

Proposed IPM Potential Scenarios

January 8, 2013

DRAFT RGGI Potential Scenario Analysis

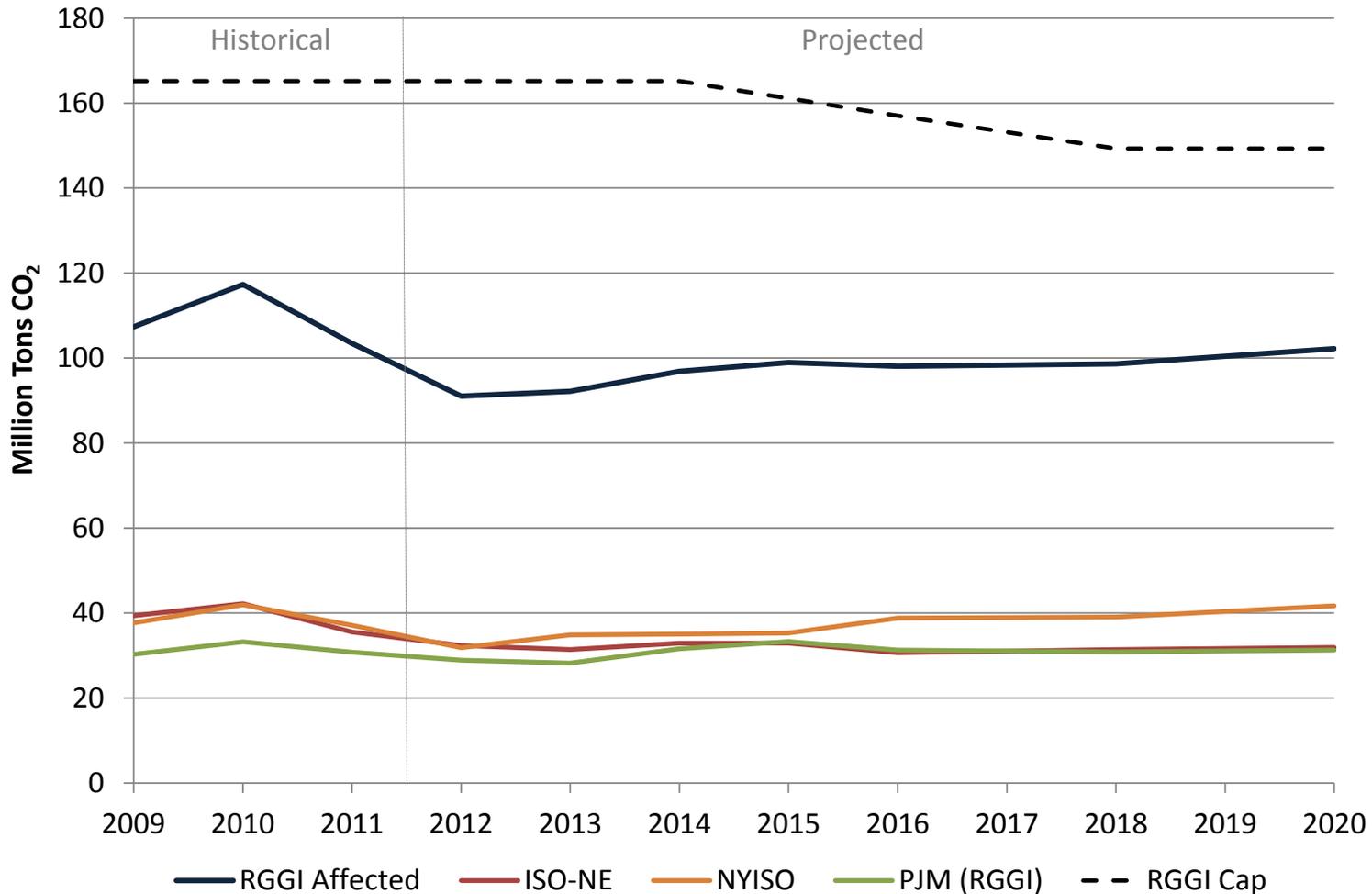
Purpose

- The following slides present projections from the latest 2012 RGGI Reference Case and draft potential scenarios.
- These projections are draft and may change as ICF makes refinements based on state review and input.
- This analysis provides information for the overall program review process. The scenario specifications do not reflect a preference for or selection of any specific policy.

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Reference Case Recap

- The chart shows historical and projected CO₂ emissions for the RGGI states and by ISO.



2012 Emissions from Affected Sources (Millions)

- 2012 Q1-Q3 emissions from RGGI COATS
- 2012 Q4 emissions projection based upon RGGI COATS 2011 Q4 emissions

	Q1 2012	Q2 2012	Q3 2012	Q4 2012	Total
Emissions	18	22	31	20 (est.)	91 (est.)

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Potential Scenario Assumptions – 91 and 97 Cap_Bank recap

Scenario Name	Cost Containment Reserve (CCR)	CCR Price Triggers	Results of Interim Adjustment for Banked Allowances	2012-2013 Projected Banked Allowances	First Control Period Banked Allowances
97 Cap_Bank (2014 projected emissions)	Up to 10 M allowances annually	2014: \$5 2015-2017: \$7 2018-2020: \$10	2014: 80 M Tons 2020: 68 M Tons	68 M allowances	47 M allowances
91 Cap_Bank (2012 projected emissions)	Up to 10 M allowances annually	2014: \$5 2015-2017: \$7 2018-2020: \$10	2014: 73 M Tons 2020: 65 M Tons	68 M allowances	47 M allowances

- The modeling assumes that market participants do not bank allowances in 2012.
- The modeling assumes in 2013 that the market is aware of program changes and assumes 100% banking of available allowances.

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Potential Scenario Assumptions – 91 and 97 Cap_Bank recap

Interim Adjustment for Banked Allowances

- Adjusts 97 & 91 caps for the maximum projected 2009-2013 private bank of allowances.
- For the modeling, we assume the projected 2009-2013 private bank of allowances is 115 M.
- 115 M includes an estimated 47 M first control bank and projected bank for 2012 and 2013 (market is made aware of policies in 2013, so there is banking in 2013 but not in 2012).
- Adjustment is spread across 2014-2020.

	2014	2015	2016	2017	2018*	2019	2020
97 Cap_Bank	97	95	92	88	88	88	83
Interim Adjustment for Banked Allowances	80	77	75	72	72	72	68
91 Cap_Bank	91	89	87	82	82	82	78
Interim Adjustment for Banked Allowances	73	72	70	66	66	66	65

* The 2018 model run year is representative of 2017-2019. The averaged 2018 input represents potential policy (same as current policy) of a 2.5% per year reduction to the cap.

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Potential Scenario Assumptions – Alternate Banking

- The IPM model has perfect foresight.
- To examine different assumptions for how market participants might use banked allowances for compliance purposes, the states proposed alternate banking usage assumptions.
- The alternate banking assumes that market participants make decisions related to use of banked allowances for compliance on a shorter time horizon than projected by IPM using perfect foresight.
- Alternate banking scenarios were developed for the 91 and 97 potential scenarios.
- For these scenarios, approximately two-thirds of the banked allowances are assumed to be used during 2014-17 (the end of the first control period after the change to the cap) and the other one-third are used thereafter.

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Potential Scenario Assumptions-91 Cap_Alt Bank and 97 Cap_Alt Bank

Scenario Name	Cost Containment Reserve (CCR)	CCR Price Triggers (4-6-8-10)	Results of Interim Adjustment for Banked Allowances	2012-2013 Projected Banked Allowances	First Control Period Banked Allowances
97 Cap_Alt Bank	Up to 10 M allowances annually	2014: \$4 2015: \$6 2016: \$8 2017-2020: \$10	2014: 80 M Tons 2020: 68 M Tons	68 M allowances	47 M allowances
91 Cap_Alt Bank	Up to 10 M allowances annually	2014: \$4 2015: \$6 2016: \$8 2017-2020: \$10	2014: 73 M Tons 2020: 65 M Tons	68 M allowances	47 M allowances

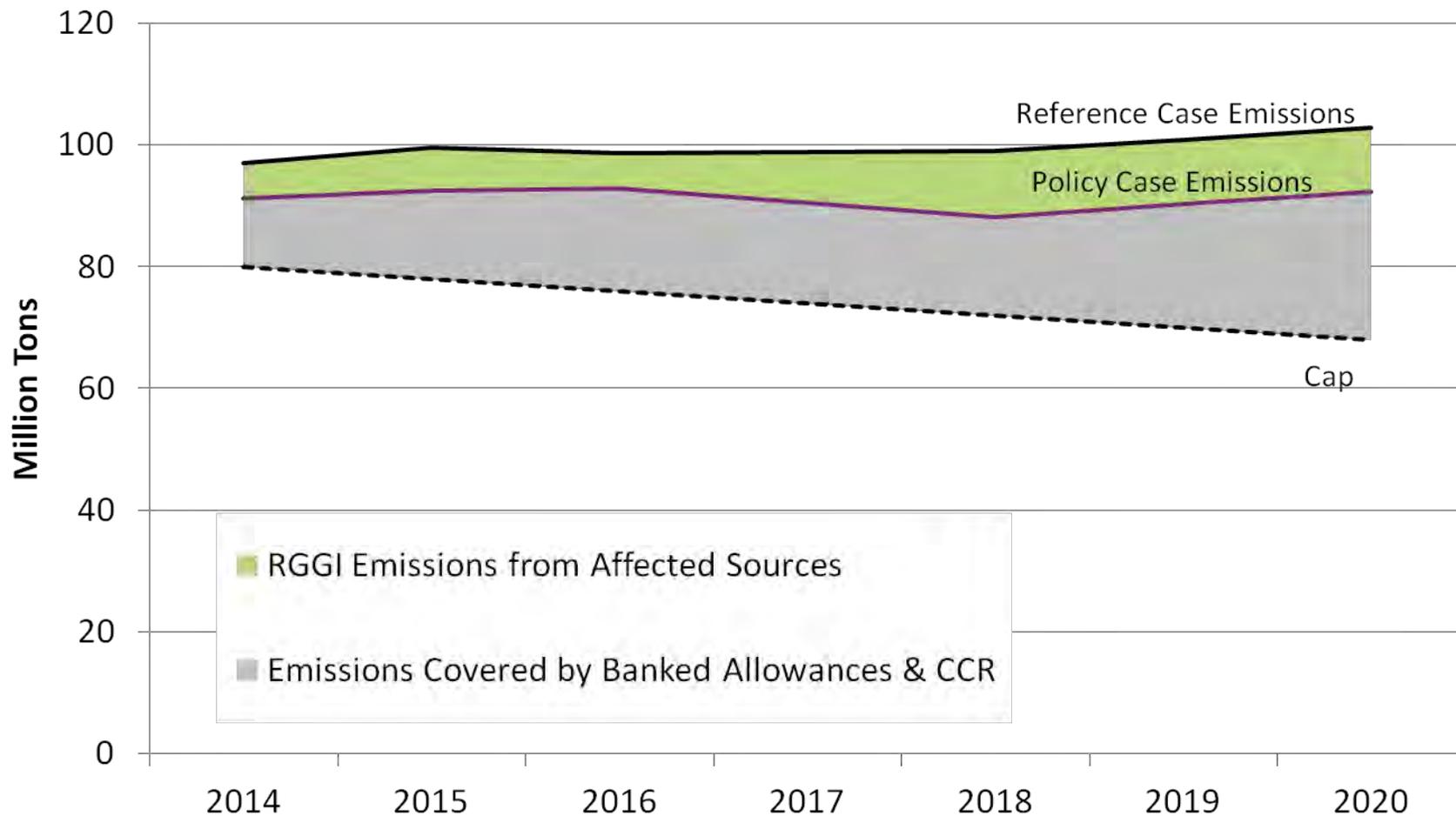
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Potential Scenario Assumptions

- Model run years are 2012, 2013, 2014, 2015, 2016, 2018 (representing 2017-2019), 2020.
- Offsets can be used to meet 3.3% of a compliance obligation. Offset expansion triggers (stage one \$7 and stage two \$10 and international) have been removed.

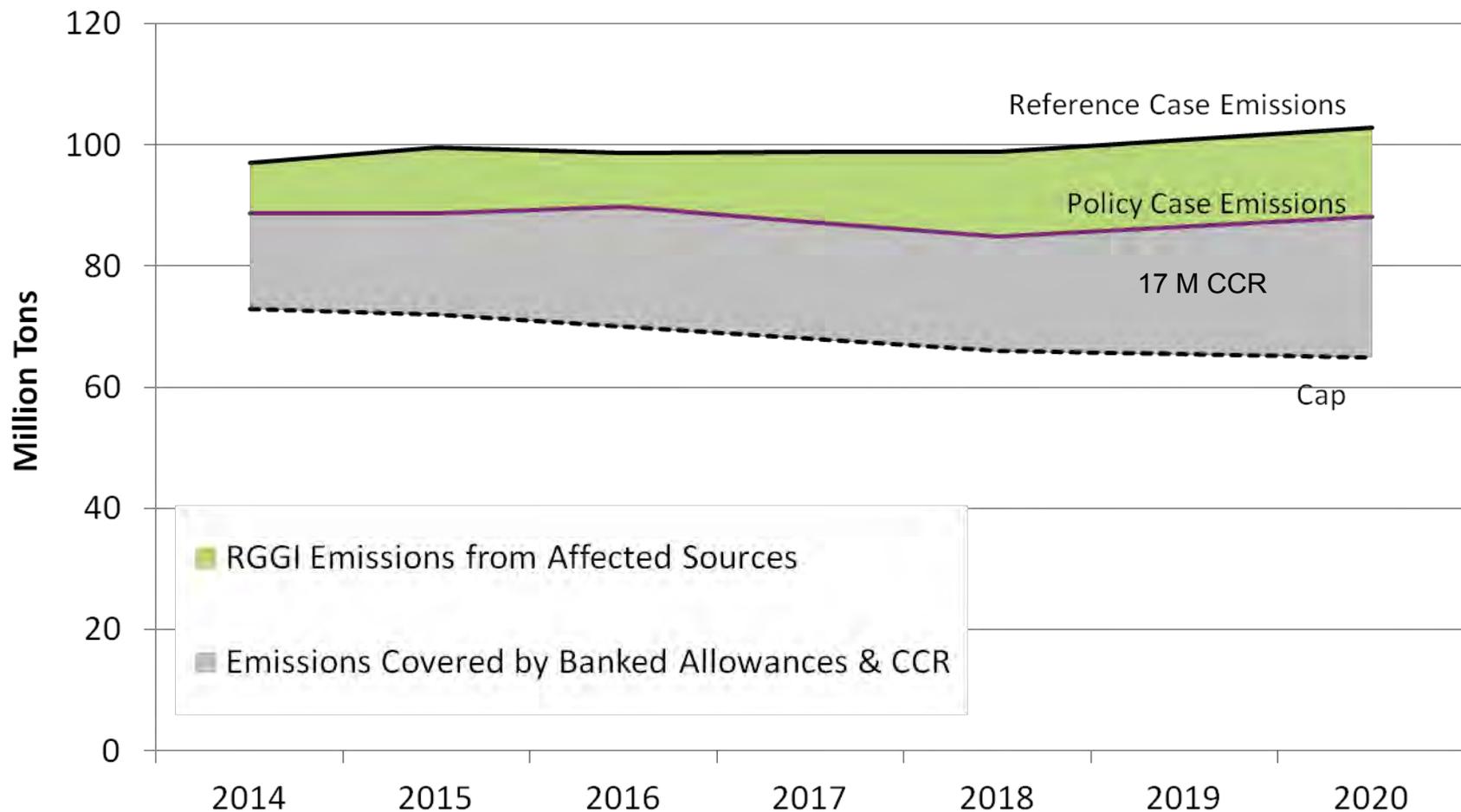
Potential Scenario Results: 91 and 97 Cap_Bank

Sources of Emission Reductions 97 Cap_Bank

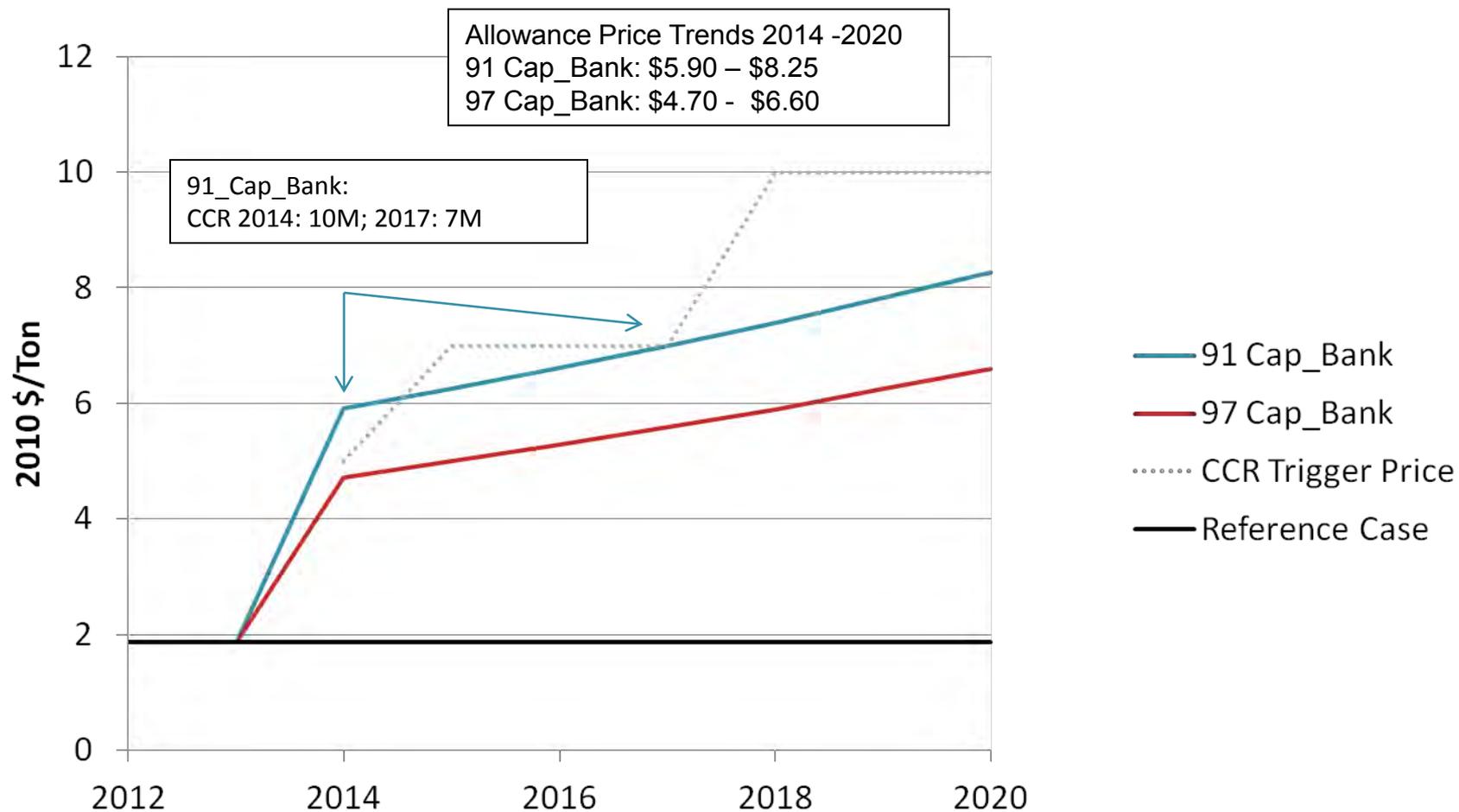


Potential Scenario Results: 91 and 97 Cap_Bank

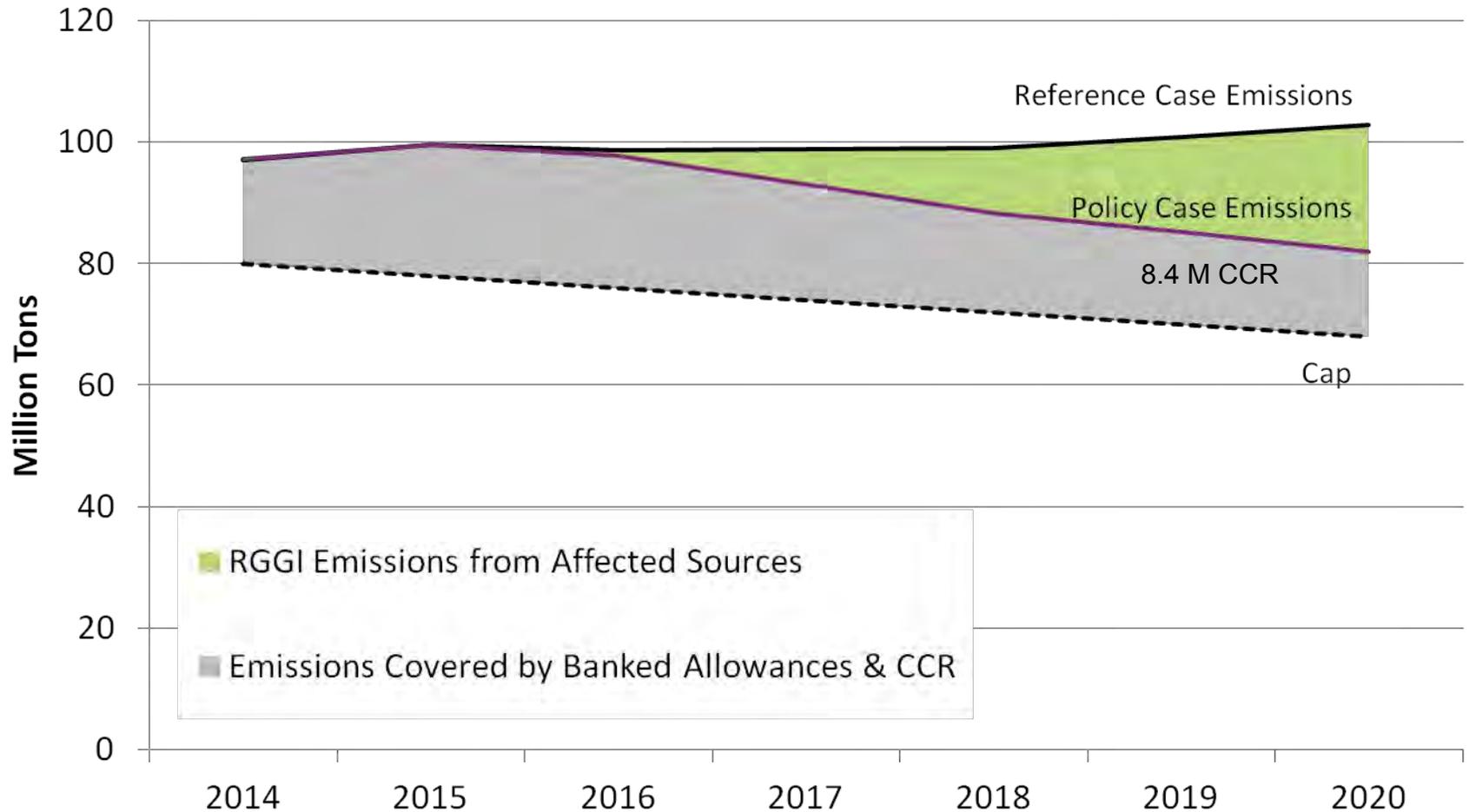
Sources of Emission Reductions 91 Cap_Bank



Potential Scenario Results: 91 and 97 Cap_Bank Allowance Prices

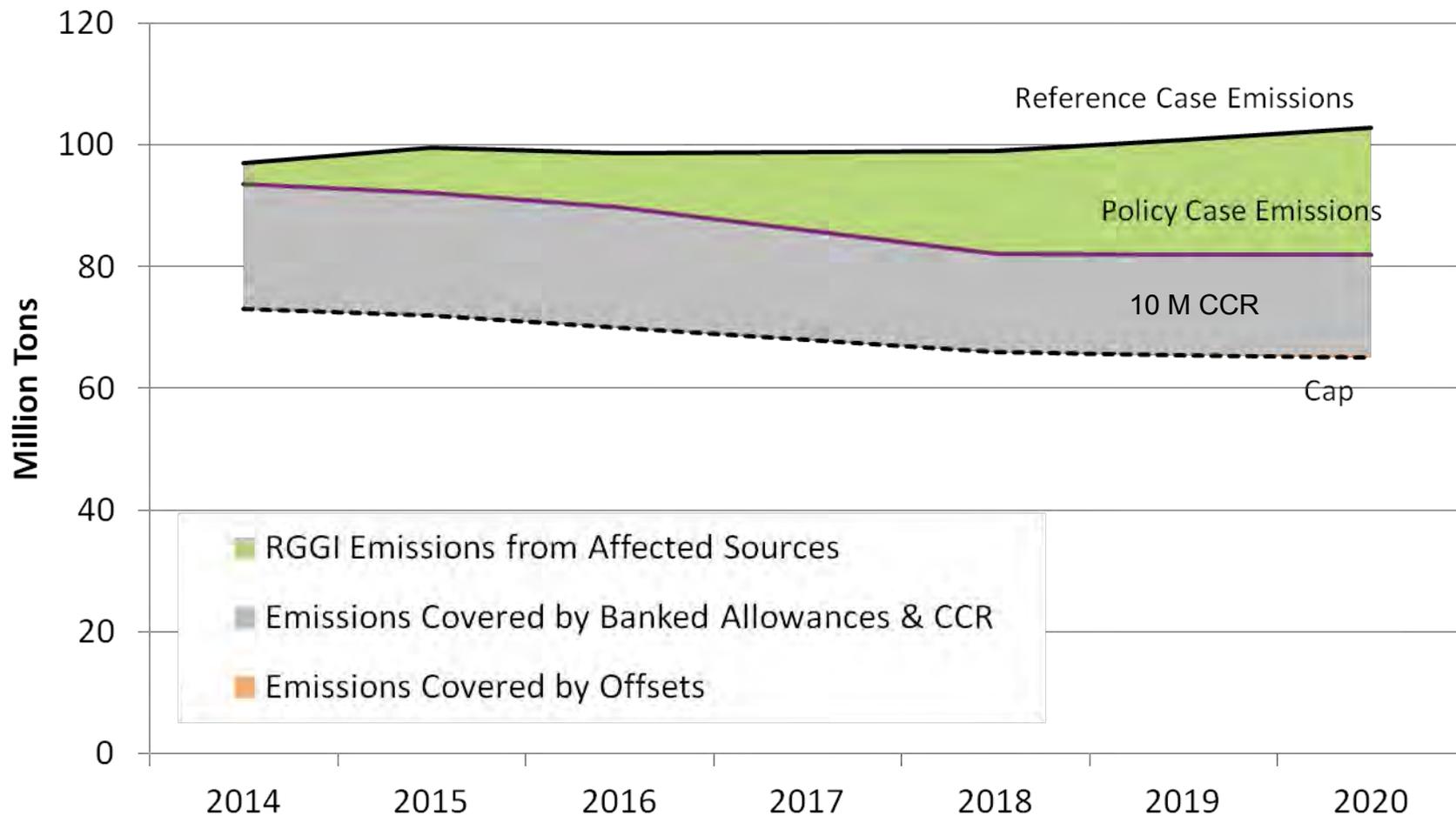


Potential Scenario Results: 91 and 97 Cap_Alt Bank Sources of Emission Reductions 97 Cap_Alt Bank

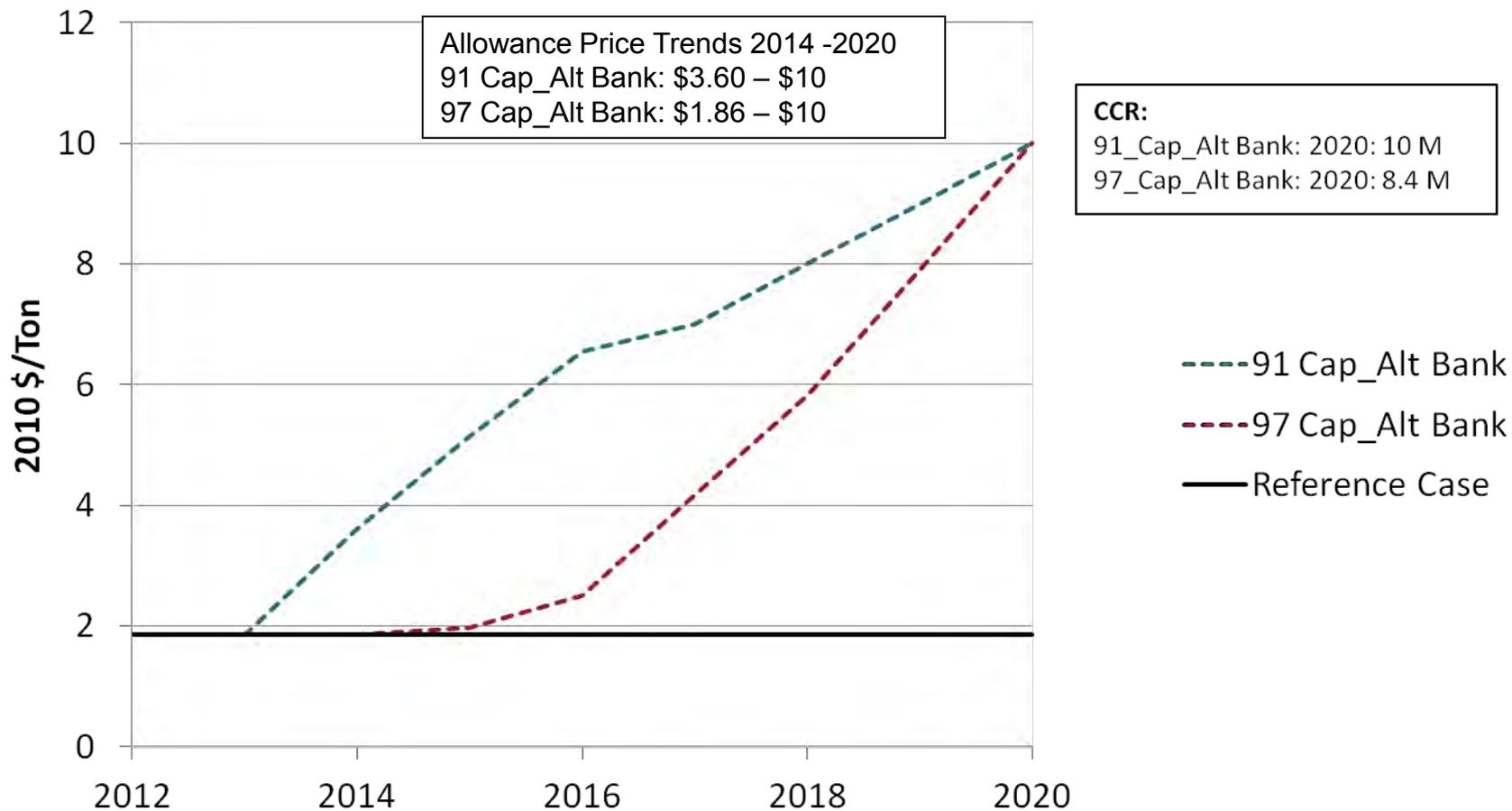


Potential Scenario Results: 91 and 97 Cap_Alt Bank

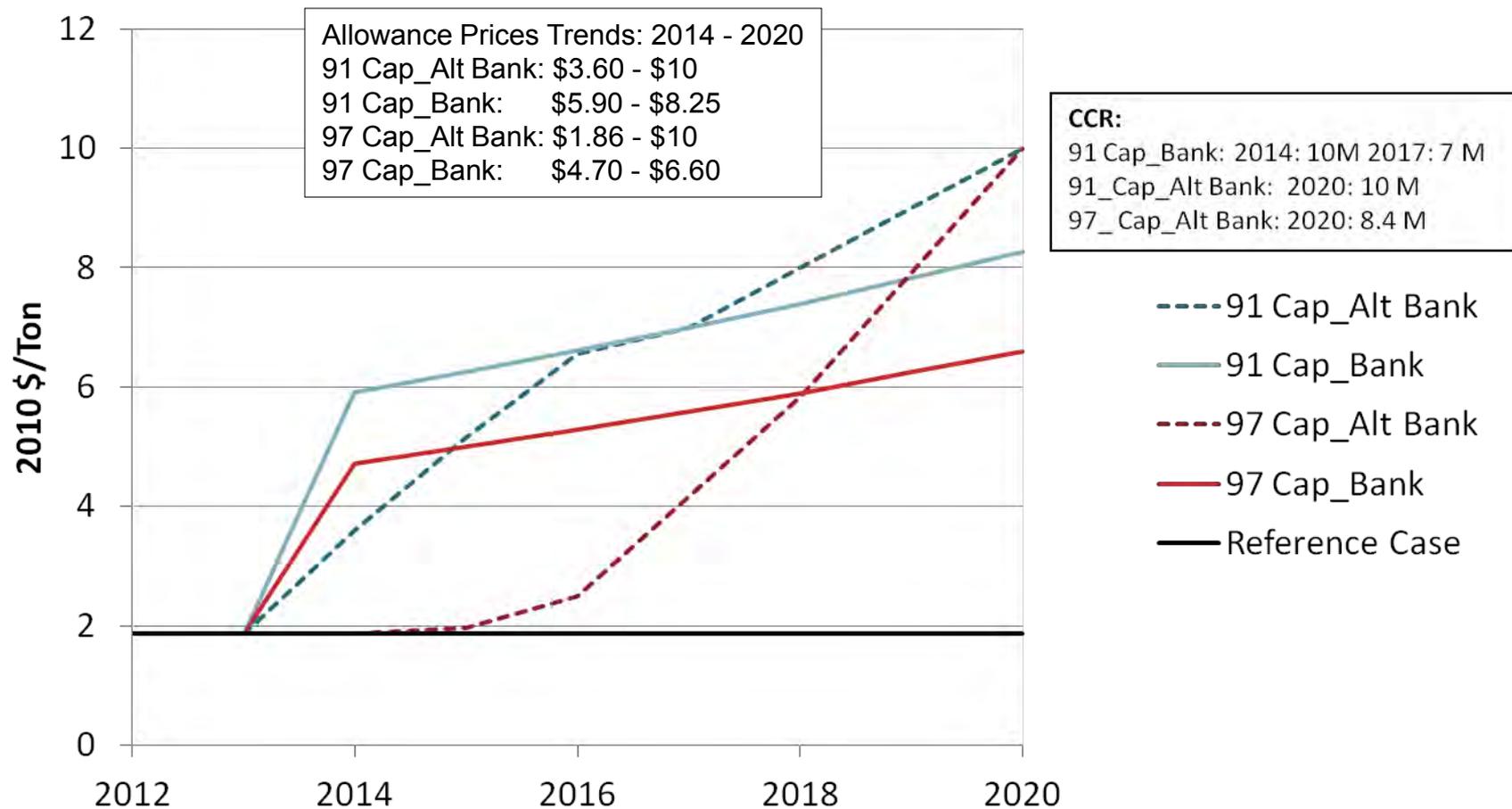
Sources of Emission Reductions 91 Cap_Alt Bank



Potential Scenario Results: 91 and 97 Cap_Alt Bank Allowance Prices



Potential Scenario Results: Allowance Price Summary



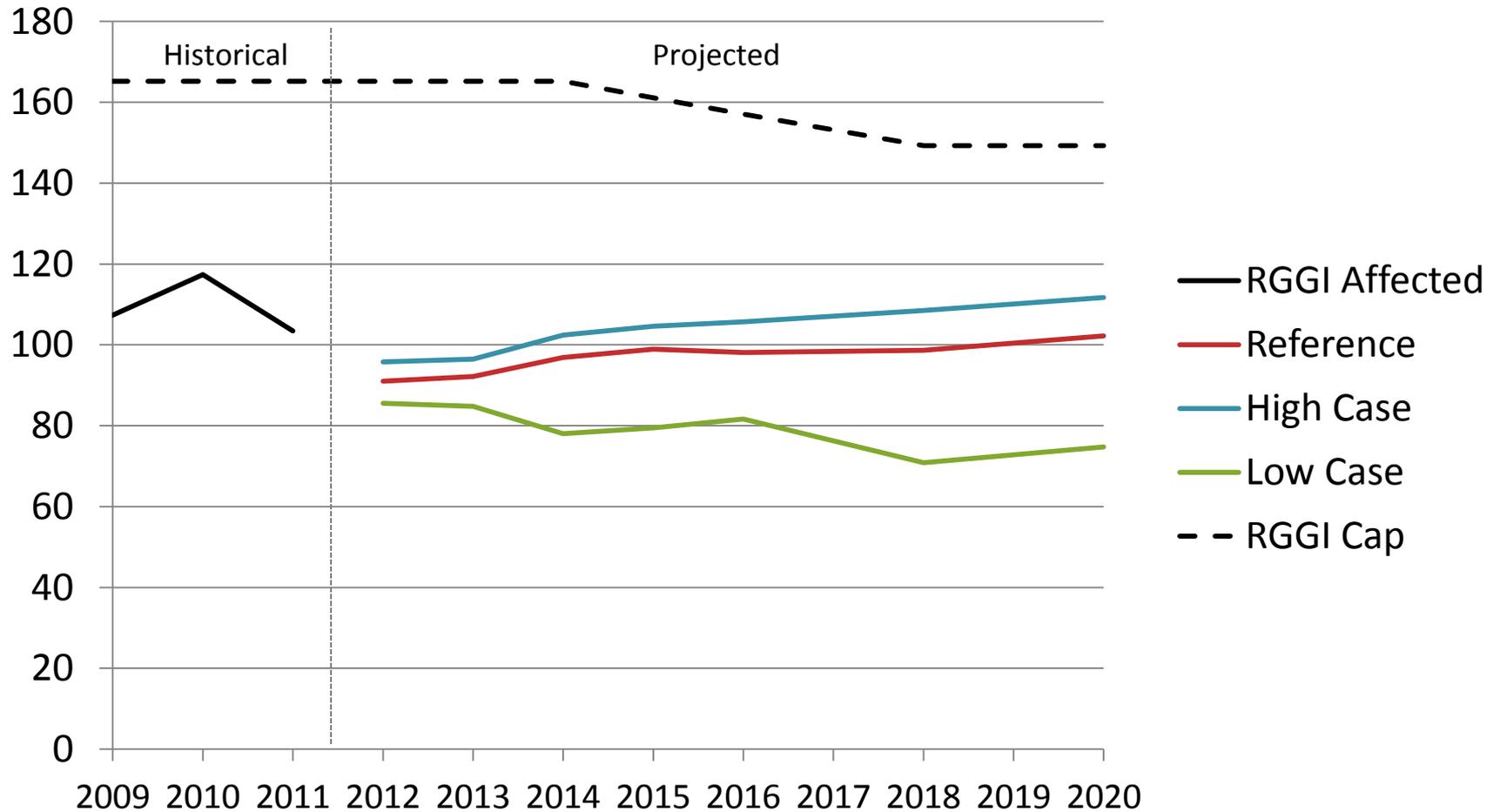
Sensitivity Analyses Assumptions

- The sensitivity analyses vary natural gas prices, electricity demand and generation sources.
- The table below summarizes the proposed assumptions for the sensitivity cases
 - Natural gas prices for the cases are taken from high and low natural gas resource scenarios for AEO EIA 2012
 - Electric demand based on a combination of historical variation in load and projected differences by EIA and ISOs.

	Natural Gas Price Assumption	Demand Assumption	Generation
Higher Emissions Case	EIA “Low Estimated Ultimate Recovery” Scenario, resulting in gas prices 16% higher than Reference Case levels by 2020	Demand 3% higher than Reference in near-term, 4% higher in long-term	
Lower Emissions Case	EIA “High Technically Recoverable Resources” Scenario, resulting in gas prices 35% lower than Reference Case levels by 2020	Demand 3% lower than Reference in near-term, 4% lower in long-term	Increase nuclear generation (2,600MW)

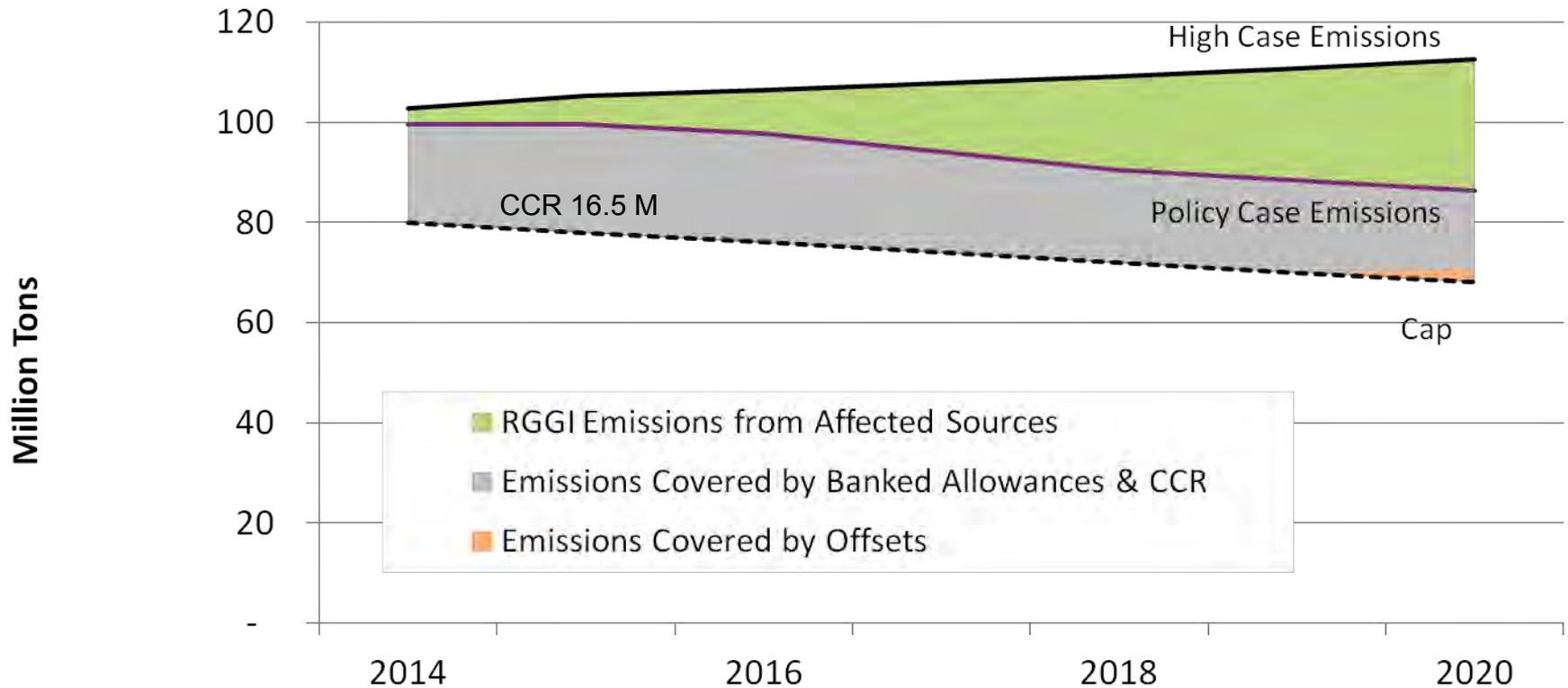
Sensitivity Case Projections

CO₂ Emissions



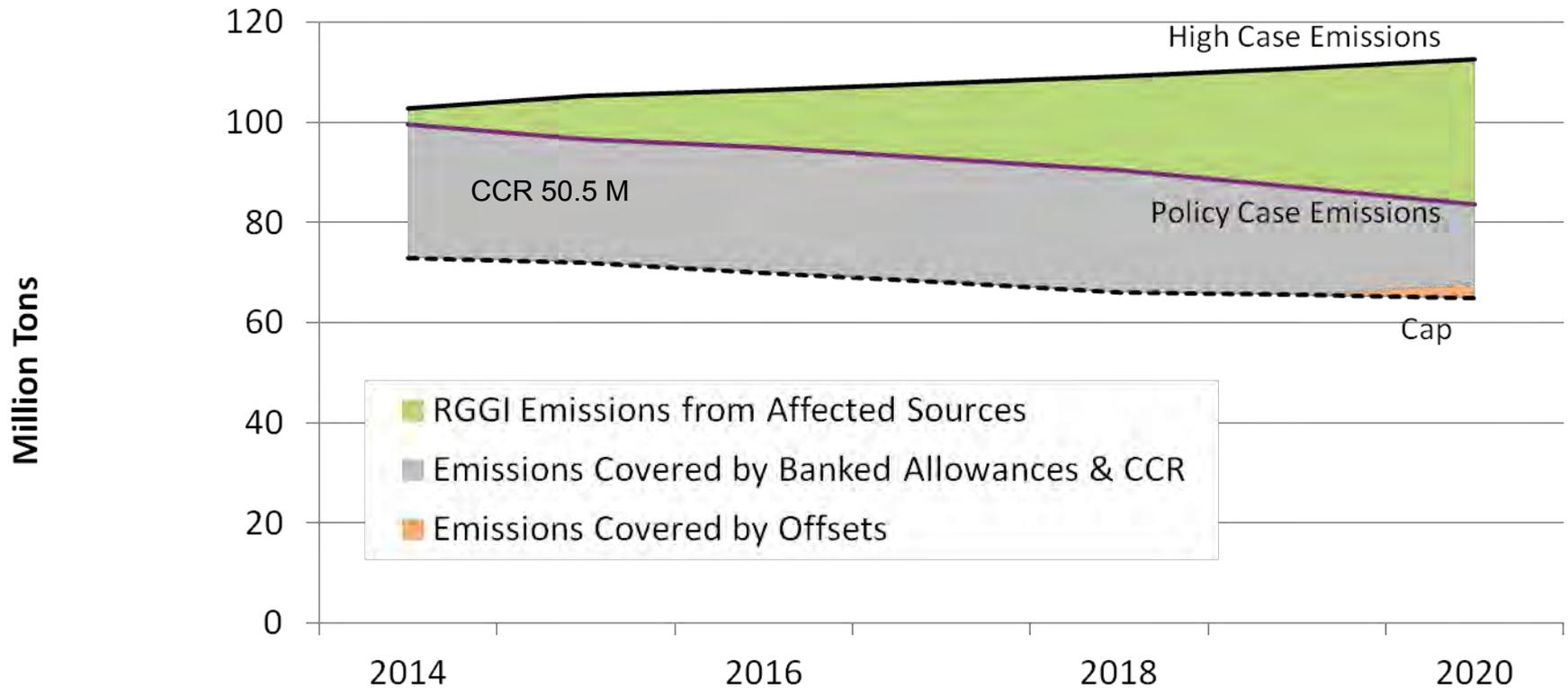
Potential Scenario Sensitivities Results

Sources of Emission Reductions 97 Cap_Alt Bank_High



Potential Scenario Sensitivities Results

Sources of Emission Reductions 91 Cap_Alt Bank_High



Potential Scenario Sensitivities Results

Allowance Price 97 and 91 Cap_Alt Bank_High

