

2020 Annual Demonstration Report **San Joaquin Valley Agricultural Equipment** **Incentive Measure**

Covering Projects Completed Through 12/31/2020
May 15, 2021



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Appendix A – CARB 2020 Annual Demonstration Report – 2021 Moyer FARMER Report Data

Appendix B – CARB 2020 Annual Demonstration Report – 2021 NRCS Report Data

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Introduction

The California Air Resources Board (CARB or Board) San Joaquin Valley Supplement to the 2016 State Strategy for the State Implementation Plan (Valley State SIP Strategy) contains the State's emission reduction commitment for the San Joaquin Valley (Valley) attainment demonstration for the federal 24-hour particulate matter standard of 35 $\mu\text{g}/\text{m}^3$ (2006 24-hour $\text{PM}_{2.5}$ standard) in 2024 and annual particulate matter standard of 12 $\mu\text{g}/\text{m}^3$ (2012 annual $\text{PM}_{2.5}$ standard) in 2025, including a commitment to adopt an agricultural equipment incentive measure. On December 13, 2019, CARB adopted the San Joaquin Valley Agricultural Equipment Incentive Measure (Valley Incentive Measure) to fulfill the commitment for Board consideration by 2020 and demonstrate how an increment of emissions reductions from incentive programs will be quantified towards the State's aggregate commitment in the California State Implementation Plan (SIP). CARB submitted the Valley Incentive Measure to U.S. Environmental Protection Agency (U.S. EPA) to be included in the California SIP. U.S. EPA proposed to approve the Valley Incentive Measure on March 23, 2020.

For the Valley Incentive Measure, CARB staff collaborated with San Joaquin Valley Air Pollution Control District (District) staff to identify agricultural equipment that are captive in the Valley and which are funded by CARB's Carl Moyer Memorial Air Quality Standards Attainment Program (Moyer Program) and Funding Agricultural Replacement Measures for Emission Reductions Program (FARMER Program), and by United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Environmental Quality Incentive Program (EQIP) to achieve the emissions reductions from this effort. The reductions will be credited against CARB's 2024 and 2025 aggregate emission reduction commitment for the 2006 24-hour $\text{PM}_{2.5}$ and 2012 annual $\text{PM}_{2.5}$ standards in the Valley.

According to U.S. EPA guidelines, emissions reductions achieved from the implementation of an incentive program can be credited towards the State's aggregate commitment if they meet the following integrity elements: enforceable, quantifiable, surplus, and permanent.¹ The reductions achieved in the Valley from turning over agricultural equipment between the years 2015 and 2020 meet all of these integrity elements.

As part of the Valley Incentive Measure enforceable commitment, CARB must submit annual demonstration reports, including this 2020 Annual Demonstration Report, which includes the required elements listed below as included in CARB Resolution 19-26 and Valley Incentive Measure Technical Clarifications dated November 23, 2020.

This first annual report on the Valley Incentive Measure shows the progress made towards incentivizing the turnover of older diesel agricultural equipment to the cleanest technology. As part of the Valley Incentive Measure, CARB committed to reducing 5.9 tons per day (tpd)

¹ See "Guidance on Incorporating Voluntary Mobile Source Emission Reduction Programs in State Implementation Plans (SIPs)," October 24, 1997, at page 6-7; "Improving Air Quality with Economic Incentive Programs," January 2001 at Section 4.1; "Incorporating Emerging and Voluntary Measures in a State Implementation Plan (SIP)," September 2004 at pages 3-4' and "Diesel Retrofits: Quantifying and Using Their Emission Benefits in SIPs and Conformity," February 2014 at pages 27-29.

of oxides of nitrogen (NO_x) emissions and 0.3 tpd of fine particulate matter (PM_{2.5}) emissions in 2024 by funding 5,446 agricultural equipment replacement projects, and 5.1 tpd of NO_x emissions and 0.3 tpd PM_{2.5} emissions in 2025 by funding 4,723 agricultural equipment replacement projects, in accordance with the Moyer Program, FARMER Program, and NRCS Guidelines.

Projects Funded and Completed through March 2021

Funding Update

The State Legislature has directed millions of dollars towards incentive programs to reduce emissions of air pollutants and their precursors. These incentive programs focus on accelerating the turnover of older and dirtier vehicles and pieces of equipment to newer and cleaner ones. Since the Board adopted the Valley Incentive Measure, the State Legislature and the Governor, through the Cap and Trade Expenditure Plan, continue to identify new funding towards replacing agricultural equipment in the Valley.

The Valley Incentive Measure identified already implemented Moyer Program, FARMER Program, and NRCS projects post-inspected. Additionally, the Valley Incentive Measure included future projects from the first two years of FARMER Program funding. The District has approximately \$155,000,000 from the first two years of FARMER Program funding to spend on agricultural equipment projects in the Valley. As detailed below in the submittal from the District, of the \$155,000,000, the FARMER Program has expended \$73,607,775 on newly-completed projects through March 2021. The District has made significant progress in implementing the FARMER Program and continues to do so.

COVID-19 Impacts

The COVID-19 pandemic and the resulting health and economic crisis have had drastic and wide-ranging impacts on the lives, livelihoods, and behaviors of people around the world. As it relates to the Valley Incentive Measure, the COVID-19 health and economic crisis has placed financial strain on both contracted applicants and agricultural equipment manufacturers. CARB and the District will continue to monitor the impacts as the 2024 and 2025 deadlines approach.

First Year: Moyer Program, FARMER Program, and NRCS

In March 2021, USDA NRCS submitted and certified the 2021 NRCS Annual Report. In April 2021, CARB received Moyer Program and FARMER Program project information from the District. All projects from the March and April 2021 submittals to CARB are included in Appendices A and B of the 2020 Annual Demonstration Report. Appendix A of the 2020 Annual Demonstration Report consists of data provided by the District and reports on the status and progress of the Moyer Program and FARMER Program projects and associated emissions reductions in 2024 and 2025. Appendix B of the 2020 Annual Demonstration Report consists of data provided by NRCS and reports on the status and progress of the NRCS Environmental Quality Incentives Program (EQIP) projects and associated emissions

reductions in 2024 and 2025. As detailed in the Valley Incentive Measure, only the FARMER Program will report on newly completed projects. Projects from the Moyer Program and NRCS EQIP completed after July and February 2019, respectively, were not included as a part of the Valley Incentive Measure and will be credited towards the SIP aggregate commitment either as substitute projects as needed, or in a later action.

Summary - First Year: Moyer Program, FARMER Program, and NRCS

CARB is on track to achieve the Valley Incentive Measure commitment. Tables 1 and 2 aggregate the Moyer Program, FARMER Program, and NRCS results from Appendices A and B and compares the total emissions reductions to the Valley Incentive Measure commitment. In total, only four projects were removed from the Moyer Program, FARMER Program, and NRCS and the emissions reductions are estimated to achieve the commitment.

Table 1: Combined Projects (Moyer Program, FARMER Program, and NRCS) in 2024²

Combined Projects in 2024– Moyer Program, FARMER Program, and NRCS	Number of Projects	NOx (tpd)	PM2.5 (tpd)
2020 Annual Demonstration Report	4,722	5.1	0.28
Valley Incentive Measure Commitment	5,446	5.9	0.3

Table 2: Combined Projects (Moyer Program, FARMER Program, and NRCS) in 2025³

Combined Projects in 2025 – Moyer Program, FARMER Program, and NRCS	Number of Projects	NOx (tpd)	PM2.5 (tpd)
2020 Annual Demonstration Report	4,066	4.4	0.23
Valley Incentive Measure Commitment	4,723	5.1	0.3

To meet the emissions reduction commitment, the Valley Incentive Measure allows the use of substitute measures and/or rules. The Moyer Program and NRCS continue to fund additional projects that are not credited towards the Valley Incentive Measure. Since the Moyer Program and NRCS Guidelines are already demonstrated in the Valley Incentive Measure, emissions reductions from these newly-completed projects are an appropriate substitute if necessary. If the substitution is not necessary, then these emissions reductions will be credited in a future action. The following sections provide additional detail on the progress

² May not add due to rounding

³ May not add due to rounding

that each incentive program, the Moyer Program, the FARMER Program, and NRCS, have achieved.

Moyer Program

Appendix A is a list based on the Moyer Program projects subject to the 2011 Carl Moyer Air Quality Standards Attainment Program (2011 Moyer Program) or 2017 Carl Moyer Air Quality Standards Attainment Program (2017 Moyer Program) Guidelines that were committed to in Appendix H of the Valley Incentive Measure. Appendix A provides updates on the status of the projects, including changes to the annual hours of operation for a project, and identifying projects that are no longer eligible for credit. Tables 3 through 6 compare the 2011 and 2017 Moyer Program projects from Appendix H of the Valley Incentive Measure with projects included in Appendix A of this report as applicable in 2024 and 2025. In summary, only one project was removed, 24 projects have changes from what was originally reported, and the remaining 2011 and 2017 Moyer Program projects continue to achieve significant emissions reductions.

Table 3: Status of 2011 Moyer Program Projects in 2024⁴

2011 Moyer Program in 2024	Number of Projects	NOx (tpd)	PM2.5 (tpd)
2020 Annual Demonstration Report Appendix A	1,427	1.409	0.055
Valley Incentive Measure Appendix H	1,428	1.409	0.057

⁴ May not add due to rounding

Table 4: Status of 2011 Moyer Program Projects in 2025⁵

2011 Moyer Program in 2025	Number of Projects	NOx (tpd)	PM2.5 (tpd)
2020 Annual Demonstration Report Appendix A	1,069	1.100	0.043
Valley Incentive Measure Appendix H	1,069	1.098	0.043

Table 5: Status of 2017 Moyer Program Projects in 2024⁶

2017 Moyer Program in 2024	Number of Projects	NOx (tpd)	PM2.5 (tpd)
2020 Annual Demonstration Report Appendix A	889	1.198	0.069
Valley Incentive Measure Appendix H	889	1.199	0.069

Table 6: Status of 2017 Moyer Program Projects in 2025⁷

2017 Moyer Program in 2025	Number of Projects	NOx (tpd)	PM2.5 (tpd)
2020 Annual Demonstration Report Appendix A	889	1.198	0.069
Valley Incentive Measure Appendix H	889	1.199	0.069

FARMER Program

Appendix A is list based on the FARMER Program projects that were committed to in Appendix J of the Valley Incentive Measure. In the Valley Incentive Measure, completed projects were included much like the Moyer Program and NRCS. In addition to the completed projects, the Valley Incentive Measure also included commitments from the FARMER Program for projects to be completed after the development of the Valley Incentive Measure but using the first two years of FARMER funding.

Appendix A provides updates on the status of the projects including changes to the annual hours of operation for a project, and identifying projects that are no longer eligible for credit.

⁵ May not add due to rounding

⁶ May not add due to rounding

⁷ May not add due to rounding

Table 7 compares the completed FARMER Program projects from Appendix J of the Valley Incentive Measure with projects included in Appendix A of this report as applicable in 2024 and 2025.

Table 7: Status of FARMER Program Projects Completed Prior to Adoption of the Valley Incentive Measure, in 2024 and 2025⁸

FARMER Program in 2024 and 2025	Number of Projects	NOx (tpd)	PM2.5 (tpd)
2020 Annual Demonstration Report Appendix A	267	0.288	0.017
Valley Incentive Measure Appendix J	267	0.266	0.017

For the FARMER Program projects to be completed after the development of the Valley Incentive Measure, the measure committed approximately \$155,000,000 from the first two years of FARMER Program funding for agricultural equipment projects in the Valley. Appendix J of the Valley Incentive Measure estimated the number of future projects and emissions reductions based on the 267 completed projects and remaining balance of the \$155,000,000. Through March 2021, the District has expended \$73,607,775 of the \$155,000,000 to complete 1,100 projects.

Table 8 compares the newly completed FARMER Program projects from Appendix J of the Valley Incentive Measure with projects included in Appendix A as applicable in 2024 and 2025. Through March 2021, the District has spent less than 39 percent of the approximately \$155,000,000 in funding, yet the projects are achieving nearly 60 percent of the future estimates included in Appendix J of the Valley Incentive Measure.

⁸ May not add due to rounding

Table 8: Status of FARMER Program Projects Completed Since Adoption of the Valley Incentive Measure, in 2024 and 2025⁹

Column	FARMER Program in 2024 and 2025	Number of Projects	NOx (tpd)	PM2.5 (tpd)	FARMER Funding
A	2020 Annual Demonstration Report Appendix A	1,100	1.11	0.068	\$53 million
B	Valley Incentive Measure Appendix J	1,793	1.87	0.12	\$135 million
C	Percent Complete (A / B = C)	61%	59%	56%	39%

Table 9 and 10 compare the NOx and PM_{2.5} cost effectiveness from Appendix J of the Valley Incentive Measure and Appendix A. Tables 9 and 10 show projects accounted for in Appendix A have better cost effectiveness than the estimates made in Appendix J of the Valley Incentive Measure, and Appendix A is achieving emissions reductions with less funding. In summary, the originally submitted FARMER Program projects are all accounted for, there are 1,100 newly completed FARMER Program projects, and the projects are performing above estimates. Together these projects achieve a significant amount of emissions reductions and are estimated to help meet the Valley Incentive Measure commitment.

⁹ May not add due to rounding

Table 9: FARMER Program NOx Cost Effectiveness¹⁰

Column	FARMER Program	Valley Incentive Measure Appendix J	2020 Annual Demonstration Report Appendix A
A	FARMER Projects Funded	\$19,432,040	\$73,607,755
B	NOx Emissions Reductions	0.267	1.405
C	Average Dollar Per Ton Per Day of NOx (A / B = C)	\$72,631,624	\$52,389,861

Table 10: FARMER Program PM_{2.5} Cost Effectiveness¹¹

Column	FARMER Program	Valley Incentive Measure Appendix J	2020 Annual Demonstration Report Appendix A
A	FARMER Projects Funded	\$19,432,040	\$73,607,755
B	PM _{2.5} Emissions Reductions	0.02	0.087
C	Average Dollar Per Ton Per Day of PM _{2.5} (A / B = C)	\$1,138,036,685	\$846,066,149

NRCS

Appendix B is a list based on the NRCS projects that were committed to in Appendix I of the Valley Incentive Measure. Appendix B updates the status of the projects, including if a project is no longer eligible for credit. Tables 11 and 12 compare the NRCS projects from Appendix I in the Valley Incentive Measure and Appendix B of this report as applicable in 2024 and 2025, respectively. In summary, only three projects were removed and the remaining NRCS projects continue to achieve significant emissions reductions.

¹⁰ May not add due to rounding

¹¹ May not add due to rounding

Table 11: Status of NRCS Projects in 2024¹²

NRCS in 2024	Number of Projects	NOx (tpd)	PM2.5 (tpd)
2020 Annual Demonstration Report Appendix B	1039	1.14	0.07
Valley Incentive Measure Appendix I	1042	1.07	0.06

Table 12: Status of NRCS Projects in 2025¹³

NRCS in 2025	Number of Projects	NOx (tpd)	PM2.5 (tpd)
2020 Annual Demonstration Report Appendix B	741	0.70	0.05
Valley Incentive Measure Appendix I	742	0.04	0.64

Changes to Guidelines

The Valley Incentive Measure requires CARB to report any changes to the 2011 and 2017 Moyer Program and FARMER Program Guidelines, and to NRCS Guidelines and related impacts on program integrity. Since the Valley Incentive Measure was adopted, there have been no changes nor any related impacts to the integrity of the 2011 and 2017 Moyer Program Guidelines, the FARMER Program Guidelines, or the NRCS Guidelines.

Confirmation of Project Compliance

Program Oversight

Moyer Program and FARMER Program

CARB works with the District to administer programs that provide financial incentives that clean the air by advancing lower emitting engines and technologies, including through the Moyer Program and FARMER Program. The District and CARB share a commitment to make these incentive programs work efficiently and effectively to clean the air.

California Health and Safety Code sections 39500, 39808, 44286, and 44291 give CARB the authority and direction to oversee the implementation of incentive programs. The Board

¹² May not add due to rounding

¹³ May not add due to rounding

works to ensure the programs are conducted in a manner consistent with applicable laws and guidelines and that expected emissions reductions are achieved. CARB oversight increases incentive program accountability by providing a mechanism to identify program deficiencies, make corrections, and ensure public funds are spent in a manner consistent with statutory intent. The objectives of this oversight include:

- Identify strengths of district programs that can be shared with other districts, providing stronger outcomes for incentive programs statewide;
- Identify training needs for air district staff;
- Highlight areas in State guidance that require clarification;
- Help CARB understand local challenges in program implementation; and
- Strengthen the working relationship between State and local entities.

For 2017 Moyer Program Guidelines and FARMER Program Guidelines, project reviews are found in Chapter 3, Section R of the 2017 Moyer Program Guidelines, approved by the Board on April 27, 2017. For 2011 Moyer Program Guidelines, project reviews are found in Chapter 3, Section U of the 2011 Moyer Program Guidelines, approved by the Board on April 28, 2011. The *Policies and Procedures* document provides districts and the public additional information on how reviews and audits are conducted for the Moyer Program and other incentive programs.¹⁴ The current version of these Policies and Procedures is available to the public on the CARB website. CARB may deviate from these Policies and Procedures with reasonable cause. If this occurs, the district under review will be notified and any significant variations in policy or procedure will be described in the program review report issued by CARB.

As part of this oversight responsibility, CARB conducted a review of the incentive programs implemented by the District. In January 2013, CARB published "*Incentive Program, Program Review Report, San Joaquin Valley Air Pollution Control District Fiscal Years 2006-07 through 2009-10*" that documents CARB's scope of the review, the projects selected for review and site inspection, a resulting finding, and discussion of commendable efforts.¹⁵ CARB conducts reviews of air district incentive programs on a rotational basis, and as such, another review of the District's program will be conducted in the next few years.

CARB's program review has concluded that the District's Moyer Program is efficiently and effectively achieving its emission reduction objectives. The single finding in this report identifies a condition with one Carl Moyer Program agricultural pump electrification project that the District and grantee fully remedied during the course of the review. The report also commends the District for voluntarily implementing the Lower-Emission School Bus Program.

NRCS

NRCS is the delegated authority to promulgate regulations to carry out EQIP; these regulations were originally codified by the federal Agricultural Improvement Act of 2018,

¹⁴ *CARB Program and Fiscal Reviews For California Emissions Reduction Incentive Programs, April 2018.*
https://ww3.arb.ca.gov/msprog/moyer/audits/program_review_policies_procedures_final_18apr2018.pdf

¹⁵ *San Joaquin Valley AQMD Program Review Report (ca.gov)*

more commonly known as a farm bill, and exist at title 7, part 1466 of the Code of Federal Regulations. EQIP has been authorized and modified through subsequent farm bills. After each farm bill, NRCS updates its regulations as necessary to reflect any modifications made to its programs by the farm bill. NRCS issues interim rules in which the promulgated rules take effect immediately, but also are accompanied by a period for the public to submit comments. NRCS has issued an interim rule following the 2018 Farm Bill, but did not make any changes to its EQIP regulations.

Conservation practices are the substantive core of EQIP. NRCS is required to develop and provide a list of conservation practices that are eligible for EQIP payments. To that end, NRCS has provided in its General Manual conservation practice standards (CPS) establishing the minimum level of quality for planning, operating, and maintaining a conservation practice. Each national CPS is maintained in the National Handbook of Conservation Practices (NHCP). The initiation of development or review of a CPS begins with the national discipline lead, who works with an interdisciplinary review or development team to guide the CPS through quality assurance review and internal review from state resource conservationists and engineers, and national technology specialists within NRCS. The CPS is then published in the Federal Register for public review and comment for at least 30 days. After addressing any public comments, NRCS releases the final CPS through a NHCP notice, and the final CPS is included in the NHCP and relevant projects are then eligible for EQIP funding.

If NRCS establishes a new CPS, states may adopt the new national CPS as needed; if NRCS modifies or removes a CPS, then states must accordingly modify or remove the CPS from their Field Office Technical Guide (FOTG). The FOTG is the official “NRCS source of resource information and interpretations of guidelines, criteria, and requirements for planning and implementation of conservation practices” at the state and local level. The FOTG contains the CPSs adopted by the states, as well as other technical information to achieve the desired resource conservation. As noted earlier, the NRCS adopts national CPSs, and the states adopt those applicable to their resources, with any necessary tailoring or modifications, into their FOTG. EQIP participants must then develop and carry out any conservation practices in accordance with the standards in the FOTG.

Project Oversight

Moyer Program and FARMER Program

The District is responsible for implementing the Moyer Program and FARMER Program in the Valley. The District performs the following to ensure the projects meet all requirements in the 2017 Moyer Program Guidelines.

- Perform a pre-inspection to verify that all the old agricultural equipment’s information on the application including vehicle identification number, engine serial number, etc. are as specified in the original application;
- After the new agricultural equipment arrives, perform a post inspection to ensure the new agricultural equipment has the correct specifications;

- Perform a pre-dismantle inspection to verify that the replaced agricultural equipment in the application is the same agricultural equipment going to the dismantler and that the replaced agricultural equipment has not been stripped; and
- Perform a post destruction inspection to verify that the correct agricultural equipment was destroyed properly, including a hole in the engine block and frame cut in half to ensure the engine is inoperable.

NRCS

NRCS is responsible for implementing EQIP projects in the Valley. NRCS California State Conservationist, in accordance with the *2014 Addendum to the 2010 Statement of Principles* and NRCS Data Certification Letter dated October 28, 2019, certifies that the data from the 2021 NRCS Annual Report meets the following criteria:

- The emissions reductions for each EQIP project identified in the annual report were calculated in accordance with the applicable NRCS conservation practice standard and related guidelines;
- The annual report does not include any funded project that NRCS has found to be in violation of its EQIP contract, and
- The information provided in the annual report is true and accurate to the best of my knowledge.

Sample Project

Appendices C, D, and E of the 2020 Annual Demonstration Report show examples of the photos and documentation included in inspection reports for a project under the Moyer Program, the FARMER Program, and NRCS, respectively; each sample project is one of those included in Appendices A or B, as applicable. The photos show the replaced engine being destroyed. Photos are a typical form of documentation verifying destruction of the replaced engine. A picture of the engine serial number is provided to verify the engine is on the relevant project list.