

Combined Air Emissions Reporting Implementation Plan

August 5th, 2016



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Acknowledgments

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Abbreviations and Acronyms

AERR: Air Emissions Reporting Requirements
CAER: Combined Air Emissions Reporting
CDX: Central Data Exchange
CEDRI: Compliance and Emissions Data Reporting Interface
CFR: Code of Federal Regulations
CSV: Comma-separated value
ECOS: Environmental Council of the States
EIS: Emissions Inventory System
EPA: United States Environmental Protection Agency
EPCRA: Emergency Planning and Community Right-to-Know Act
FACA: Federal Advisory Committee Act
FRS: Facility Registry Service
GHG: Greenhouse gas
GHGRP: Greenhouse Gas Reporting Program
IPT: Integrated Project Team
IT: Information technology
MACT: Maximum achievable control technology
NEI: National Emissions Inventory
OAQPS: EPA Office of Air Quality, Planning, and Standards
OECA: EPA Office of Enforcement and Compliance Assurance
OEI: EPA Office of Environmental Information
OMB: Office of Management and Budget
PDT: Product Design Team
PPA: Pollution Prevention Act
QA: Quality Assurance
QC: Quality Control
R&D: Research and development
ROI: Return on investment
RTR: Risk and Technology Review
SCC: Source classification codes
SLT: State, Local, and/or Tribal Agency
STAG: State and Tribal Assistance Grants
TRI: Toxics Release Inventory

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Introduction

Background on CAER

E-Enterprise for the Environment (E-Enterprise) is a transformative 21st century strategy to reshape how government agencies deliver environmental protection. Through joint governance, the states, EPA, and tribes are collaboratively modernizing business processes and driving and sharing innovations across agencies and programs. These changes will improve environmental results and enhance services to the regulated community and the public by making government more efficient and effective.

As part of this initiative, the E-Enterprise Leadership Council selected five scoping projects for business cases and return on investment analyses (ROI). One of these projects was the Combined Air Emissions Reporting (CAER) project.

Air emissions information is currently collected by the U.S. Environmental Protection Agency (EPA), and state, local, and tribal (SLT) air agencies through numerous separate statutes and regulations, in a variety of formats, according to different reporting schedules, that use multiple routes of data transfer. A fundamental constraint is that each program was created and has evolved in response to the needs of separate legislative and regulatory initiatives resulting in narrow, tailored programs. Despite this specificity, there are business processes and information collection that overlap. The Combined Air Emissions Reporting project (CAER) looks to modernize business processes to combine information collection from four reporting programs, where appropriate, and to use smart technological solutions to link up the areas of overlap. One area of overlap, facility attributes, are required to be reported separately by the Greenhouse Gas Reporting Program (GHGRP), the Toxics Release Inventory (TRI), the National Emissions Inventory (NEI) via state air agencies, and compliance reporting requirements for Part 60, 62 and 63 regulations. Some of the information is sent directly to EPA by regulated entities, while other information is sent by the regulated entity to a SLT air agency that uses it for its own purposes and sends nationally required information to EPA.

CAER focuses on point sources of four major air reporting programs. CAER will explore its connections to other programs once integration of the four original programs is demonstrated. CAER includes the following programs:

- Toxics Release Inventory (TRI)
- Greenhouse Gas Reporting Program (GHGRP)
- Compliance and Emissions Data Reporting Interface (CEDRI)
- National Emissions Inventory (NEI)

All of these programs are extremely important to EPA and SLTs for purposes that include air quality planning, informing policy development, implementing Clean Air Act obligations, evaluating compliance, and informing applied research. However, as a result of the current makeup, adverse impacts have been observed that include:

Increased **cost to government** (EPA and SLTs) due to managing differing schedules, reconciling data after the fact, etc.

- Increased **burden to the reporting community** due to managing schedules, submitting potentially redundant information, too many possibilities to miss compliance deadlines, and the use of

different formats

- Issues with access to data such as **timeliness, completeness, consistency and data quality** for both government data users and the public, which may result in less use of the data as well as incomplete analyses

To help solve these issues, the CAER project focuses on two things:

- Identifying air emissions reporting statutes, regulations and requirements and considering options for streamlining
- Improving consistency in the delivery of collected air emissions information

Specific key inefficiencies to be eliminated or reduced in a future state include:

- Duplicative and inconsistent facility information/facility matching
- Duplicative data entry and revisions by facilities of data elements that are included in several separate emissions programs
- Some duplicative post-submission quality assurance by EPA and SLTs
- Inconsistent emissions data across programs and associated work (e.g., reconciliation)

Description of the Implementation Team and Process to Develop this Plan

In 2015, a diverse team spent three months and completed a three-day Lean¹ event to develop the proposed “future state” for CAER. In June 2015, a SLT/EPA scoping team completed a return on investment for CAER showing a positive but highly uncertain ROI. The scoping team selected five short-term win projects for the next stage of CAER, to be completed by joint SLT/EPA teams:

- CAER implementation plan
- WebFIRE search improvements and consolidated export of industry test data
- Data dictionary and harmonization of code tables
- Web-based service for Source Classification Codes (SCCs)
- Identify and eliminate root causes of EPA augmentation for the NEI

The first of these short term win teams² – the CAER Implementation Team – was responsible for development of this Implementation Plan (Plan). The Implementation Team was comprised of members of SLTs, EPA, and Environmental Council of the States (ECOS). As of the completion of this document, the Implementation Team has sunset and assumes adoption of the revised governance structure for CAER described in “Governance Process and Structure for Implementation” section on page 6.

Purpose of this Implementation Plan

The purpose of the Implementation Plan is to 1. Codify the CAER vision and future state; 2. Identify an approach to governance and implementation; 3. Identify an initial set of work; 4. Document interim milestones; and finally 5. Express what success looks like through a set of outcome measures. Together, these five Plan components provide the framework to immediately begin making progress in implementing the vision of CAER, while accommodating the uncertainty in long-term implementation by being prescriptive only about how decisions will be made, not what those decisions are, and by

¹ See Appendix A for more information on Lean.

² Information about the outcomes of the other short term wins can be found in the “Existing Work to Advance CAER” section on page 13.

expressing how success will be measured along the way and at the end. The planning horizon for this Plan is five years from Plan adoption.

This Plan first details the goals of CAER, principles to guide implementation of the proposed future state, and a codification of the future state/vision. Next the Plan identifies a governance structure and operations recommendations, and a beginning list of important actions. The Plan then identifies output and outcome measures. Appendices C and D contain information on critical dependencies on other activities (e.g., coordinated master facility data management), constraints, contextual information, and information collected during the deliberations of the Team.

CAER Goals and Proposed Future State

This Plan assumes that the goals established during project conceptualization remain relevant and unchanged and serve as the most basic articulation of the project outcome. In working to refine the future state described below, the Team worked from these goals. The six CAER goals are:

Reduce industry burden for air emissions reporting

1. Improve timeliness and transparency of data
2. Create consistent information across air emissions programs
3. Improve data quality
4. Make data more accessible and useable
5. Support more timely decision making

Description of the Proposed Future State

Building on previous work, the deliberations of the Team further refined the CAER proposed future state (See Figure 1). The Team accomplished this by articulating a set of implementation principles. These principles, described briefly below and in more detail in Appendix B, began describing how the Team envisioned the consolidated reporting occurring and a select number of important, high-level features. Further, as the Team described the implementation considerations, a small number of significant refinements/clarifications to the proposed future state emerged. Specifically:

- The CAER future state does not assume nor preclude a single reporting interface, rather, CAER will describe and enable a common reporting structure that consolidates the reporting process by defining business processes and rules that assert the relationships between programs and a set of services that enable functional consolidation. This approach has significant design implications. Specifically, it enables operating in a heterogeneous operating environment and accommodates variable capacity and interest to participate, but requires more complicated governance and maintenance, and more partners involved in ultimately implementing the proposed future state.
- The Team emphasized and clarified the need to establish a common facility definition, both to enable linking programs and to enable the regulatory assistance functionality. The Team is partnering with the Facility Identification Integrated Project Team (Facility ID IPT) to pilot some efforts to achieve this goal, recognizing that many of the specific items needed to achieve this rest with the Facility ID IPT.

- The Team assumes that there are different SLT and regulated industry needs and abilities and, therefore, different pathways for participation. This therefore assumes that a common reporting structure must account for unique program reporting requirements.

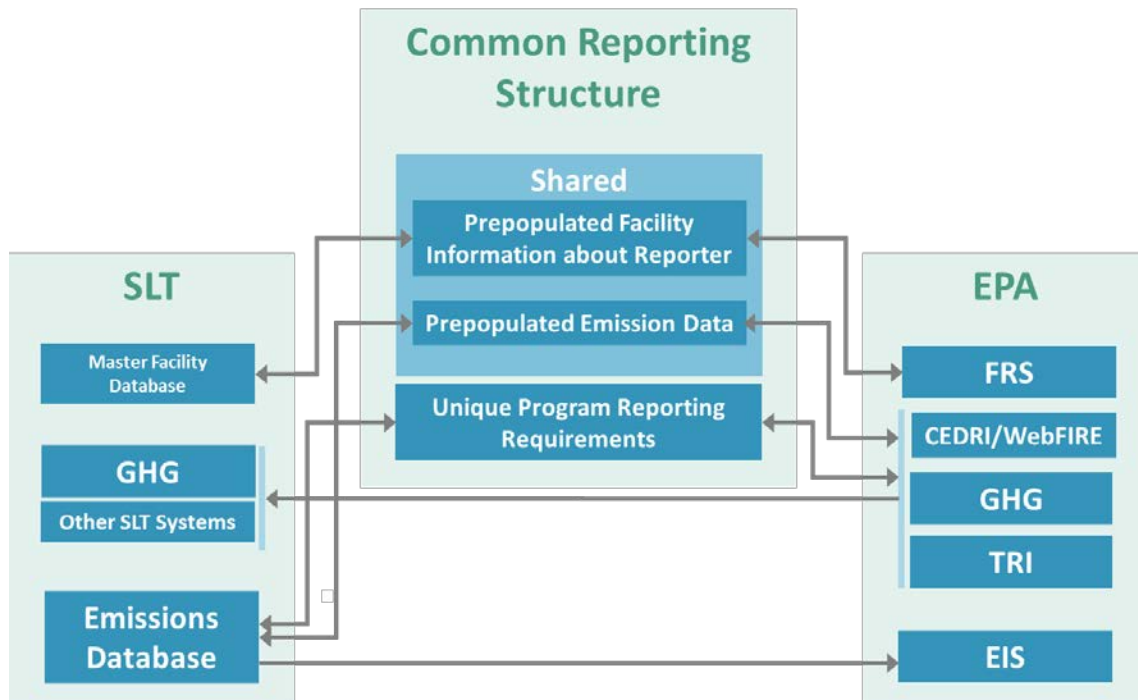


Figure 1 Proposed CAER Future State

The proposed future state diagram above describes the primary information and program relationships. It indicates where and how information moves between SLTs and EPA once the combined reporting is complete. The figure does not describe what the workflow and experience is for the end user or the regulatory agencies – it simply shows a static common reporting structure. The common reporting structure, though, is anything but static. Figure 2 below describes a generic electronic reporting workflow envisioned by the CAER future state diagram. It coarsely describes a four step process to highlight some of the anticipated functionality of the proposed CAER future state. There are some decisions that underlie each of the steps in Figure 2 that will impact how someone experiences that workflow. For agencies, there may be the opportunity to reuse or leverage shared services, like the E-Enterprise portal, to lower the cost of development of an electronic reporting system. For users, the point of entry and the number of systems and interfaces they interact with will impact their experiences.

E-Reporting Generic Workflow Using the CAER Common Reporting Structure

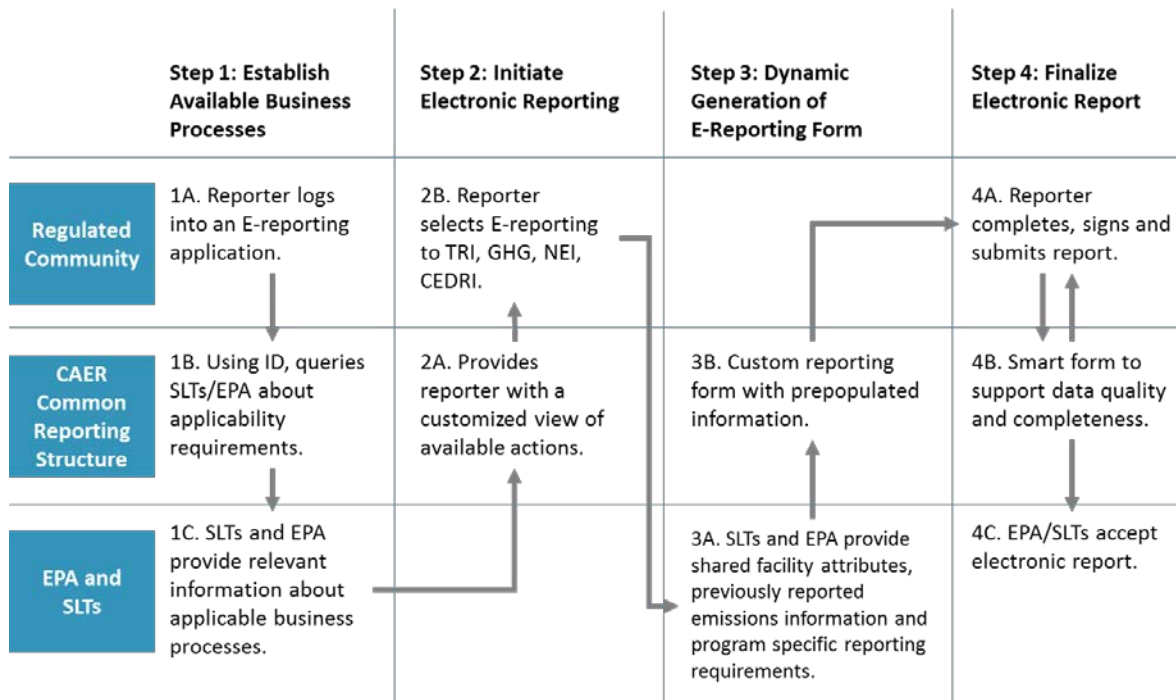


Figure 2 Generic Emissions Reporting Workflow

Electronic Reporting Relationship to Other EPA and SLT Functions

While the CAER project is focusing on consolidating emissions reporting, this Plan recognizes that emissions reporting is only a single function in a large and complex emissions program. Changes required to consolidate reporting streams must account for upstream and downstream effects. Far upstream from electronic reporting is standards development and these standards cannot, for the sake of simplifying reporting, be easily changed. Another upstream function is permitting. Permitting, particularly for NEI, is implemented in many different ways and has ties to other business processes like fee collection. Downstream functions include enforcement and compliance, public access, records management and others. How the information is collected and how the information flows through the various systems must account for the constraints in these upstream and downstream functions. Figure 3 maps electronic reporting to other core co-regulator functions.

CAER Implementation Principles

The CAER Implementation Team identified a set of principles (see Appendix B) to guide implementation of the CAER vision and proposed future state described above. The Team developed the implementation principles as an early step in Plan development and deliberations. The implementation principles serve multiple purposes including describing CAER functionality, describing how the SLTs and EPA will collectively approach implementation, and finally some principles describe outcomes. For this Plan, the implementation principles were used to conceptualize the governance structure and process for implementation starting on page 6. The table in Appendix B documents the principles and accounts for how they are addressed throughout this Plan.

Electronic Reporting Relationship to Other Core Co-Regulator Functions

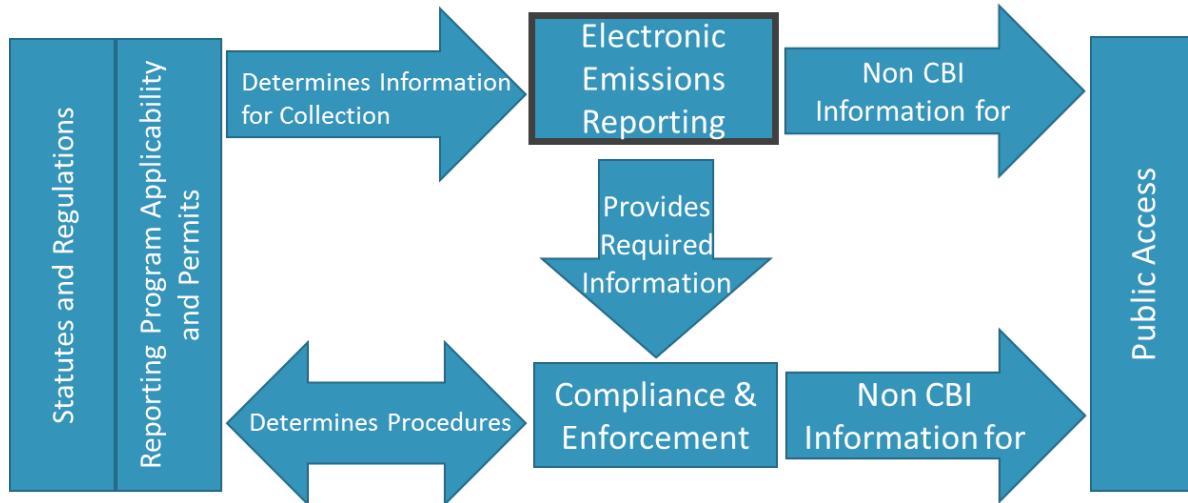


Figure 3 E-Reporting in Relation to Other Functions

Governance Process and Structure for Implementation

This Plan details the governance process and structure for implementation. The processes and structures in this section are consistent with and draw from the CAER implementation principles referenced in Appendix B and from governance approaches championed by E-Enterprise. Key from E-Enterprise is an explicit expectation that SLTs and EPA are to jointly govern projects and that end users need to be consulted and involved in design and operation. The E-Enterprise initiative also places a significant emphasis on Lean and Agile³ development philosophies. The proposed governance process and structure attempts to address, and some instances, reconcile the requirements of inclusion in the design and operation discussions, joint governance for decisions, and Agile and Lean methodologies.

Figure 4 depicts the governance process and structure. A team called the CAER Product Design Team establishes a priority list of work that will be required to implement CAER. The Product Design Team executes and manages the work on the priority list by initiating small R&D teams. These R&D teams convene until the discrete work item is accomplished and then sunset.

³ See Appendix A for more information on Agile.

CAER Product Development Structure

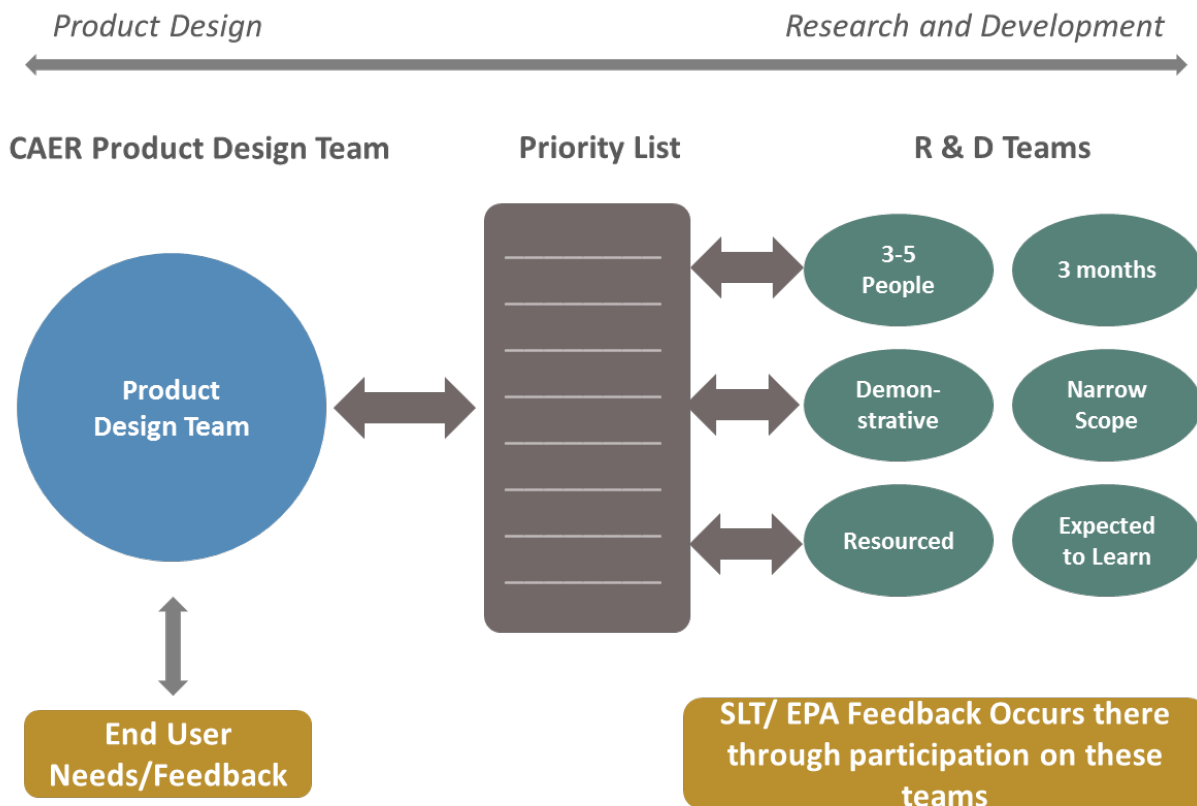


Figure 4 CAER Governance Structure

Governance Structure Description

The primary governance structure is the CAER Product Design Team (PDT) (see Figures 4 and 5). The Product Design Team is comprised of EPA and SLT representatives and should have no more than 12 individuals and strive to have equal EPA/SLT representation. The PDT should have EPA representatives from each of the relevant reporting programs (NEI, TRI, CEDRI, GHGRP) and the Office of Environmental Information. The EPA members must be sufficiently senior within their organizations to be able to 'commit' the reporting programs to decisions and be knowledgeable about the enabling environment (regulations, politics, policy considerations, etc.). SLT representatives should emphasize NEI expertise and knowledge, but the PDT must include expertise in other air programs. The PDT will be led and managed by Co-Chairs, one EPA representative and one SLT representative. Successful operation of the PDT extends beyond the members and requires dedicated staff support to ensure that the members and group operate efficiently and effectively.

The PDT has six responsibilities. These are described in depth below.

1. CAER Vision Champion
2. Policy Direction and Resolution
3. Resource Management

4. Priority List and Work Management
5. Coordination with other projects upon which CAER has crucial dependencies
6. Strategic communications about the project to ensure buy-in from SLT leadership and industry

PRODUCT DESIGN TEAM PRIMARY FUNCTIONS



Figure 5 Product Design Team Primary Functions

CAER Vision Champion

Being champions and advocating for the vision of CAER is the most important responsibility of the PDT. This Plan assumes a dynamic perspective on the vision and this team should periodically revisit and update the vision of CAER based on policy decisions and resolutions (See #1 in Figure 5). This responsibility and the Agile methodology assumes that the small parts vision will be tested and prototyped and the learnings from these small pieces of work need to be accounted for in the vision. (See #2 in Figure 5).

Policy Direction and Resolution

This area of responsibility anticipates the need for the PDT to make decisions about policy changes needed for CAER success. For example, the PDT may decide that a certain feature or outcome is particularly important or desirable but developing these requires a policy change to an EPA or SLT program. The PDT will liaise with the affected program to ensure that the policy changes are collaboratively identified and established. The work to define and scope the type of necessary policy changes will likely be done by R&D teams – with the PDT identifying a desired feature and an R&D team researching how to best support that feature including necessary changes to existing policy (See #3 in Figure 5).

Resource Management

Implementing CAER will take time, people, and money. The resource management responsibility of the PDT applies both to the CAER project as a whole and to the resources required to work through the priority list of work. For the project as a whole, the PDT has to develop budgets for and advocate for the resources at EPA and SLTs required and available to implement the ultimate solution as well as for items in the priority list. For each discrete piece of work on the priority list, the PDT has to identify and attain the right expertise and necessary resources (See #4 on Figure 5).

People management is one of the most delicate issues the PDT will confront. It is important for the PDT to accept that there may be asymmetry between SLT and EPA participation. EPA may be able to provide more staff to participate in R&D teams. The PDT, as the decision making body, is the place where any course corrections can be made, as is comprised of equal SLT and EPA participants. Second, the PDT must recognize that SLTs are not all the same and that lens must be used when making decisions on what constitutes sufficient SLT participation (e.g., with respect to geographic distribution, staff capacity, solutions currently implemented within the SLTs, SLT regulations, etc.). SLT participants on R&D teams will participate as individual members rather than an expectation that they are the voice of all other SLTs.

Coordination with other projects upon which CAER has crucial dependencies

As described in briefly and in detail later in this Plan, there are other projects whose success or failure impacts CAER. The PDT must regularly coordinate with those projects to articulate dependencies and actively participate when necessary to assure that those efforts produce the right outcomes at the right times.

Strategic communications about the project to ensure buy-in from SLT leadership and industry

The PDT function to champion the CAER vision implies that the PDT must do the in reach and outreach and gain buy-in to make CAER successful. Communications is required with SLTs and EPA to assure that the CAER implementation is viable and meets the most pressing needs of participating agencies. Further, industry is a key beneficiary and user and their support and feedback at every stage is important to assure the project remains viable and relevant.

Attributes of a good priority list entry:

- Work should take no longer than 10-12 weeks to complete
- Work should be accomplishable by no more than 5 people
- PDT must identify appropriate resources before initiated
- PDT must identify a deliverable before initiated
- A single person must be responsible and accountable for outcome
- Work should be tied to a specific policy direction/resolution or vision stewardship

Priority List Management

At any given time, the CAER priority list reflects the aggregate work the PDT currently envisions for CAER implementation. The fundamental governance design approach is that work on CAER can be segmented and managed in right-size efforts. This delegable work will be conducted in an environment where any

failures are small and integrated into the learning process. The PDT has the responsibility for segmenting work, prioritizing the priority list activities, setting up the small R&D teams to do the work, setting expectations for these teams, enabling these teams to be successful, and integrating the outcomes of the R&D teams into future activities and the vision. The PDT will drive accountability by explicitly defining deliverables and expectations regarding timing and by frequently checking in on progress and course correcting as necessary. The next section describes in detail PDT operation. The Plan envisions use of a tool such as Trello to dynamically manage priority list items. One of the PDT's first activities will be to create its priority list management system which will be transparent to stakeholders and members of R&D teams.

PDT Monthly Operations

What happens if the work doesn't fit the priority list attributes?

The Implementation Plan assumes that work won't always be a perfect fit for the priority list concept. It is likely that the PDT will want to initiate broader reaching work. This structure is not meant to undermine nor be unresponsive to the complexity and the breadth of the work required to implement CAER. If the PDT chooses to define a priority list item that takes longer than 10 weeks to complete, it is imperative that the PDT still define what work it expects to be accomplished in the next 3 months and what it expects to learn from that work. This is key to assuring that the work of the PDT continues to be such that any failures are small and integrated into the learning process.

The Implementation Plan envisions the PDT operating on a three month cycle. The following is a generic calendar:

Month 1: Backlog Management Meeting (4 hours +). The Plan envisions quarterly meetings where the PDT manages the priority list. This priority list management has two aspects: first, the PDT needs to make proactive decisions about work under way and complete and, second, the team must manage the priority list and initiate the next pulse of work. The work initiation includes the identification of who/what/how for each of the priority list entries. Work can and should be added to the priority list during this meeting and at any point that the PDT identifies a potential piece of work.

Months 2 and 3: Update and Feedback Meeting (90 minutes). These meetings are when the R&D teams, at the request of the PDT, give updates on work underway, and when the PDT can provide any feedback and guidance at the request of the R&D teams. Standing agenda items include 1. A call for items to add to the priority list and 2. Review and resolution of task completions and delays.

R&D teams

The purpose of these teams are to accomplish a discrete piece of work initiated by the PDT. These teams are akin to tiger teams – small numbers of experts convened to solve a very specific problem. The form and function of the teams are left to the members to establish. All R&D teams are expected to do a small amount of monthly progress reporting. Expectations for the R&D teams include regular reporting to the PDT, use of SharePoint for its communications and document management, and operate consistent with the implementation principles this Plan has established.

Hearing from and communicating to the customers

One of the key aspects of Agile design is that the customer's voice is present in design decisions. The PDT has the overall responsibility of design decisions for CAER and assuring the customer voice is present and that the customer is being actively communicated with. Being cognizant of the restrictions on federal efforts due to FACA, the PDT will manage the interface with the regulated community consistent with how the CAER team is currently providing periodic webinars or other mechanisms as the PDT develops. The PDT will make sure, through the decisions it makes on who participates on the R&D teams, that the customers from EPA and SLTs are represented.

Managing the Initial Priority List

To most effectively scope items in the priority list, the PDT must consider the CAER Vision and future state to be a set of harmonized business processes. This is a key working assumption in this Plan – componentization of the Vision by business process provides the PDT with the necessary tractable and interable unit of management. In aggregate, these harmonized business processes achieve the goals of the entire project. During its quarterly priority list management meeting, the PDT manages the priority list by answering the question of which business processes does it want to enable in the next pulse of work.

Workflow to Enable a Business Process

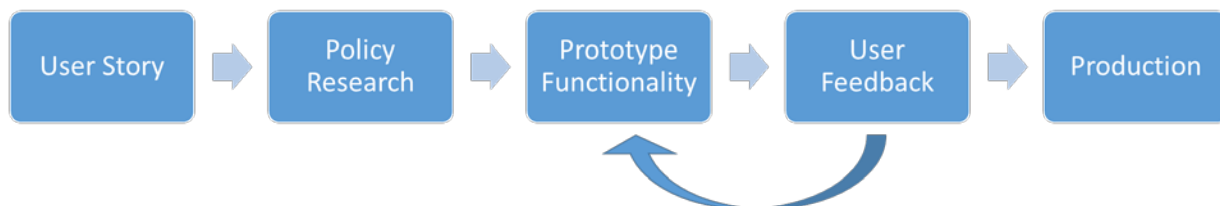


Figure 6 PDT Workflow

Enabling a business process requires the PDT to make a number of deliberate decisions. Figure 6 contains a generic work flow the PDT could follow to enable a business process. The first work flow step, is to identify the business process, articulated through a user story, the PDT wishes to prototype. The second step is to do the necessary research to understand the implications across programs and partners to implement the business process. The Implementation Plan envisions that these two workflow steps are regularly going to be combined and tasked to a R&D team. Once this work is complete, the work flow step is for the PDT to initiate prototype development work. The PDT must assure that the prototype is scoped so that it enables just enough functionality to gather validated learning during the next step. The next step then is to understand, via user feedback if the business process/prototype is adding the anticipated value. The PDT will use user feedback to make decisions about the prototype functionality until it is ready to go into production.

Initial Priority List

In the course of developing the proposed future state, the implementation principles, parsing through the constraints and dependencies, and establishing the governance structure and process, the Team identified an initial set of work. Captured here as the initial priority list, this initial set of work is split between policy research and prototype functionality. The research work reflects those areas where the Team felt that information was missing at the project level – meaning that it is not tied to a specific business process or user story. The prototype functionality priority list entries are generic features of the common reporting structure (i.e., not tied to a specific program), and demonstrating that they can be accomplished is valuable to promoting the effort.

- Research: For TRI, CEDRI, GHGRP, and NEI identify and document program needs. A program need includes data required to fulfill program goals/outcomes, such as public datasets or actionable products (defined as final documents decision makers rely on to make decisions).
- Research: For each reporting program in CAER, analyze and document the potential regulatory constraints. Would include differentiating which program elements are required by rule/regulation and which are required by policy/guidance (e.g., NEI needs a certain set of information that includes HAPs. Those requirements are not in the rule/regulations. There is a disconnect between what find in the regulations and what the program would define for it to be successful).
- Research: Establish a list common governance and business rules across programs. For all programs, document existing practices. Examples discussed during the course of deliberation include data ownership, public release, and quality assurance procedures.
- Research: For TRI, CEDRI, GHGRP, and NEI identify 'surgical' changes to regulations or guidance which would support combining the reporting structure that could be completed within 18 months. Examples discussed during the course of deliberation include harmonizing timing and identifying duplicative or unnecessary data requirements.
- Research: Establish and document a preliminary data model of the prepopulated shared emissions data for the common reporting structure.
- Research: Establish a prioritized list of 10 user stories.
- Research: Research on systems design for each program (e.g., IT functionality of program reporting systems).
- Prototype Functionality: Provide information about reporting applicability to the regulated community during the reporting process.
- Prototype Functionality: Generation of a reporting form with pre-populated facility and emissions information.
- Prototype Functionality: Smart forms that assist user during reporting. For instance, a facility context-dependent pollutant list that recognizes the applicable reporting requirements and thresholds for all applicable programs.
- Prototype Functionality: Automated QA during data entry.

Priority List Management Tool

The PDT needs a tool to manage its priority list. Many tools exist to accomplish this. However, since Trello is currently being used at EPA OAQPS and the some members of the Implementation Team are

familiar with it, as a matter of expedience the Implementation Plan calls for use of Trello to manage the PDT's priority list. If the PDT is going to mirror the approach of EPA OAQPS, the PDT will maintain at least two Trello boards. The PDT will likely have a board for its management of R&D teams and its priority list. The PDT board will contain information about the day to day work of the R & D teams to facilitate the interaction between the PDT and its R&D teams. The PDT will also maintain a public board with the purpose of enabling real-time insight, to anybody with an interest, into current activities. This means anyone with the URL or who searches for it is able to view its contents (permission to edit is given on a user by user basis). The public board will contain at least the user stories and priority list items. This is a deliberate decision to provide greater transparency to the work of the team. The Trello board in effect is 'read-only' (i.e., no decisions and no official business occurs on the board, it is a tool to reflect the decisions of the PDT).

Existing Work to Advance CAER

This section will contain information on the Short Term Wins and other relevant ongoing work. In addition to the CAER Implementation Team, there were four other short term win projects (and associated teams) identified out of the scoping effort. The goals of these projects are outlined below. The PDT should take into account the results produced by these teams as they move forward with implementing CAER.

Data Dictionary/Harmonization Team

The Data Dictionary project is comparing data collection approaches across the four EPA reporting programs being initially considered for this project (TRI, GHGRP, CEDRI, and NEI) and up to three states (NC, TX, and IA). Specifically, the project is comparing the "data elements" and "code tables" used for emissions data reporting. Data elements are the data fields that agencies require industry to report and their definitions. Code tables are the codes used in databases to represent important details about the emissions, such as state and county codes, facility unit descriptions (e.g., the type of boiler), and emissions processes (e.g., an external combustion boiler that burns subbituminous coal).

NEI Augmentation Team

This project has three goals. First, state, local, and tribal air agencies (SLTs) will get a better understanding about why the EPA augments SLT data, and why SLTs are unable to provide the data which is augmented, eliminating those obstacles where possible. Second, a tool or reference will be created that will minimize or remove the need for EPA augmentation in the targeted agencies for the 2014 NEI version 2. Third, EPA's augmentation process is being reviewed and improvements are being identified for EPA to improve their in-house augmentation processes for the 2014 NEI.

SCC Web Access Team

The results of this project are providing the most up-to-date Source Classification Codes (SCCs) via a publicly available web access (page, portal or other means). SCCs are currently expected to be the official "process descriptions" for the CAER project. An approach is being developed to allow anyone to search for SCCs more easily and effectively. Through this project, it will be clearer for everyone how to request new SCCs and the process for the EPA to follow up on such requests.

As a result of this project, it has been determined that one necessary result will be for the up-to-date

SCC list to flow to the Facility Registry System (FRS) and the search approach will be created as part of FRS.

WebFIRE Enhancements Team

WebFIRE is the EPA's emission factor creation, compilation, and distribution mechanism and is available through an EPA website. Through the WebFIRE Enhancements project, the WebFIRE is being enhanced in two ways. First, the search capability within WebFIRE will soon allow new types of searches to find raw test data reports (i.e., those coming in via CEDRI as well as historical test data information loaded into WebFIRE). The search criteria will include finding test reports by adding searches that can include pollutant, control device, test method, source classification code (SCC), regulatory part, regulatory subpart (sometimes called "sector"). Second, the project is adding the ability to download the key fields from the test data into a single consolidated Comma Separated Values (CSV) file.

Dependencies and Constraints

The first step in managing the next phase of implementation is gaining the appropriate commitment from EPA offices and SLT leadership to establish and appropriately resource and staff the PDT. Once the PDT is operating, the PDT must navigate known key constraints and dependencies⁴. The Team documented constraints and dependencies and their intersection points. The intersection between a dependency and constraint represents a significant risk to success for CAER. In aggregate, the items identified at the intersection points represent the risk map for the CAER project. This section first describes the constraints and dependencies, then Appendix D provides tables summarizing the risks/intersection points between the constraints and dependencies.

Dependencies

The Team identified a series of **dependencies**, which reflect a small number of high-priority AND necessary items:

1. *Ability to 'link' facilities across programs* – If we want to achieve the ultimate vision of CAER, we must have the ability to assert a definitive and predictable relationship between the same facility across air programs. This work is being largely accomplished with another E-Enterprise project team, the Facility ID Integrated Project Team (IPT). Concurrent to the work of the Facility ID IPT, EPA is updating its facility system and data model to anticipate the needs of the EPA programs implementing CAER. The IPT covers the interaction between the state systems (business rules etc.) and EPA's system and data model.
2. *Integrating Reporting: Timing* – A significant value proposition to the regulated community is the ability to more efficiently report. This will occur both from improvements in the reporting interface functionality and by integrating the reporting requirements across programs. The timing of reporting is a key point of integration.

⁴ A dependency is something that MUST occur to enable CAER to be successful. Constraints are those items CAER must, despite their existence, work around.

3. *Integrating Reporting: Emissions Data* – Similar to above, enabling the regulated community to only have to submit information once is a key assumption in the value of CAER. That implies that the air programs are going to have harmonize duplicative information requirements (to the extent that this is possible if reporting statutes and regulations cannot be changed) AND establish a set of services/rules to share that information in near real-time.
4. *Business Processes Creation/Reengineering* – To support consolidated reporting, business processes and rules are needed to document how the consolidation is expected to occur. These rules are new and will be both program specific (e.g., rules just about NEI reporting) and cross-program (business rules around updating facilities). Further to support the consolidation, partners may need to reengineer existing business processes (e.g., change QA/QC process).
5. *Implementation Resources* – Changing and migrating programs to support CAER is resource intensive. This could easily be a constraint, but the Team felt that it was important to list this as a dependency (i.e., a necessary item) as opposed to a constraint (i.e., a risk factor). The Team recognizes that coupled with dependency #6 is one of the biggest challenges of CAER implementation.
6. *Partner Capacity and Demand/Interest* – A unique aspect of this project is that a primary beneficiary of this project is the regulated community. The CAER project will only be successful with maximum input from users, including the regulated community. In some instances, input from the regulated community are subject to FACA and the PDT must carefully weigh the mechanisms and process to gather input. Another important aspect to recognize is that for any single partner the proposition to participate may be ‘break even’ or worse, however, for the project to be successful and for the value proposition to scale it requires a critical mass of participants.

Constraints

The Team identified several different **constraints**:

- *Regulatory Constraints* – those items impeding CAER implementation that are written in laws and regulations. These items are generally some of the most difficult and prohibitive (mainly because the time, level of effort and specific restrictions (such as FACA) to change laws/regulations) to address.
- *Governance Constraints* – decisions which require SLTs and EPA collaboration and consent. These constraints are noticeable in those places where SLTs and EPA are attempting to integrate lines of business and business processes.
- *Program Constraints* – those non-regulatory, program specific (EPA/SLT NEI and TRI and EPA GHGRP and CEDRI) impediments.
- *Technical Constraints* – obstacles having to do with either new technology to support the desired state or technical obstacles regarding existing program systems.

- *Individual Partner Constraints* – constraints experienced by any one partner.

Dependencies on other E-Enterprise Projects

As of the date of this Plan, there are several other projects whose outcomes have a direct bearing on the success of the CAER project.

- **Facility Integration Work:** The most integral is the work being managed by the E-Enterprise Facility Identification Integrated Project Team and by EPA in updating its facility data model. In Figure 1, the proposed future state, a key piece of functionality is the ability to link disparate information systems via common facility attributes. Establishing the data model, the service strategy, the business rules, and the governance for the shared facility attributes are necessary (and identified as a dependency above) and is the core work of the Facility Identification Integrated Project Team and of the separate EPA-only FRS-RTR work. The same facility team anticipates piloting the data model and business rules using CAER as the use case in Fall 2016. CAER-specific work needed to support pilot development or other CAER information required to make the facility work successful is some of the most important near-term work.
- **E-Enterprise Federated Identify Management Project Team:** Other linked technical work includes ongoing work to establish a shared security model to enable users who share their credentials while electronically reporting information to more seamlessly navigate across organizational domains (e.g., across a SLT-hosted portal and EPA-hosted portal).
- **E-Enterprise Portal:** The EPA, with input from SLTs is currently developing a web-platform and shared development environment, the E-Enterprise Portal, to provide reusable services and a single reporting interface to customers.
- **Public Facing User Interfaces:** Beyond the E-Enterprise Portal a key goal of the CAER project is improved access and usability of information. A key customer is the public. To achieve this goal, the CAER team will need to work within their agencies to enable appropriate data access.
- **Be Informed Quick Start:** As part of the preliminary efforts to support development of such a CAER interface prototype, the CAER team is initiating a “Quick Start” project to investigate and evaluate the use of a software package called “Be Informed” that will explore how to connect different data systems that are part of CAER. The Be Informed software uses user-provided inputs to “model” a process, which in the CAER project case is the process of collecting and sharing emissions data. The user inputs include regulatory requirements, which under the CAER proposed future state could be both SLT and EPA regulations that a given facility is subject to. The Quick Start project would occur over a relatively short-period of time, approximately 30 days in the fall of 2016.
- **Facility and RTR Pilot:** OAQPS is working with the OEI FRS team to pilot an updated FRS data model and the new EPA portal to improve data collection of Residual Risk and Technology Review (RTR) facility attributes.

Resource Needs

During the development of this Plan, SLTs and EPA both identified resource availability as a key dependency. In addition, the Team emphasized that resource availability would be a key factor in successfully selling the long-term vision to SLTs currently not participating. For SLTs and EPA the high-level resource needs are for implementation support (IT resources), long-term support and maintenance

(information systems), and long-term program support.

At the project level, resources are needed to support internal and external communication and training, for prototype development, and resources to support the operation of the PDT. The resource management responsibility of the PDT applies both to the CAER project as a whole and to the resources required to work through the priority list of work. For the project as a whole, the PDT has to develop budgets for and advocate for the resources at EPA and SLTs required and available to implement the ultimate solution as well as for items in the priority list. For each discrete piece of work on the priority list, the PDT has to identify and attain the right expertise and necessary resources.

Defining Success and Measuring Progress

The governance structure and implementation process described in the previous sections of this Plan describes an iterative and responsive approach to project design and implementation. A byproduct of this approach is that the farther into the future you plan, the less granularity there is regarding implementation actions. This lack of granularity does not equate to a lack of accountability or should not serve as an excuse to not support this project. On the contrary, this approach improves the likelihood of success by assuring that if you fail, you will fail small and by being explicit about learning and feedback. Further, the accountability is not defined by delivering on specific items with a high degree of uncertainty, but accountability being defined by the project delivering on its goals. The accountability is in the ends not the means. This section describes two types of accountability mechanisms: 1. Outcome measures to define what success looks like, and 2. Interim milestones to gauge progress. Together the interim milestones and outcome measures provide the PDT, participating agencies, OMB, and the public with a tangible and visible mechanism to measure progress.

Outcome Measures

The first section of this Plan described six goals. The measures in the Plan are draft and should be explicitly reviewed, updated, adopted, and communicated by the PDT. The work to develop measures reflects work that the PDT must do early in its deliberations. The Team felt that the PDT was the appropriate body to do formal development work.

To define long-term success for the CAER project, this Plan quantifies achieving each goal:

1. Reduce industry burden for air emissions reporting
 - Reduce overall industry burden by X% within 5 years
 - Measured in hours (i.e. hours a facility spends completing various emissions reporting forms)
 - Baseline burden estimate from [ROI analysis](#)
2. Improve timeliness and transparency of data
 - Decrease time taken to produce “actionable” products by X% within 5 years
 - Define pre-CAER baseline completion times for each programs “actionable” products
 - “Actionable” product is whatever final documents decision makers rely on to make decisions

3. Create consistent information across air emissions programs (i.e. zero discrepancies between common data elements among reporting programs)
 - By X date reduce by X% the number of discrepancies among reporting programs
 - Create a list of common/shared data elements then establish a pre-CAER baseline number of discrepancies among reporting programs
4. Improve data quality
 - Improve data quality by X% within X years
 - By X date create a common/shared definition of data quality
 - By x date create X number of business rules regarding data quality that are common to all reporting programs
5. Make data more accessible and useable
 - Increase data accessibility by X% within X years
 - Data accessibility measured as number of data elements made publicly available via a single source (i.e. Envirofacts)
 - Baseline accessibility measured as number of data elements in Envirofacts pre-CAER (ROI analysis notes that TRI and GHG available in Envirofacts)
6. Support more timely decision making
 - Decrease time taken to produce “actionable” products by X% within X years
 - Timely decision making measured by the time it takes for a program to produce “actionable” product
 - “Actionable” product is whatever final documents decision makers rely on to make decisions

Interim Milestones

This Plan envisions a cycle of analysis, design, and implementation (policy and technical work) which will complete the common reporting structure in the proposed future state over the next 18 months. Once the common reporting structure is enabled the remainder of the 5-year planning horizon will be dedicated to adoption and continued improvement of the approach and associated services.

- Milestone #1: In 18 months, the common reporting structure is defined. This includes, fully defining the business processes and operation of the reporting structure, the associated business rules, data model and architecture, and service definitions.
- Milestone #2: In 36 months, 2 programs will be using the common reporting structure. NEI is one of these two programs.
- Milestone #3: In 48 months, 3 programs will be using the common reporting structure.
- Milestone #4: In 60 months, all programs will be using the common reporting structure.

Appendix A: Lean and Agile Definitions

The following provides more information on Lean and Agile methodologies and is sourced from the resources listed at the bottom of this Appendix section.

Lean

Lean refers to a collection of principles and methods that focus on the identification and elimination of non-value added activity (waste) in any process. While Lean process improvement approaches were developed originally for use in the private sector to target manufacturing processes, there has been steady progress towards adapting these approaches for use on service and administrative processes. Value stream mapping and kaizen events are the Lean methods most commonly used by agencies getting started with Lean.

Lean Start Up:

Lean Startup, first conceptualized by Eric Ries, is the use of Lean concepts to determine what products or services to develop to meet customer needs in conditions of high uncertainty. The Lean Startup approach minimizes the time and costs of product development through the following, iterative process:

- Identify ways to deliver value to customers through new or redesigned products or services
- Develop minimum viable products – components of a new approach that can be tested in the real world
- Learn from how customers engage with the minimum viable products, and adapt plans for the product or service based on user data

Environmental agencies could consider using the Lean Startup approach when there is a need for new or fundamentally redesigned products or services to meet customer needs and when there is little known about what would be most useful to customers.

Agile Development:

Unlike traditional, linear “waterfall” methods for software development, Agile uses a streamlined, iterative process for developing IT solutions to meet customer needs. Agile development relies on the following:

- Short, team-based “sprints” of activity to develop components of technology
- Frequent collection of customer feedback on technology components during the development process (rather than waiting until the full product is developed)
- Adapting the technology requirements and plans based on feedback

By iterating development and collecting user feedback early on, Agile teams are better able to focus their efforts on what matters most for the users. Agile offers a powerful new way for environmental agencies to develop IT solutions using less time and resources. Agile is often used in Lean Startup to help develop minimum viable products when there is less certainty around what IT product is needed.

For further information on Lean and Agile, please see the following resources:

[*Lean in Government Starter Kit*](#), and [*Lean and Information Technology Toolkit*](#).

Appendix B: CAER Implementation Principles

Principle 1	Principle Text Respect Existing Infrastructure	How Principle is Addressed
1a	Emphasis is on combined CAER approach here cost effective and minimizing disruptions to existing reporting systems.	Product Design Team (PDT) to use this as criteria to manage the priority list
1b	<p>SLTs and EPA will work together before decisions on rule changes.</p> <p>1bi. Initially pursue solutions that do not require updates to existing regulations.</p> <p>1bii. Part of implementation plan will include an assessment of existing EPA and SLT regulations and legislation to look for longer term (5 year?) solutions if warranted.</p> <p>1biii. As part of the effort, assess the need for “surgical” changes to regulations or guidances which would help modernize WITHOUT being controversial.</p>	<p>Inherent as part of the whole concept of E-Enterprise and specifically in the structure in the PDT</p> <p>Paramount criteria for prioritizing the priority list</p> <p>This activity was not completed and is an item identified as part of the initial priority list</p> <p>Coupled with 1bii in the initial priority list</p>
1c	<p>Take SLT and EPA’s needs and concerns into account as specific parts of the project are developed.</p> <p>1ci. Seek solutions that can support current SLT reporting systems.</p> <p>1cii. Establish governance/business rules to define data stewardship and ownership (i.e., who can change what and when).</p> <p>1ciii. Establish governance/business rules to define who can release data publicly and when.</p>	<p>PDT to use this principle during the formation of its R&D teams</p> <p>PDT to use this principle in the stewardship and implementation of the CAER Vision</p> <p>Identified in this plan as part of the initial priority list of work</p> <p>Identified in this plan as part of the initial priority list of work</p>

Principle 2	Principle Text Improve Reporting Experience	How Principle is Addressed
2a	Seek to reduce reporting burden to the regulated community	This principle was used as part of the updated proposed future state in this plan. PDT to use this principle in the stewardship of the CAER Vision.
2b	Pre-populate information during the reporting process and establish other automated QA as data are being submitted	This principle was used as part of the updated proposed future state in this plan. PDT to use this principle in the stewardship of the CAER Vision. PDT to consider testing this feature as part of its priority list.

Principle 2	Principle Text Improve Reporting Experience	How Principle is Addressed
2c	Provide information about reporting applicability to the regulated community during the reporting process.	This principle was used as part of the updated proposed future state in this plan. PDT to use this principle in the stewardship of the CAER Vision. PDT to consider testing this feature as part of its priority list.
2d	Reporting approaches must include functionality that is user friendly to assist a variety of user expertise	This principle was used as part of the updated proposed future state in this plan. PDT to use this principle in the stewardship of the CAER Vision. PDT to consider testing this feature as part of its priority list.

Principle 3	Principle Text Better Data Faster	How Principle is Addressed
3a	Ensure all applicable programs (EPA & SLT) receive the emissions and facility attribute data they need in the format they need	This principle was used as part of the updated proposed future state in this plan. PDT to use this principle in the stewardship of the CAER Vision. PDT to consider testing this feature as part of its priority list.
3b	Promote reuse of information and services by users and their application developers	PDT to use this principle during implementation to promote the reuse of solutions.
3c	Provide data to public and other stakeholders which is transparent, high quality, and consistent.	Important value proposition of the effort but not used during the development of this plan. PDT to use this as a criteria to prioritize, evaluate and frame work for the priority list.
3d	Facilitate ease of access and search capability for users via variety of approaches, e.g. by facility ID, industry type, zip code etc.	Important value proposition of the effort but not used during the development of this plan. PDT to use this as a criteria to evaluate and frame work for the priority list.
3e	Work together to improve and streamline post-submission QA	Identified in this plan as part of the initial priority list of work
3f	Share public emissions and facility attribute data collected among all parties	This principle was used as part of the updated proposed future state in this plan. PDT to use this principle in the stewardship of the CAER Vision. PDT to consider testing this feature as part of its priority list.
3g	Seek solutions that produce the most benefit with the least effort early.	PDT to use this principle as a criteria to manage the priority list

Principle 4	Principle Text Eliminate Waste	How Principle is Addressed
4a	Overall lower net 'enterprise-level' cost to environmental regulators. Cost of some individuals programs may go up but hopefully offset by additional value realized by benefits of the cooperative solution	This principle was used as part of the updated proposed future state in this plan. PDT to use this principle in the stewardship and implementation of the CAER Vision.
4b	Seek to eliminate duplicative entry by identifying a harmonized set of facility attribute and emission element information	This principle was used as part of the updated proposed future state in this plan. PDT to use this principle in the stewardship of the CAER Vision. Several elements of this principle are part of the Facility ID pilot and the initial priority list.
4c	Seek to harmonize program requirements but respect that multiple uses of data (e.g., for emission inventory AND collecting permitting fees) may limit the ability to optimize emissions reporting	This principle was used as part of the updated proposed future state in this plan. PDT to use this principle in the stewardship of the CAER Vision. PDT to consider testing this feature as part of its priority list.
4d	Identify and eliminate unnecessary data collection	This principle was used as part of the updated proposed future state in this plan. PDT to use this principle in the stewardship of the CAER Vision. PDT to consider testing this feature as part of its priority list.

Principle 5	Principle Text Deliver Products	How Principle is Addressed
5a	Within calendar 2016, develop set of tangible improvements which both address some of the above principles in the short term and build toward the development of the broader proposed future state. These short term wins will adopt Agile techniques to the extent feasible.	This principle was used to develop the process and structure for the work described in the plan.
5b	Develop an implementation plan during Summer 2016 which both provides policy and project direction in general terms to reach the proposed future state as well as documents the need for resources for its attainment. This document will lay out a list of the short term wins and longer term activities needed to reach the proposed future state, with the expectation that the plan will be a living document and modified as necessary to reflect the other Implementation Principles.	See above and below

Appendix C: Additional Reporting Program Information

Program	Reporting Stream	Federal Regulation	Why Collect the Data	Information Availability	Reporting Frequency	Potential Integration Opportunities with NEI
NEI	Industry reports data to SLT who then submits to EPA. The National Emissions Inventory (NEI) is a comprehensive and detailed estimate of air emissions of criteria pollutants, criteria precursors, and hazardous air pollutants from air emissions sources. The NEI is released every three years based primarily upon data provided	National Emissions Inventory/Air Emissions Reporting Rule - 40 CFR Part 51 and state regulations	The EPA promulgated the AERR in December 2008. It requires states to submit emissions inventories for criteria pollutants to EPA's Emissions Inventory System (EIS). The EPA uses these submittals, along with other data sources (primarily for air toxics), to build the National Emissions	The NEI database includes air emissions sources of both criteria and hazardous air pollutants. Data are available for many facilities and as county totals. Available on EPA website.	Annual/Triennial to EPA. States receive the data from industry annually.	N/A, but there are improvements within NEI that were identified during the January 2016 Implementation Team Workshop that would aid integration opportunities

Program	Reporting Stream	Federal Regulation	Why Collect the Data	Information Availability	Reporting Frequency	Potential Integration Opportunities with NEI
	<p>by State, Local, and Tribal air agencies for sources in their jurisdictions and supplemented by data developed by the US EPA. The NEI is built using the Emissions Inventory System (EIS) first to collect the data from State, Local, and Tribal air agencies and then to blend that data with other data sources. Many of the states voluntarily report air toxics along with the required criteria air</p>		<p>Inventory (NEI). Many of the states voluntarily report air toxics along with the required criteria air pollutants, and these air toxics reports are also used in building the NEI.</p>			

Program	Reporting Stream	Federal Regulation	Why Collect the Data	Information Availability	Reporting Frequency	Potential Integration Opportunities with NEI
	pollutants, and these air toxics reports are also used in building the NEI.					
CEDRI	Source tests, compliance status reports, and air emission reports (e.g., excess emission reports) are submitted to CEDRI through CDX. They have a 60 day review period for the regulatory authority and then go to the WebFIRE database for public and agency access.	Sources report Compliance and Emission Data under 40 CFR Parts 60, 62 and 63	Emission factor revisions; emission inventory improvement; MACT floor development; Risk and technology review (RTR) detection limit review; control device assessment; data sharing	Reports are available to SLTs; Submissions are available to the public through EPA's WebFIRE data system	Depends on type of report submitted. Within 60 days after completion of each performance test, results must be submitted. Others based around source compliance dates. Requirements defined in 40 CFR 63.10031.	The Team identified exploring if excess emissions reports could contribute to overall facility release data in NEI. Is it possible to use incoming data to quantify an overall excess emission amount per facility/pollutant/year?
TRI	Covered facilities must submit a TRI reporting form	Emergency Planning and Community Right-to-	Facilities in certain industrial sectors must	Several options available to view the	Annually-facilities submit their TRI forms for each	Possibility of using TRI as a QA to other programs. TRI data is collected at a higher level - if there is a common portal and collect them at

Program	Reporting Stream	Federal Regulation	Why Collect the Data	Information Availability	Reporting Frequency	Potential Integration Opportunities with NEI
	<p>for each TRI-listed chemical it manufactures, processes, or otherwise uses in quantities above the reporting threshold. Covered facilities report directly to EPA.</p>	<p>Know Act of 1986 (EPCRA) and Pollution Prevention Act of 1990 (PPA)</p>	<p>report toxic chemical releases to air, water, and land and other waste management to EPA and the states each year. TRI Facilities must report progress in reducing waste generation and moving towards safer waste management alternatives. Information collected to support and promote emergency planning and to provide the public with information about releases of</p>	<p>data. TRI National Analysis website, TRI Pollution Prevention tool, myRTK, TRI Explorer, Envirofacts, and TRI.NET</p>	<p>calendar year to EPA by July 1 of the following year. TRI National Analysis is published by January.</p>	<p>the NEI level, could they be rolled up and into TRI? Pollution lists are vastly different in NEI and TRI so CAER would need to explore how much value from NEI can be derived.</p>

Program	Reporting Stream	Federal Regulation	Why Collect the Data	Information Availability	Reporting Frequency	Potential Integration Opportunities with NEI
			toxic chemicals in their community. The goal of EPA's TRI Program is to empower citizens and other TRI stakeholders through information about how toxic chemicals are managed.			
GHG	GHGRP requires reporting of GHGs from sources that emit or supply over 25,000 MT CO ₂ e per year. Data submitted by industry to EPA electronically	40 CFR Part 98	The purpose of the rule is to collect accurate and timely GHG data to inform future policy decisions.	Summary data are available on EPA's FLIGHT tool. Detailed data for each source category is available on EnviroFacts. TRI's Pollution	Annually by March 31 for prior year's data	

Program	Reporting Stream	Federal Regulation	Why Collect the Data	Information Availability	Reporting Frequency	Potential Integration Opportunities with NEI
	using the e-GGRT system.			Prevention Tool allows users to view the GHG emissions alongside the TRI emissions at a facility, for sectors where the programs overlap.		

Appendix D: Constraints and Dependencies

This section summarizes the risks/intersection points between the constraints and dependencies. For more information on the definitions of each of the constraints and dependencies, see the information in the Constraints and Dependencies chapter starting on page 14.

Dependencies	Regulatory Constraints
Inability to (initially) change legislative and regulatory reporting requirements	<p>Risk: Highly limits where programs actually overlap and therefore the potential success of the project.</p> <p>Mitigation: Complex technical solutions will be required to make sure industry can easily meet all its diverse and disparate compliance requirements</p>
Ability to 'link' Facilities Across Programs	<p>Risk: No single, unified definition of "facility" in current regulations. Further, business rules regarding representation, reporting parts (e.g., permitted source vs. facility as a whole), data management (e.g., what do to when facility information changes?), historical changes/requirements, and other things are program specific.</p>
Integrating Reporting: Timing	<p>Risk: Multiple report due dates exist across current regulations. States also have regulations that include dates for submittal of information.</p>
Integrating Reporting: Emissions Data	<p>We don't have a complete picture of the regulatory constraints to integrate information. How precise are regulations about emissions data that need to be submitted across different EPA programs and across States? Reporting thresholds? Pollutants that need to be reported? Usage of material? Level of reporting?</p> <p>Mitigation Action: Full accounting and understanding of all the regulatory constraints</p>
Business Process Creation and Reengineering	<p>Risk: The business process needs don't satisfy regulatory requirements or require regulatory changes. Insufficient buy-in from OECA or SLT compliance/enforcement staff or other regulatory offices that are not as vested in CAER.</p>
Implementation Resources	<p>Risk: Regulation updates take time and resources. Identification of potential future regulatory changes may happen during implementation/design of other changes.</p>
Demand and Partner Capacity/Interest	<p>Risk: Industry cannot participate in any aspect of CAER that will touch rule development except by notice and comment. Under FACA, end users cannot represent a 'group' only their own perspective.</p>

Dependencies	Governance Constraints
Commitment and Buy-In from SLT Leadership	<p>Risk: Asymmetric decision making results in reluctance to apportion scarce staff and IT resources</p> <p>Mitigation: Proactive and transparent communication to reach all levels of SLT staff; ensure CAER project and associated changes (such as to IT infrastructure) are fully funded on an ongoing, long-term basis</p>
Ability to 'link' Facilities Across Programs	<p>Risk: No common system or approach between EPA and states for establishing business rules</p> <p>Mitigation: CAER is crucially dependent on the success of the E-Enterprise Facility IPT and the separate EPA-only FRS-RTR project. A complex solution (that is also easy to understand and use) will be needed to handle differences in facility definitions and reporting applicabilities and thresholds.</p> <p>Mitigation Action: Facility ID IPT working on business rules using CAER as case study</p>
Integrating Reporting: Timing	<p>Risk: Currently no guidelines/governance over how a rule or regulation determines what their reporting dates will be. An effort to standardize and unify reporting timelines across all programs would be beneficial as new regulations are created and old ones modified.</p> <p>Mitigation Action: An action in the priority list is to explore the feasibility of integrated reporting timing</p>
Integrating Reporting: Emissions Data	<p>Risk: Since we don't yet know what information we are seeking to integrate and the business processes are not yet established - we don't know what risks we have in the area.</p>
Business Process Creation and Reengineering	<p>Risk: The development of the business flows and supporting services is not properly inclusive.</p>
Implementation Resources	<p>Risk: Shared resources need money to support and operate.</p>
Demand and Partner Capacity/Interest	<p>Risk: Supporting CAER going forward will require significant SLTs and EPA participation in Joint Governance. Finding the right people, the right process that supports SLTs/EPA participation in the right conversations at the right level.</p> <p>Mitigation Action: Possible use of STAG dollars to support travel</p> <p>Mitigation Action: Design of structure mindful of this risk</p>

Dependencies	Program Constraints
Ability to 'link' Facilities Across Programs	<p>Risk: Assuming success and EPA and SLTs are able to establish a common approach and business rules, will partners and programs have the ability to map to the "facility solution. Further, how can the solution support the program-specific needs and definition of a facility?</p> <p>Mitigation: A complex but usable technical solution will need to be provided by the E-Enterprise Facility IPT and EPA-only FRS-RTR projects.</p>
Integrating Reporting: Timing	<p>Risk: Methodology by which current programs select reporting schedules is unknown and certainly not standardized or unified.</p> <p>Mitigation Action: Explore if programs can meet obligations/purpose with any timing changes</p>
Integrating Reporting: Emissions Data	<p>Risk: Different reporting programs create ad hoc emission reporting requirements to fulfill their specific needs. No single, shareable list of pollutants exists that different programs can leverage. Are we OK with lowest common denominator threshold or is standardizing the list not important?</p> <p>Mitigation: "Smart" facility context-dependent pollutant list that recognizes the applicable reporting requirements and thresholds for all applicable programs.</p>
Business Process Creation and Reengineering	<p>Risk: EPA and SLT programs don't have the time or money to create new business flows or reengineer existing.</p>
Implementation Resources	<p>Risk: Programs do not have the resources needed to modify/enhance their systems to implement CAER.</p>

Dependencies	Technical Constraints
Ability to 'link' Facilities Across Programs	<p>This depends on the final solution. Not a known issue at this time.</p>
Integrating Reporting: Timing	<p>Risk: Submitted data (emissions and facility) will need to have associated temporal attributes.</p>
Integrating Reporting: Emissions Data	<p>This depends on the final solution. Not a known issue at this time.</p>
Business Process Creation and Reengineering	<p>This depends on the final solution. Not a known issue at this time.</p>
Implementation Resources	<p>Risk: Different reporting programs currently use multitude of different applications. Lack of IT resources (in SLTs) for any changes that happen.</p>
Demand and Partner Capacity/Interest	<p>Risk: For States: The need to accommodate a paper process for customers without access to computers.</p>

Dependencies	Individual Partner Constraints
Resources and commitment to support CAER	<p>Risk: Insufficient buy-in from SLT leadership and senior managers</p> <p>Mitigation: Significant <i>assured</i> long-term funding will be needed</p>
Ability to 'link' Facilities Across Programs	<p>Risk: Can a given partner map to the "Facility Solution" and does the facility solution work within their domain (e.g., For some states, multiple agencies interact with state facility information)</p> <p>Risk: Partner may need resources to modify the systems to comply with the facility solution.</p>
Integrating Reporting: Timing	Risk: States have regulations that define their timing. States also collect additional pollutants that are not collected in EIS. For industry - timing to provide data to different programs.
Integrating Reporting: Emissions Data	Risk: States collect information additional to what sending to EPA, e.g. emission source IDs in state system - in permit (legal doc) and may limit the ability to integrate information.
Business Process Creation and Reengineering	Risk: See Partner Constraints/Implementation Resources.
Implementation Resources	Risk: If a reporting business process is going to change for a single facility, the co-regulators who are going to support the business process change will need program resources to enact change. SLTs each have different needs.
Demand and Partner Capacity/Interest	Risk: States or EPA do not have management support to participate or an interest in participating.