

Special Project Report 1 Update (DRAFT V1.8)

California Air Resources Board

Integrated Multi-Pollutant Emissions Inventory 3900-069



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Contents

<u>1</u>	<u>Proposed Project Change</u>	<u>4</u>
<u>1.1</u>	<u>Project Background/Summary</u>	<u>3</u>
<u>1.1.1</u>	<u>Description of Business Program</u>	<u>3</u>
<u>1.1.2</u>	<u>Description of Current Business Process</u>	<u>3</u>
<u>1.1.3</u>	<u>Impact of the Proposal on the Business Program / Process</u>	<u>4</u>
<u>1.1.4</u>	<u>Customers and Users of the Business Program / Process</u>	<u>4</u>
<u>1.2</u>	<u>Project Status</u>	<u>5</u>
<u>1.3</u>	<u>Reason for Proposed Change</u>	<u>5</u>
<u>1.4</u>	<u>Proposed Project Change</u>	<u>6</u>
<u>2</u>	<u>Updated Project Management Plan</u>	<u>6</u>
<u>2.1</u>	<u>Project Manager Qualifications</u>	<u>6</u>
<u>2.2</u>	<u>Project Management Methodology</u>	<u>6</u>
<u>2.3</u>	<u>Project Organization</u>	<u>7</u>
<u>2.4</u>	<u>Project Priorities</u>	<u>7</u>
<u>2.5</u>	<u>Project Plan</u>	<u>8</u>
<u>2.5.1</u>	<u>Project Scope</u>	<u>8</u>
<u>2.5.2</u>	<u>Project Assumptions</u>	<u>8</u>
<u>2.5.3</u>	<u>Project Phasing</u>	<u>8</u>
<u>2.5.4</u>	<u>Project Roles and Responsibilities</u>	<u>8</u>
<u>2.5.5</u>	<u>Project Schedule</u>	<u>8</u>
<u>2.6</u>	<u>Project Monitoring and Oversight</u>	<u>8</u>
<u>2.7</u>	<u>Project Quality</u>	<u>8</u>
<u>2.8</u>	<u>Change Management</u>	<u>9</u>
<u>2.9</u>	<u>Authorization Required</u>	<u>9</u>
<u>2.10</u>	<u>Issues</u>	<u>9</u>
<u>2.11</u>	<u>Risks</u>	<u>9</u>
<u>2.12</u>	<u>Security Issues</u>	<u>9</u>
<u>3</u>	<u>Updated Financial Analysis Worksheet</u>	<u>9</u>
<u>4</u>	<u>Additional Documents</u>	<u>10</u>
	<u>Appendix A – Acronym/Abbreviation Table</u>	<u>11</u>

1 Proposed Project Change

1.1 Project Background/Summary

In 2017, Assembly Bill 617 (AB 617) was signed into law to develop a new community focused program to more effectively reduce exposure to air pollution and preserve public health. Emission inventories provide the foundation for all major programs at the California Air Resources Board (CARB), supporting efforts to assess and minimize the impacts of air pollution in California. These scientific data management systems compile estimates of emissions from all types of sources, including stationary industrial facilities, mobile, and naturally occurring sources. These data systems, when combined with air quality monitoring observations and an effective understanding of emission control technologies, help to inform California's emission reduction strategies and measure their progress. Recent legislative requirements namely AB 617 and AB 197 call for comprehensive and understandable assessments of air pollution impacts and trends at a finer level of geographic detail than previously mandated. CARB's emission inventory and related systems must improve to utilize a modern and effective framework to support enhanced data collection and analysis. The Integrated Multi-Pollutants Emissions Inventory (IMPEI) Project was initiated to construct and deploy an Information System to meet the requirements of AB 617. It would be used to manage the inventory of sources of air contaminant emissions and associate sources to air quality monitoring data to support community impact analysis.

1.1.1 Description of Business Program

The Air Quality Planning and Science Division (AQPSD) is responsible for developing official plans and strategies for improving California's air quality and utilizing the best available data and analyses to support these plans. This effort involves developing comprehensive emission inventories covering all pollutant and emission source categories, utilizing numerical models to estimate air emissions and impacts in California, and compiling air quality monitoring data from a vast network of sensors. The resulting datasets and analyses provide a means of quantifying emissions and impacts of emissions by source category and region at a high level of detail, as well as providing estimates of future trends based on historical air quality data. The analysis accounts for the impact of California regulations, improvements in emission control technology, and expected economic growth by sector.

AQPSD also works closely with the local air districts to compile emissions data and trends from stationary sources like industrial facilities to complement CARB's estimates for the remaining source categories such as on- and off-road mobile sources. Together these comprehensive emission inventories, models, and air quality monitoring datasets provide a core foundation for the agency's various programs and inform future regulation and strategy development, while tracking the progress of California's programs for reducing air pollutant emissions and public exposure to pollution.

1.1.2 Description of Current Business Process

CARB maintains emission inventories for criteria pollutants, toxic air contaminants, and greenhouse gases (GHG) in separate systems with disparate reporting requirements. Data for the air pollutants and emission sources are provided from a variety of resources such as reporting from local air districts and commercial

entities or data from CARB emission models. Emissions assessments and reduction efforts require an understanding of the relationship between air pollutants and how impacts from their emissions can be quantified consistently throughout these separate inventories.

1.1.3 Impact of the Proposal on the Business Program / Process

The proposed IMPEI systems are critical to supporting CARB's efforts to protect public health. In order to achieve the primary goal of estimating and assessing emissions data, IMPEI will collect, and store detailed process-level activity records related to sources of air emissions. These include fuel throughputs or processes rates associated with specific devices and industrial processes and their associated emission factors, which together can be used to estimate the emissions of various air pollutants by location.

CARB's air quality and climate plans and strategies require emissions to be assessed across all three-pollutant regimes: criteria, toxic, and GHG pollutants. In recent years, CARB has made many efforts to evaluate the potential criteria pollutant and toxic air contaminant emission reductions associated with GHG regulatory measures. However, the disparate database structures and degrees of granularity of information collected by each program has made this task difficult. In 2016, Assembly Bill 197 (Garcia, 2016; AB 197) further codified the need for co-benefit analysis by requiring the uniform and comprehensive assessment and publication of criteria pollutant, toxic air contaminant, and GHG emissions across all programs and inventories. These systems will collect, manage, and disseminate emissions and air quality data in a manner, which not only utilizes the best available science but promotes transparency and public right-to-know.

The IMPEI multi-pollutant emissions inventory framework is essential for the support of an integrated compilation of criteria pollutant, toxic air contaminants, and GHG emissions at a refined spatial and temporal time scale, across all CARB programs.

1.1.4 Customers and Users of the Business Program / Process

During the business requirement gathering phase of the contract, CARB met with various user groups throughout the state to better understand their needs, and how the new AB 617 systems would be used by each group. The list below identifies each user group, and how they intend to use the system:

- Air Districts – Report emissions and related operational information for industrial facilities and other stationary sources, which are under their jurisdiction. This information is compiled along with the remaining sources handled by CARB to form a comprehensive emission inventory covering all pollutants and source types. These comprehensive inventories in turn support air quality planning and federal emissions reporting as required for their district. District users only have access to data for a designated subset of emission source categories, limited to the geographic region they represent.
- CARB – In addition to assisting district users reporting emissions data, CARB users develop and maintain emission estimates for the remaining source categories such as mobile and area-wide. CARB staff then query this comprehensive emission inventory to provide data products for air quality planning, tracking progress of current emission reduction programs, scientific research and analysis, and supporting future regulation development.

- Public– Query information on local, regional, and statewide air emissions from stationary, mobile, and natural sources.

1.2 Project Status

The project implementation phase commenced 6/29/2018 with a contracted implementation vendor. The project scoping was completed 1/2/2019. The project scope included the development of a custom vendor solution to meet the statutory requirements outlined in AB 617 and AB 197.

In May of 2019, due to vendor software design, construction, implementation and schedule deficiencies the project development efforts were halted. The vendor was unable to provide appropriate corrective action, and as a result the vendor contract was terminated. The overall project efforts were temporarily placed on hold pending re-planning activities and approval of a Special Project Report -SPR #1. The SPR #1 was submitted to the California Department of Technology (CDT) in May of 2020, to re-baseline the project and request permission to continue the project efforts. On Aug 6, 2020, CDT approved SPR #1 and the continuation of the CARB IMPEI project with the condition of:

- CARB submitting a SPR #1 Update to baseline the cost, scope, and schedule prior to the vendor contract execution.

1.3 Reason for Proposed Change

The purpose of this document, SPR #1 Update, is a follow up on the approved SPR #1 condition for CARB to submit a SPR #1 Update to baseline the scope, cost, and schedule prior to the vendor contract execution.

The project's scope defined in the Stage 1 Business Analysis (S1BA) documentation has not changed, and the CARB project team continues to work based off this original project scope approval. In addition, no additional Project Approval Lifecycle (PAL) process approval is being sought, as the PAL process has already completed for the original project scope.

The project's cost was calibrated to include an IV&V (Independent Validation & Verification) resource, and to rebalance the re-directed staff allocation to align with the project activities executed during each fiscal year. The project primary contract for system development remains unchanged and in alignment with previously executed market research conducted through the RFI (Request for Information) process. The calibration resulted in a slight reduction of the total project cost from \$9,154,947 to \$9,124,847.

The project schedule is also being updated moving the implementation end-date by four months from 6/30/2023 to 10/31/2023, and the PIER date from 12/31/2024 to 04/30/2025.

The cause of this four-month delay is the delayed release of the new IT Master Service Agreement (MSA) by Department of General Services (DGS), which impacted the scheduled timelines for initiating the proper execution of the new vendor contract. As a result, the project was required to change its procurement method to the California Multiple Award Schedule (CMAS) procurement approach, causing the delay of four months to the implementation date.

Schedule. The IMPEI SPR #1 Update intends to re-baseline the schedule due to the procurement delay as demonstrated in the table below.

Project Schedule			
Project Number 3900-069			
Description	Last Approved	Approved Revision	Change
Start Date	6/29/2018	6/29/2018	
Implementation Date	06/30/2023	10/31/2023	4 Months
PIER Date	12/31/2024	04/30/2025	4 Months

Scope. The scope of the project remains unchanged from the original proposal outlined during the PAL process and as documented in the solicitation.

Cost. The cost of the project was calibrated rebalancing the re-directed staff allocation considering the project activities executed within each fiscal year and adding an IV&V resource for the FY 2022/2023. It is important to highlight that the re-directed staff allocated to the project was reduced post the suspension of the project in May of 2019, and during the lost time in the procurement phase. The total project cost was reduced as represented in the table below.

Project Cost			
Project Number 3900-069			
Description	Last Approved	Approved Revision	Change
Total Project Cost	\$9,154,947	\$9,124,874	Change
One-time	\$9,002,569	\$8,972,496	Change
Continuing (Future Ops. IT Staff & OE&E) Annual M&O)	\$152,378	\$152,378	No Change

1.4 Proposed Project Change

This IMPEI SPR #1 UPDATE updates the project to:

1. Calibrate the project funds based on project activity level by fiscal year and including the IV&V resource.
2. Extend the project implementation end-date from 06/30/2023 to 10/31/2023, and the PIER date from 12/31/2024 to 04/30/2025.

Impact of Proposed Change on the Project

This SPR does not change the original scope, overall budget for the IMPEI project revealed a slightly lower cost after re-directed staff resources were rebalanced considering the project activities by fiscal year.

The project schedule is also updated to move the implementation end-date by four months from 06/30/2023 to 10/31/2023 and the PIER date from 12/31/2024 to 04/30/2025, to reflect the timeframe in which all IMPEI functionality will be procured and implemented (including a stabilization period).

2 Updated Project Management Plan

The project management processes described during the PAL process continue to be followed. Project Management Plans were prepared during various stages of PAL for the IMPEI project. These documents are available upon request.

2.1 Project Manager Qualifications

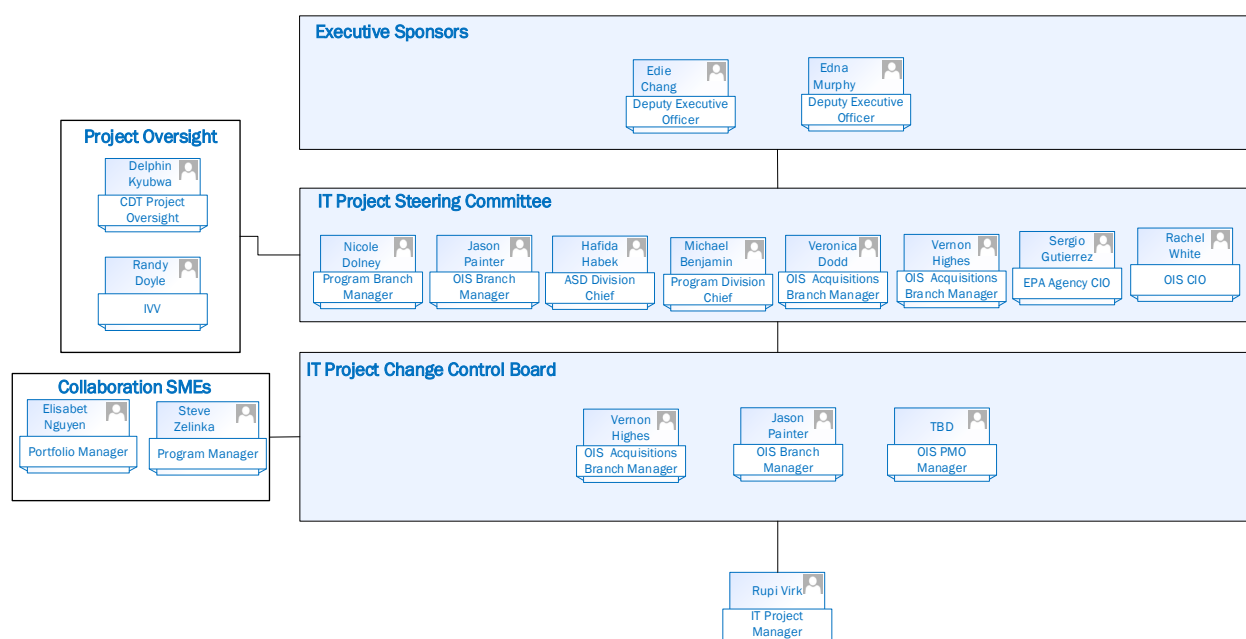
The IMPEI project is managed by a contract Senior Project Manager (PM). The role of the PM is to establish and implement the necessary project management processes, maintain the overall project documentation, and project reporting. The PM for the IMPEI project is Rupy Virk. Rupy Virk is within the Project Management Office of CARB's Office of Information Services (OIS). She is certified as a Project Management Professional (PMP) by the Project Management Institute (PMI).

2.2 Project Management Methodology

CARB follows the California Project Management Framework (CA-PMF). CARB also uses the Project Management Body of Knowledge (PMBOK) from PMI, and the recommended project management and risk management practices of the CDT Information Technology Project Oversight Framework, SIMM section 45, as guiding documents for project management best practices. CARB is using Waterfall Methodology to develop the application.

2.3 Project Organization

IMPEI Project Organization Chart is shown below.



2.4 Project Priorities

Project priorities specified in Table 1 remain the same for this SPR #1 UPDATE. Project stakeholders for the IMPEI Project agreed on the relative importance of each of these four factors before the beginning of the project, as future project management decisions will be guided by these priorities.

Project trade-off matrix is given below that shows the relative importance of each factor using a priority of 1 (highest) to 4 (lowest) for each of these factors.

Project trade-off matrix

Schedule	Scope	Resources	Quality
3	1	4	2

The project trade-off matrix represents CARB project constraints prioritization approach. It is utilized for managing any project related changes in the event activities/tasks situations require more than can be achieved within the estimated time, cost, quality and/or resource constraints to meet the project's goals.

2.5 Project Plan

2.5.1 Project Scope

Project scope as documented in PAL Stage 3 remains the same.

2.5.2 Project Assumptions

Major project assumptions listed in section 2.7 of PAL Stage 2 remain the same.

2.5.3 Project Phasing

Project phases documented in section 2.11.5 of PAL Stage 2 remain the same.

2.5.4 Project Roles and Responsibilities

Project roles and responsibilities documented in section 2.12.9 of PAL Stage 2 remain the same.

2.5.5 Project Schedule

The project schedule is re-baselined with an implementation completion date of 10/31/2023, and PIER date of 4/30/2025.

2.6 Project Monitoring and Oversight

Project monitoring and oversight will continue for the project duration.

2.7 Project Quality

The IMPEI Project team is executing the quality management plan as specified in section 3.18 of PAL Stage 3 and updated based on lessons learned.

2.8 Change Management

The IMPEI Change Management plan specified in section 3.18 of PAL Stage 3 remains the same.

2.9 Authorization Required

Not applicable.

2.10 Issues

No potential issues identified at this time.

2.11 Risks

The IMPEI project maintains a Risk Register. The register incorporates the following major project risks:

- Budget Constraints
 - Encumbrance and appropriation of funds in FY 2021/2022
- Schedule Commitment
 - Implementation dates and milestones
- Scope Increases or Reduction
 - Requirements' completeness and clarity
- Resource Stability
 - Resource attrition
- Product Quality
 - Possible system implementation difficulties (E.g., development environment readiness)
 - System testing may identify a high volume of defects
 - User Acceptance Testing (UAT) may yield unfavorable results
 - Security testing may reveal major vulnerabilities putting private data and system at risk
 - Knowledge transfer and transition plan, if inadequate, may increase resistance in the acceptance of the system





2.12 Security Issues

There are no security issues for IMPEI identified at this time. Several security evaluations of the system are conducted throughout the implementation phase.

3 Updated Financial Analysis Worksheet

No financial changes are applicable to this IMPEI SPR #1 UPDATE. The Total Project Cost approved with SPR #1, on Aug 6, 2020, remains unchanged.

4 Additional Documents

1.	Special Project Report #1 Approval Letter	 3900-069 CARB Integrated Multi-Pol
2.	Special Project Report #1 Update- FAW (Financial Analysis Worksheet)	 3900_069_CARB_IM PEI_FAW_IMPEI_SPR
3.	Special Project Report #1 Update – Microsoft Project Schedule	 3900_069_CARB_IM PIE_SPR1-Update_Sc
4.	Special Project Report #1 Update – Risk Register	 3900_069_CARB_IM PEI_SPR1-Update_Ri

Appendix A – Acronym/Abbreviation Table

BCP	Budget Change Proposal
CDT	California Department of Technology
CIO	Chief Information Officer
FAW	Financial Analysis Worksheet
ISO	Information Security Office
IT	Information Technology
ITPOC	IT Project Oversight Division
IV&V	Independent Verification and Validation
OE&E	Operating Expenses and Equipment
PAL	Project Approval Lifecycle
PM	Project Manager
PMBOK	Project Management Body of Knowledge
PMF	Project Management Framework
PMI	Project Management Institute
PMO	Project Management Office
S2AA	Stage 2 Alternative Analysis
S3SD	Stage 3 Solution Development
S4PRA	Stage 4 Project Readiness and Approval
SFL	Spring Finance Letter
SME	Subject Matter Expert
SPR	Special Project Report