RESEARCH NOTE

Ontario's exit exacerbates allowance overallocation in the Western Climate Initiative cap-and-trade program

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Executive summary

New data show that the net result of Ontario's brief participation in California and Québec's Western Climate Initiative (WCI) cap-and-trade program was to inflate the program's supply by 13.2 million allowances, adding to concerns about allowance overallocation.

This result assumes that Ontario allowances held by California and Québec entities continue to remain valid for compliance purposes following Ontario's revocation of its cap-and-trade program. Despite indications that California and Québec policymakers prefer this outcome, the legal mechanics of recognizing allowances from a non-existent cap-and-trade program are still somewhat uncertain.

The new data also provide clear evidence of cross-border trading in secondary markets by market participants, increasing the number of allowances held by entities in California and Québec compared with what was purchased at quarterly auctions or otherwise directly allocated by governments. The evidence strongly suggests that California and Québec entities have purchased a substantial net number of allowances from Ontario entities on the secondary market.

If policymakers designing reforms to address Ontario's exit wish to distinguish between entities that were forced to purchase Ontario allowances at auction and those that voluntarily accepted the risks of acquiring Ontario allowances on the open market, they will need more data than what is publicly available at present. Regulators in California and Québec have complete data that is capable of distinguishing between these purchase types on an allowance-by-allowance basis. Reporting data on aggregate cross-border allowance flows should be possible without disclosing sensitive market information or individual entities' trading positions.

Ontario's participation inflated market supply

On Friday June 15, 2018, Ontario's then-Premier-designate, Doug Ford, announced his intention to end Ontario's cap-and-trade program and withdraw from the WCI market, following through on months of public promises during his campaign.[1] Ontario, which began its cap-and-trade program in 2017, had officially linked to the WCI market just a few months earlier, on January 1, 2018. The same day as Ford's announcement, California and Québec moved to freeze transfers of compliance instruments between market participants registered in Ontario and those registered in either California or Québec.[2]

One stated goal of this trading freeze was to ensure that the environmental integrity and stringency of the WCI market is maintained.[3] Absent a trading freeze, Ontario entities would otherwise have been able to freely sell any allowances they held to other market participants in California and Québec, thereby injecting the market with excess allowances no longer needed for compliance in Ontario.

But such transfers could have occurred prior to the June 15 trading freeze, in anticipation of—or reaction to—a Ford win. Ford's party was leading in the polls for months, and the trading freeze came a week after the election itself on June 7, 2018. Going forward, we anticipate that no additional transfers will be made, both because the trading freeze remains in effect and because on July 3, 2018, Ontario formally revoked its cap-and-trade regulation and issued new rules that prohibit Ontario entities from trading any compliance instruments in their possession. [4]

While the trading freeze might well have prevented additional flows of allowances into the remaining WCI jurisdictions between June 15 and July 3,

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1 Ontario Office of the Premier-designate, Premier-Designate Doug Ford Announces an End to Ontario's Cap-and-Trade Carbon Tax (June 15, 2018), https://news.ontario.ca/opd/en/2018/06/premier-designate-doug-ford-announces-an-end-to-ontarios-cap-and-trade-carbon-tax.html.

2 ARB, June 15, 2018 Market Notice, https://arb.ca.gov/cc/capandtrade/auction/marketnoticejune2018.pdf. We note that it is not clear who imposed the trading freeze, which we understand was implemented through the WCI-wide CITSS system managed by WCI, Inc.

3 *Id.*

4 Government of Ontario, O. Reg. 386/18: Prohibition Against the Purchase, Sale and Other Dealings with Emission Allowances and Credits, https://www.ontario.ca/laws/regulation/r18386.

it was insufficient to fully protect the environmental integrity of the WCI market. A net total of 13.2 million allowances were transferred from Ontario to California and Québec prior to the June 15 trading freeze.

Last week, the California Air Resources Board (ARB) released the first public data on market holdings since these developments via its quarterly compliance instrument report:

> On July 3, 2018, the Government of Ontario filed a regulation that revoked the Ontario cap-and-trade regulation. As of that date, there are 13,186,967 more compliance instruments held in California and Québec accounts than the total number of compliance instruments issued by those two jurisdictions alone.[5]

The net result of market auctions and trading during Ontario's participation was to increase supply in the WCI market by 13.2 million allowances. In other words, California and Québec entities now hold 13.2 million allowances more than they would have if Ontario had never linked with the WCI market, increasing market-wide allowance overallocation.[6]

Allowance overallocation grows

In reporting a net addition of 13.2 million allowances to the oversupplied WCI market, ARB downplayed the scale of the impact, claiming that this volume "represents approximately 1% of the total allowances in California and Québec entity accounts for vintage years through 2021."[7]

But Ontario's withdrawal has larger implications for estimates of allowance overallocation in the WCI market. ARB and others had anticipated that Ontario's participation would likely *increase* demand for allowances and thus *reduce* oversupply in the WCI market.

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5 ARB, Linked California and Québec Cap-and-Trade Programs Carbon Market Compliance Instrument Report (July 9, 2018) (hereinafter WCI 2018 Q2 Compliance Report), https://www.arb.ca.gov/cc/capandtrade/complianceinstrumentreport.xlsx.

6 For a partial list of studies on overallocation, *see* Mason Inman, Danny Cullenward, and Michael Mastrandrea, Ready, fire, aim: ARB's overallocation report misses its target. Near Zero Research Note (May 7, 2018), http://www.nearzero.org/wp/2018/05/07/ready-fire-aim-arbs-overallocation-report-misses-its-target/.

7 WCI 2018 Q2 Compliance Report, *supra* note 5.

For example, in its April 2018 report on post-2020 caps, ARB stated:

> The degree to which entities from linked programs abate emissions will influence the demand for allowances from California, potentially reducing the amount of unused allowances before 2021. *If this were the case, there would be fewer pre-2021 unused allowances available to put towards emissions after 2021.* [Emphasis in original.] [8]

Independent estimates of WCI-wide allowance supplies reached similar conclusions. A prominent estimate of overallocation from Energy Innovation's Chris Busch assumed that through 2020, there would be a net flow of 20 million allowances from California and Québec *into* Ontario, assuming Ontario remained in the WCI program.[9]

Thus, relative to *ex ante* expectations, the net transfer of 13.2M allowances from Ontario to California and Québec is more significant that it at first appears. Accounting for the fact that Ontario's brief participation in the WCI market added 13.2M allowances, rather than consumed 20M, Dr. Busch's estimates would need to be increased by 33.2M allowances—such that the overallocation projected through 2020 would increase, all other assumptions equal, to about 300M ±70M allowances.

Stranded assets in California and Québec?

The net flow discussed above assumes that Ontario allowances held by California and Québec entities will remain valid, despite Ontario's revocation of its cap-and-trade program. However, the legal mechanics of how this will be ensured are far from clear, and stranded assets are possible on both sides of the trading freeze.[10]

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8 ARB, Supporting Material for Assessment of Post-2020 Caps (Apr. 2018) at 19, https://www.arb.ca.gov/cc/capandtrade/meetings/20180426/carb_post2020caps.pdf.

9 Chris Busch, Oversupply Grows in the Western Climate Initiative Carbon Market, Energy Innovation Report (Dec. 2017), http://energyinnovation.org/wp-content/uploads/2018/02/WCI-oversupply-grows-February-update.pdf

10 Julie Cart, Ontario ready to pull out of carbon market, leaving California in limbo, CALmatters (June 27, 2018), https://calmatters.org/articles/california-cap-and-trade-ontario-canada/.

Because allowances from any WCI jurisdiction are fully interchangeable in California and Québec under current market regulations,[11] the origin of an allowance makes no difference for compliance purposes. Nevertheless, Ontario's decision to revoke its cap-and-trade program and withdraw from the WCI market raises legal questions about Ontario allowances.

California and Québec have informally signaled their intention to recognize Ontario allowances held by WCI market participants after Ontario's withdrawal, consistent with current market regulations in each jurisdiction. However, further action may be necessary to ensure this outcome.

It is not clear to us whether the Ontario allowances "exist" in any meaningful sense following Ontario's revocation of its cap-and-trade program. Regulators in California and Québec could determine, for example, that Ontario allowances held in California and Québec continue to "exist" and therefore are valid for compliance purposes, but there could be complicated legal questions if Ontario disputes the recognition of allowances created by its now-nonexistent regulatory program.

Alternatively, regulators in California and Québec might decide to issue new compliance instruments (or re-allocate existing allowances) to replace Ontario allowances held by entities in California and Québec. The remaining WCI jurisdictions have legal authority to issue or re-allocate compliance instruments pursuant to their authorizing statutes, but would need to promulgate formal regulations to effect this outcome.

Whatever the mechanism by which WCI jurisdictions intend to recognize Ontario allowances, it is clear that these actions will increase the net supply of allowances in the WCI market and exacerbate the program's overallocation problem, unless additional steps are taken to account for the net flow of allowances discussed above.

Evidence of cross-border transfers in secondary market trading

Thus far we have discussed only the total net flow of allowances between Ontario and the remaining WCI jurisdictions. Analyzing the net flows of

[11] Cal. Code Regs., tit. 19, §§ 95942, 95943; Government of Quebec, Regulation respecting a cap-and-trade system for greenhouse gas emission allowances (chapter Q-2, r. 46.1), section 37.

allowances by vintage year sheds further light on how the balance of allowances has shifted across borders.

Some allowance vintage years have been offered for sale at either current or advance auctions in the joint WCI quarterly auctions that involved Ontario. As a result, cross-border flows of allowances for these vintage years could reflect quarterly auction purchasing behavior, as market participants are free to choose whether and at what price and quantity to bid in auctions. It is possible that Ontario entities' bids differed significantly from those of entities in California and Québec, resulting in a net flow of allowances either into or out of Ontario from the auctions. Whatever the outcome of quarterly auctions, these vintage years were also subject to secondary market trading as well.

In contrast, flows in other vintage years evident from the data can only be due to secondary market trading, as some vintage years were not offered for sale at quarterly auctions during Ontario's joint participation in WCI auctions in 2018. Table 1, below, indicates the net flow for each category of allowance vintages.

Table 1: Net allowance flows from Ontario to California and Québec (millions)

Availability during open trading with Ontario	Vintage year(s)	Net flow from Ontario to California/Québec
Only available through secondary market trading	2017, 2019, 2020	11.1
Available at advance auction or through trading	2021	3.4
Available at current auction or through trading	2016, 2018	–1.3
Total net flow	**2016-2021**	**13.2**

The data are broken out on a single vintage-year basis in Table 2, at the end of this research note. We distinguish between three categories of vintages in Table 1 by their availability during the period of open trading among California, Québec, and Ontario entities:

- Vintage 2017 allowances were offered for sale at current auctions held in 2017, and vintage 2019 and 2020 allowances were offered for sale at advance auctions held in 2016 and 2017—all prior to Ontario's linkage with the WCI market in 2018. Thus, for these three vintages, the net flow of 11.1 million allowances from Ontario to California and Québec could only be due to secondary market trading.

- Vintage 2021 allowances were and are offered for sale in advance auctions in 2018. A total of 3.6 million vintage 2021 Ontario allowances were sold in the first two auctions of 2018.[12] The net flow of 3.4 million allowances listed above suggests that either (1) California and Québec entities purchased almost all vintage 2021 Ontario allowances offered at auction, or (2) Ontario entities traded most of the 2021 Ontario allowances they purchased at auction to California and Québec entities in secondary market trading. (It is also possible that a combination of these two factors occurred.)

- Finally, both vintage 2016 and 2018 allowances were offered for sale in current auctions in 2018. In addition to offering current 2018 vintage year allowances, the 2018 auctions also feature previously unsold vintage 2016 allowances from California and Québec.[13] Ontario's program started in 2017, so it features no vintage 2016 Ontario allowances. As a result, it is unsurprising that the net flow for 2016 vintage allowances (8.3 million) is into Ontario: any successful auction bids from Ontario entities received a proportional share of all allowances types offered in the current auctions, including vintage 2016 California and Québec allowances. In contrast, the net flow for 2018 vintage allowances (6.9 million) is in the opposite direction, from Ontario to California and Québec. The net flows for these vintages could be due to a combination of auction purchasing behavior and secondary market

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[12] ARB, Joint Auction #14 Summary Results Report (Feb. 28, 2018) at 2 (reporting 2.09M vintage 2021 Ontario allowances sold); ARB, Joint Auction #15 Summary Results Report (May 23, 2018) at 2 (reporting 1.47M vintage 2021 Ontario allowances sold).

[13] Mason Inman, Michael Mastrandrea, and Danny Cullenward, California's "self-correcting" cap-and-trade auction mechanism does not eliminate market overallocation, Near Zero Research Note (May 23, 2018), http://www.nearzero.org/wp/2018/05/23/californias-self-correcting-cap-and-trade-auction-mechanism-does-not-eliminate-market-overallocation/.

trading, but it is not possible to distinguish further based on public information.

Although net flows of allowances from the quarterly compliance reports do not provide sufficient information to measure the overall volume of cross-border trading in secondary markets, they strongly suggest that significant secondary market trading activity drove the net transfer of allowances into California and Québec accounts. Additional information is needed to distinguish between entities that now hold Ontario allowances from successful auction bids and entities that hold Ontario allowances acquired from voluntary secondary market trading.[14]

We note that while public data does not permit sufficient analysis at this time, regulators in California and Québec have complete data that would enable such an analysis. Furthermore, the results of such an analysis could be publicly reported without identifying individual entities' trading strategies or other confidential market behavior.

Implications for state climate policy

New data released after Ontario's withdrawal from the WCI cap-and-trade program indicate several important issues for state policy:

- Ontario's exit has increased the supply of compliance instruments in the remaining WCI market by 13.2 million allowances, exacerbating the extent to which the WCI market is overallocated.

- The effect of this increase in supply is more significant than it at first appears, as many (including ARB) expected that Ontario would be a net purchaser, rather than net supplier, of allowances. For example, Energy Innovation's Dr. Busch assumed that Ontario would purchase a net 20M allowances through 2020, rather than supply a net 13.2M, and therefore his overallocation estimate of 270M ±70M should be increased to roughly 300M ±70M allowances by 2020, all other assumptions being equal.

[14] *See*, *e.g.*, Letter from California Senator Bob Wieckowski to ARB Chair Mary Nichols (June 21, 2018) (asking ARB to provide information sufficient to distinguish between purchasers that involuntarily acquired Ontario allowances at auction versus entities that voluntarily acquired Ontario allowances on the secondary market).

- If all Ontario allowances held in California and Québec are recognized as valid for compliance in the WCI program, then overallocation will significantly increase.

- Substantial evidence suggests that secondary market trading drove the net flow of compliance instruments out of Ontario, indicating that the trading freeze did not fully contain the environmental consequences of Ontario's exit.

- Policymakers that intend to distinguish between entities that involuntarily purchased Ontario allowances at auction and those that voluntarily acquired allowances on the secondary market need additional information. Public data are insufficient to analyze this question. Regulators in California and Québec have full data and should be able report cross-border flows in the secondary market without compromising the position of individual traders or compliance entities.

Table 2: Net allowance flows from Ontario to California and Québec (millions)

Vintage year	Net flow from Ontario to California/Québec	Available from quarterly auctions?	Available on secondary market?
2016	–8.3	Current auction	Yes
2017	8.7	No	Yes
2018	6.9	Current auction	Yes
2019	-0.1	No	Yes
2020	2.5	No	Yes
2021	3.4	Advance auction	Yes
Net total	**13.2**	N/A	Yes

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About Near Zero

Near Zero is a non-profit environmental research organization based at the Carnegie Institution for Science on the Stanford University campus. Near Zero provides credible, impartial, and actionable assessment with the goal of cutting greenhouse gas emissions to near zero. This research note is for informational purposes only and does not constitute investment advice.

The data in this research note are available at our website.

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