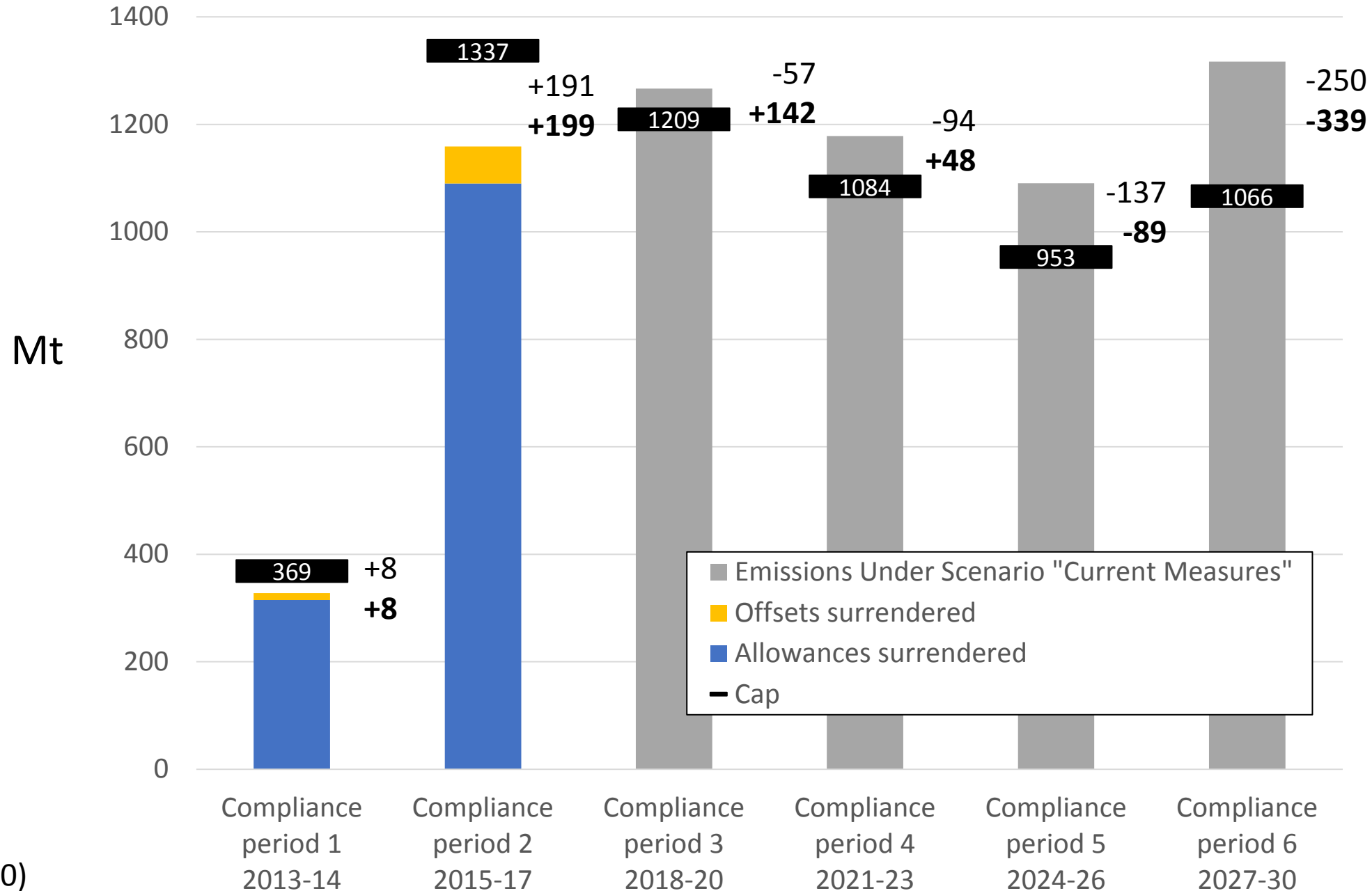
Results of the two first compliance periods



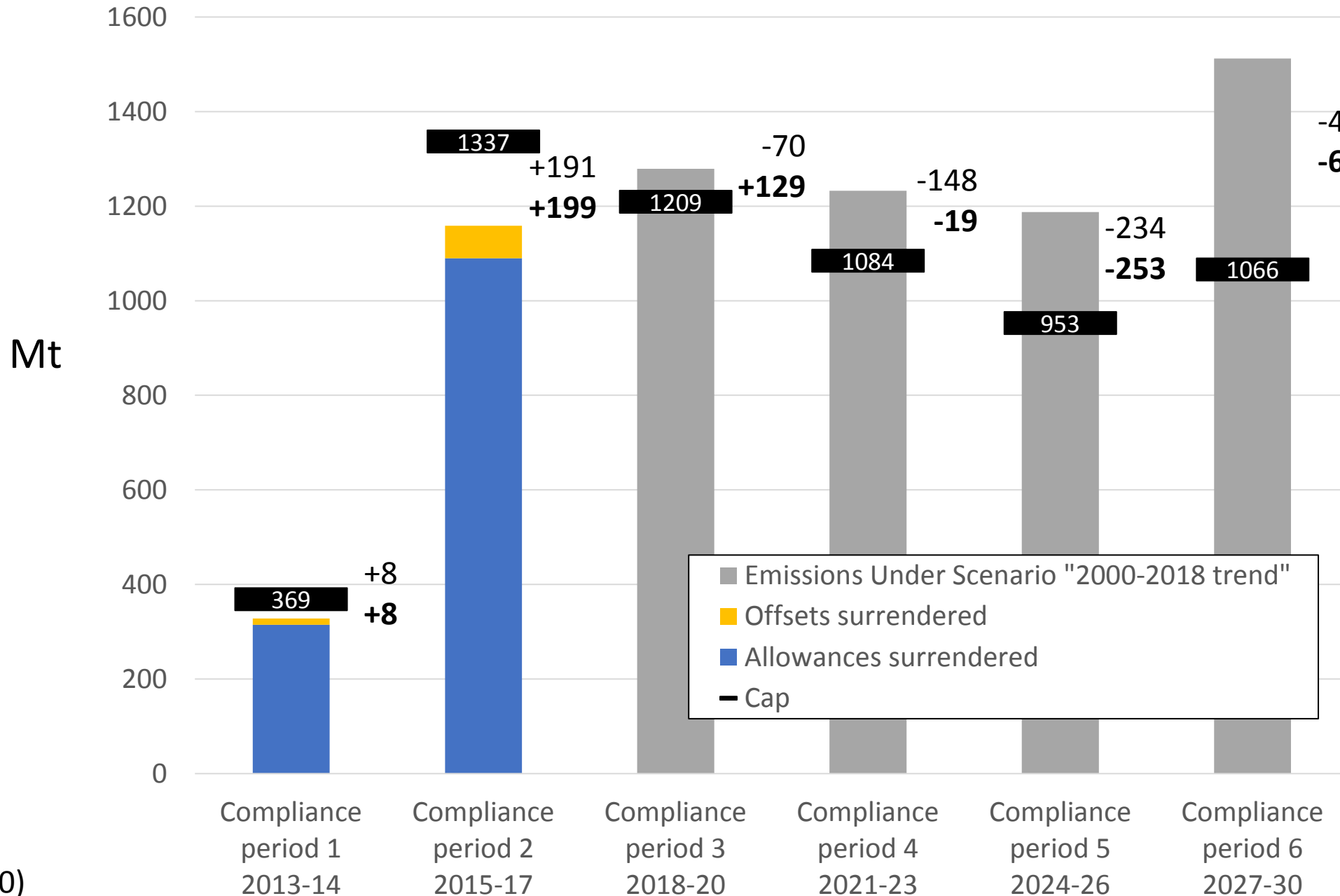
CA+QC Emissions scenarios until 2030



Emissions Scenario "Current Measures"



Emissions Scenario "2000-2018 trend"



The system is short of 19 Mt as early as 2023, 699 Mt by 2030.

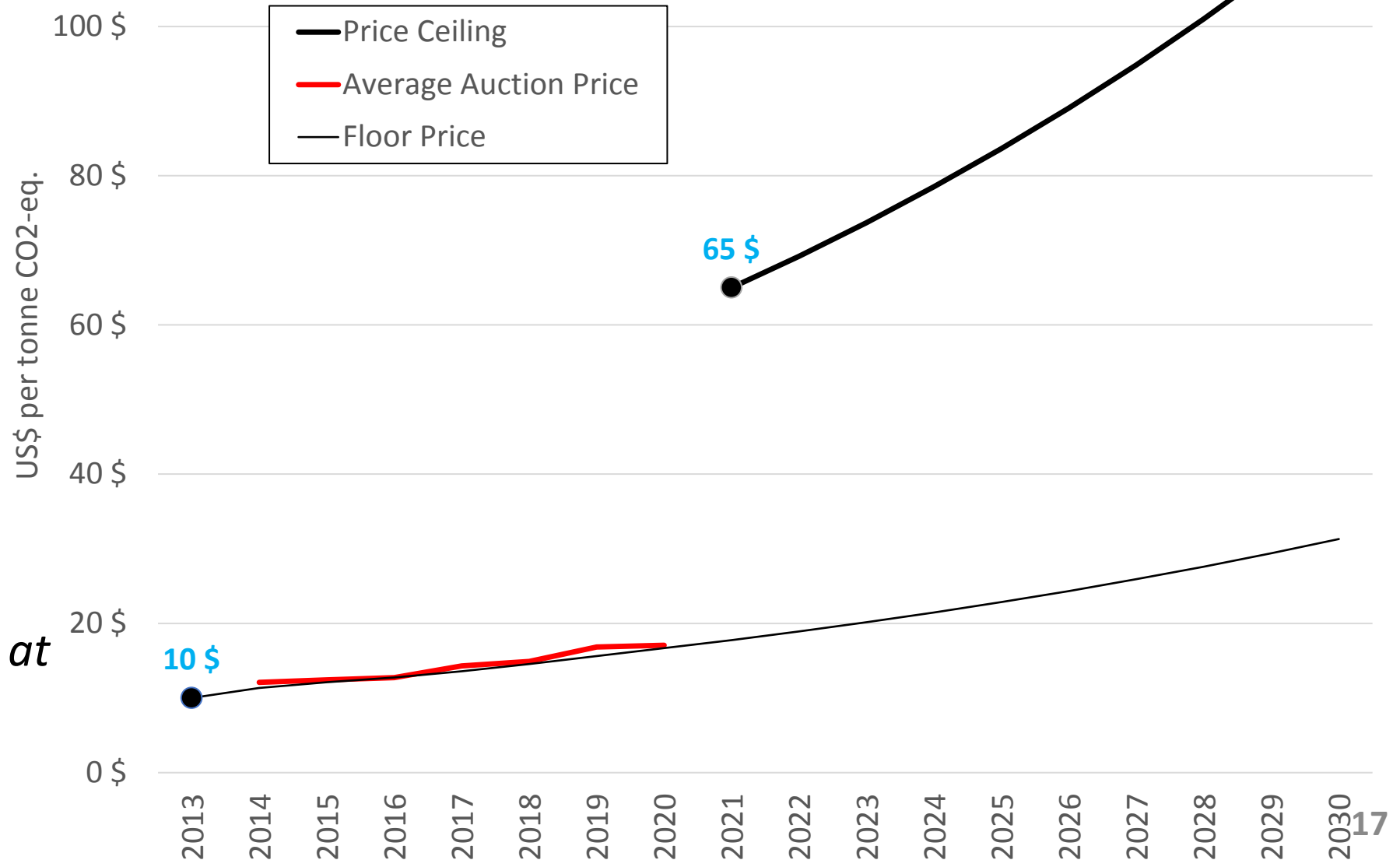
272 Mt of possible offsets

Floor and Ceiling Prices

Floor Price:
US\$10 in 2013
+ 5% + inflation

Price Ceiling:
US\$65 in 2021
+ 5 % + inflation

*Inflation estimated at
1.5% after 2021*



Discussion

- The WCI was over-allocated initially... but not anymore
- Banked and still available allowances should take us to 2023... but we'll only realize on Nov. 1st 2027 that we're short.
- Auctions should heat up in 2027 (ceiling price at \$95)
- Everything depends, of course, on actual emission reductions.

Conclusion

- The WCI has worked well so far.
- Nobody appears really concerned about the cap and prices.
- We should probably be, because emission reductions are not at the level they should be.
- Covid-19 and the economic slowdown are of course helping. But is it the right approach to reduce GHG emissions?

Thank You

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