
BANKING METRICS: PRELIMINARY DATA AND METHODS FOR DISCUSSION

Danny Cullenward JD, PHD

Member, Independent Emissions Market Advisory Committee

dcullenward-iemac@nearzero.org

CalEPA, Sacramento, CA | June 14, 2019

PUBLIC PROGRAM DATA

Compliance Instrument Reports (CIRs)

- Quarterly data on WCI-wide holdings (ARB 2019a)

Covered emissions

- California: annual data (ARB 2018a, 2019b)
- Québec: annual data (MELCC 2018)

Compliance submissions

- California: annual data (ARB 2019b)
- Québec: data available for each compliance period (MELCC 2019)

THREE KINDS OF ACCOUNTS

Private accounts

- General
- Compliance
- Limited Use Holding Account (CA)

Government holding accounts

- Auction + Issuance + Allocation

Government reserve accounts

- Reserve

COMPLIANCE INSTRUMENT REPORTS

Vintage	Entity Accounts			Jurisdictional Accounts						All Accts.
	[1] General	[2] Compliance	[3] Limited Use Holding Account (CA)	[4] Voluntary Renewable Elec.(CA)	[5] Auction + Issuance + Allocation	[6] Retirement	[7] Invalidation	[8] Reserve	[9] Env't Integrity	[10] Total
[11] 2013										
[12] 2014										
[13–27] (2015-2029)										
[28] 2030										
[29] Non-Vintage Early Action (QC)										
[30] Non-Vintage Reserves										
[31] Allowance subtotal										
[32] US Forest (CA)										
[33] Urban Forest (CA)										
[34] ODS (CA)										
[35] Livestock (CA)										
[36] Mine CH4 (CA)										
[37] Rice (CA)										
[38] ODS (QC)										
[39] Landfill (QC)										
[40] Offsets subtotal										
[41] Total										

KEY CONCEPTS

WCI-wide holdings vs. disaggregation by jurisdictional origin

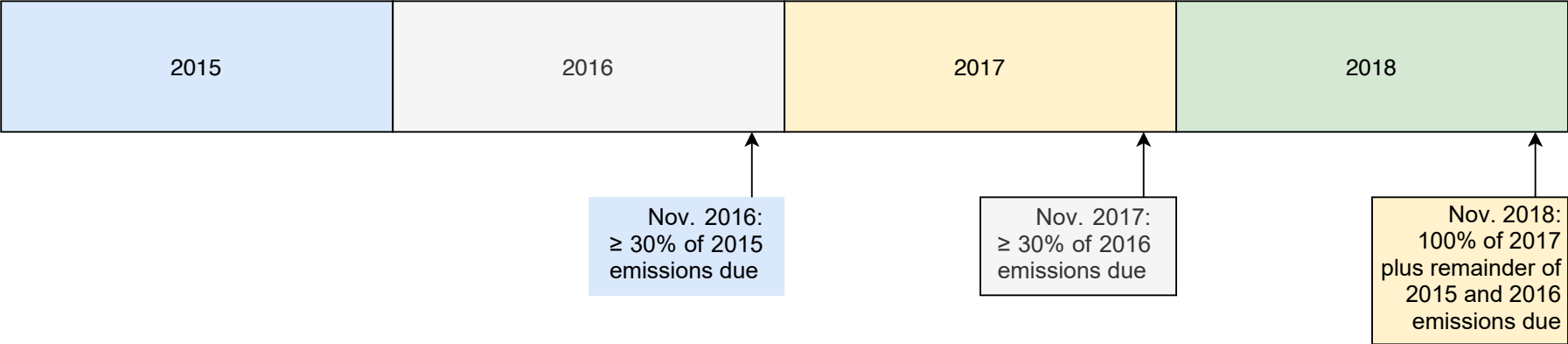
Total compliance instruments vs. allowances only

Allowance vintages and eligibility for surrender at compliance events

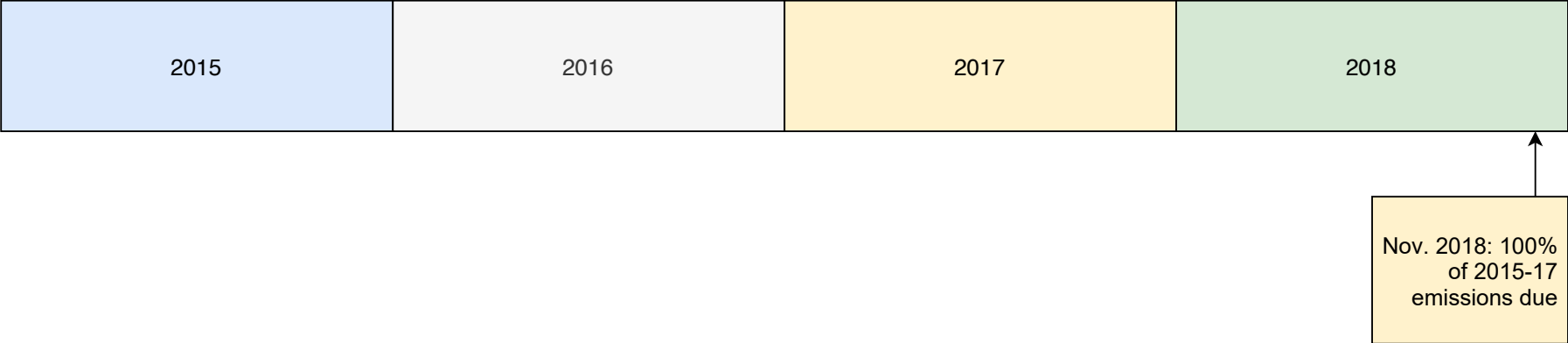
Natural “stockpiling” as compliance events approach

COMPLIANCE EVENTS

California



Québec



ANNUAL METRICS: PRIVATE ACCOUNTS

$$\text{Annual Private Bank}_t = A_{P,t} + O_{P,t} - \left(\sum_{i=2013}^t C_i - \sum_{i=2013}^t S_i \right)$$

Where:

$A_{P,t}$ = Allowances in private accounts at the end of year t
Only counting vintage $\leq t$ and non-vintage allowances

$O_{P,t}$ = Offsets in private accounts at the end of year t

C_i = Compliance obligations in year i

S_i = Compliance surrenders in year i

ANNUAL METRICS: GOVERNMENT HOLDING ACCOUNTS

$$\text{Government Holding Accounts}_t = A_{H,t} + O_{H,t}$$

Where:

- $A_{H,t}$ = Allowances in government holding accounts at the end of year t
Only counting vintage $\leq t$ and non-vintage allowances
(Pre-2021 budgets only? Or all non-vintage allowances?)
- $O_{H,t}$ = Offsets in government holding accounts at the end of year t

ANNUAL METRICS: GOVERNMENT RESERVE ACCOUNTS

Government Reserve Accounts _{t} = $A_{R,t}$

Where:

$A_{R,t}$ = Allowances in government reserve accounts at the end of year t
Only counting vintage $\leq t$ and non-vintage allowances
(Pre-2021 budgets only? Or all non-vintage allowances?)

MEASUREMENT: ANNUAL METRICS

Annual allowance and offset holdings given by Q4 CIRs
(Q4 CIRs measure WCI-wide holdings in early January)

Emissions are reported in official data through year $t-1$

Emissions must be projected for year t
(Can be updated with actual data in year $t+1$)

Annual bank is expressed in number of excess compliance instruments.
Disaggregating this total into subtotals for excess allowances and offsets
requires assumptions about future offset use.

How to handle non-vintage reserves from post-2020 budgets?

MEASUREMENT: COMPLIANCE PERIOD METRICS

Banking metrics for multi-year compliance periods require additional methodological choices and face potential data limitations.

After each compliance period's compliance event, all historical allowance vintages and offsets in private accounts are in excess of demand for those instruments in that compliance period.

However, no existing CIR is contemporaneous with compliance events.

Choice of CIR for measurement has implications for (1) timing of metric reporting and (2) outcomes when there are unsold allowances in Government Holding Accounts.

THIRD COMPLIANCE PERIOD REPORTING

ARB Resolution 18-51:

BE IT FURTHER RESOLVED that the Board directs the Executive Officer to quantify and report to the Board, by no later than December 31, 2021, the volume of unused allowances from 2013 through 2020, including volumes held in private accounts, and the potential for unused allowances to hinder the ability of the program to help achieve the SB 32 target. The Executive Officer shall hold a public workshop in 2019 to discuss potential methodologies to evaluate this topic.

SECOND COMPLIANCE PERIOD REPORTING

₹

Type	Issuing Jurisdiction			Total
	California	Québec	Ontario	
Allowances vintage 2013				1,408,541
Allowances Vintage 2014				4,901,858
Allowances Vintage 2015				10,592,014
Allowances Vintage 2016				53,291,321
Allowances Vintage 2017				107,635,826
Non-vintage Québec Early Action Allowances		19,221		19,221
Non-vintage Reserve Allowances				38,317
Subtotal, allowances				177,887,098
Offset credits	40,538,499	77,534		40,616,033
Total Compliance Instruments				218,503,131

Source: ARB & CalEPA (2019) (based on 2018 Q4 CIR)

CIR CHOICE AFFECTS TIMING

=

Compliance Instrument Report

	2018 Q3	2018 Q4	2019 Q1
Date of measurement	Oct. 5, 2018	Jan. 4, 2019	Apr. 4, 2019
Before or after Nov. compliance event?	Before	After	After
Before or after Nov. Q4 auction?	Before	After	After
Adjustment needed?	Yes, for compliance event and auction	No	No
Can metric be reported by end of calendar year?	Yes	No	No

CIR CHOICE CAN AFFECT OUTCOMES

Compliance Instrument Report

	2018 Q3	2018 Q4	2019 Q1
Allowances in Private Accounts, Vintages 2013-2017	1,065.6	177.8	193.9
Allowances in Gov. Holding Accounts, Vintages 2013-2017	61.0	45.3	29.2
Allowance subtotal, Vintages 2013-2017	1,126.6	223.1	223.1

Units: million allowances (MMtCO₂e)

Note: the 2018 Q3 CIR reports allowance holdings before the 2018 Q4 Nov. WCI auction and the Nov. 2018 compliance events. Changes between the 2018 Q4 and 2019 Q1 CIR data illustrate the consequence of the 2019 Q1 February WCI auction clearing previously unsold vintage 2013-2017 allowances.

THIRD COMPLIANCE PERIOD OPTIONS

=

Compliance Instrument Report

	2021 Q3	2021 Q4	2022 Q1
Date of measurement	Early Oct. 2021	Early Jan. 2022	Early Apr. 2022
Before or after Nov. compliance event?	Before	After	After
Before or after Nov. Q4 auction?	Before	After	After
Adjustment needed?	Yes, for compliance event and auction	No	No
Can metric be reported by end of Dec. 2021?	Yes	No	No

THIRD COMPLIANCE PERIOD OPTIONS

Alternatively, ARB could issue a special CIR that measures WCI-wide holdings immediately following the November 2021 compliance event.

Such a CIR would require no adjustments and enable direct reporting of a banking metric for the third compliance period banking by the end of December 2021, consistent with ARB Resolution 18-51.

REFERENCES

ARB (2018a), MRR data,
<https://ww2.arb.ca.gov/mrr-data>.

ARB (2018b), Resolution 18-51,
<https://www.arb.ca.gov/regact/2018/capandtrade18/resol1851.pdf>.

ARB (2019a), Compliance Instrument Report,
<https://www.arb.ca.gov/cc/capandtrade/complianceinstrumentreport.xlsx>.

ARB (2019b), Compliance Reports 2013–2017,
<https://www.arb.ca.gov/cc/capandtrade/capandtrade.htm>.

ARB & CalEPA (2019), Letter from Sec. Blumenfeld and Chair Nichols to Sen. Ben Allen et al., April 22, 2019.

Inman et al. (2018), Tracking Banking in the Western Climate Initiative Cap-and-Trade Program. Near Zero Research Note,
<http://www.nearzero.org/wp/reports/>.

MELCC (2018), Verified and declared Emissions,
<http://www.environnement.gouv.qc.ca/changes/carbone/ventes-encheres/liste-etablisements-visesRSPEDE-en.xlsx>.

MELCC (2019), Compliance Period Reports,
<http://www.environnement.gouv.qc.ca/changes/carbone/documentation-en.htm>.

QUESTIONS? COMMENTS?

Danny Cullenward JD, PHD

Member, Independent Emissions Market Advisory Committee

dcullenward-iemac@nearzero.org