

# Used Oil Lifecycle Assessment Facilitator's Executive Report



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# INTRODUCTION

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As part of Senate Bill 546 of 2009, California Department of Resources Recycling and Recovery (CalRecycle) was directed to 1) contract with a third-party consultant to conduct a lifecycle assessment (LCA) of the used lubricating and industrial oil management process; 2) solicit broad stakeholder input on all aspects of the LCA; 3) evaluate the impacts of certain components of SB 546; and 4) submit a report to the Legislature on the results and any recommendations to promote increased collection and responsible management of used oil.

The following report contains several sections pertaining to the approach by CalRecycle in fulfilling the SB 546 requirement to solicit broad stakeholder input. The sections include a summary of the format, key issues, outcomes, lessons learned, collaborative efforts, and conclusions. The format section describes the approach to elicit participation among interested stakeholders. A list of key issues are identified that helped frame the discussions in the meetings. Next, outcomes are described that resulted from the stakeholder meetings. The next section reflects lessons learned during the process that garnered greater support for the project's success. An overview of the collaborative efforts among stakeholders and CalRecycle further highlights evidence of an open and high involvement approach. Finally, conclusions regarding the overall effectiveness of the meetings are provided.

## FORMAT

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CalRecycle conducted 11 stakeholder meetings from January 2011 through July 2013. All stakeholder meetings were scheduled to allow ample time for their attendance. The meetings were held exclusively in Sacramento, California. The meetings were held Jan. 2021, 2011; March 7, 2011; May 24–25, 2011; August 2, 2011; Dec. 14–15, 2011; March 21–22, 2012; June 27–28, 2012; Sept. 19–20, 2012; Dec. 4–5, 2012; March 20–21, 2013; and July 9–10, 2013. In addition, webinar meetings were held in August and September 2013 for stakeholders to interact with contractors regarding their final reports. A special portal (<http://www.cce.csus.edu/conferences/CalRecycle/lca11/index.htm>) was developed in cooperation with the California State University Sacramento (Sac State) College of Continuing

Education to host all the meeting notices, registration of attendees, agendas, presentations, meeting notes, and other relevant documents. Meeting notes were prepared to capture key concepts, presentations, timelines, agendas, and links to relevant documents. In addition, any subgroup work and documents could be posted for sharing information independent of the meetings. Subgroups were created, based on self-selection, to work on key topics independent of scheduled stakeholder meetings that helped to frame discussions going forward.

The stakeholder and work group meetings were designed to culminate in the development of the scope and design of the LCA as well as data sources that are collectively referred to as Phase I of the used oil LCA project. The intent was to engage stakeholders throughout the process to guide the project while vetting the scope, design, and outcomes generated.

Over the course of 11 meetings and 31 months, discussions and deliberations by the stakeholders were thoughtful and comprehensive. Stakeholders were serious about their charge and worked to achieve the desired outcomes that reflect their collective consensus. Additional meetings were scheduled independent of the formally calendared stakeholder forums to allow stakeholders to interact and share information.

## KEY ISSUES

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The following list identifies key issues that were raised that helped frame the discussions for the meetings. Each of the issues was identified as an agenda item in the stakeholder meetings and addressed by the collective body and through subgroups.

1. **Securing contractors:** Multiple consultants were identified and placed under contact to perform various functions associated with the project. These consultants were contracted to perform the actual analysis, review and verify the analysis, and/or independently validate the work. Consequently, the process to secure the multiple contractors was ongoing throughout Phase I to ensure an objective assessment.
2. **Wide range of oil composition:** Stakeholders had varying opinions on the composition of used oil and what constitutes “used oil.” They expressed a need to explore the range of compositions and to include those discussions in the study.

3. **Boundary:** The definition of a system boundary as it pertains to LCA is “a set of criteria specifying which unit processes are part of the product system.” Relevant issues within the boundary of the lifecycle assessment included geographic limitations, processes, products, and technologies. It was agreed the LCA boundary needed to be coordinated and consistent with that of the economic study.
4. **Disposition and functional units:** The definitions of the disposition of used oil and the functional unit received lengthy discussion. The stakeholders recognized that validated data for each of the disposition options is required to enable robust LCA calculations. Data such as volume of used oil by grade/type and current methods of disposition were concerns. In addition, the scope of a lifecycle analysis should specify the functions (performance characteristics) of the system being studied. The established functional unit shall be consistent with the goal and scope of the study.
5. **Material collection and transportation:** The topic focused on issues including mileage, gas consumption, description of transportation, time frames, and costs. This topic was resolved in one meeting.
6. **Time horizon for LCA:** The time horizon for the LCA was generally accepted to be 20 years.
7. **Data collection:** Primary and secondary sources were a point of discussion in multiple stakeholder meetings. The intent was to capture valid sources that were most applicable to the LCA project. Therefore, the consultants repeatedly issued requests to stakeholders for their participation in providing or identifying appropriate data sources. Consultants earnestly sought data from stakeholders and other sources to bolster their analysis. There was apparent need for solid data, but the data sources were slow to respond and in many cases ultimately did not provided the necessary data.
8. **Sensitivity of sharing data:** The issue of sharing data was frequently raised because of its sensitivity to easily identify the source. Many stakeholders wanted some mechanism to maintain confidentiality while participating to the fullest extent. The use of nondisclosure agreements was proposed to ensure confidentiality. However, the agreements did present a dilemma for the consultants in that confidentiality had to be preserved while

maintaining the reliability and validity of the data. Even with these safeguards in place, some stakeholders were hesitant to provide sensitive information.

9. Definition of uncollected oil: There was considerable discussion about the generation of oil, when it is put into service, and the point of processing. Other key points of interest included its potential fates and how is data obtained on uncollected oil. The analysis had to reflect a clear picture of oil in use and had to break down total loss, combustion, leakage, rejuvenation, dumping, etc. A great deal of focus was directed towards learning more about industrial oil as that is where the largest data gap existed.
10. Scenario development: A review was conducted of what other states and countries are doing in their used oil LCAs. The intent was to leverage their experiences as examples in this project.
11. Definition of safe and responsible management of used oil: There was considerable discussion about the definitions for “safe” and “responsible.” As a result, the following criteria were established:
  - a. The focus would be more on “responsible” as opposed to “safe.”
  - b. The term “safe” includes more objective aspects.
  - c. The term “responsible” focuses on the person doing the management.
  - d. “Safe” is a subset of “responsible.”
  - e. Risk to human health is a component of “safe” and “responsible.”
  - f. Risk to environment and resource efficiency is a component of “safe” and “responsible.”
  - g. Economic risk is a component of “safe” and “responsible.”
12. Combustion: Combustion emissions were a significant factor in the lifecycle analysis. Discussion centered on data containing emission factors that affected the study as well as their sources and issues associated with them. Data was constantly requested from stakeholders to assist in the analysis. These discussions and data sources led to the revision of the combustion model.
13. Material flows: The materials flow analysis was the basis for estimating the used oil management system. As a result, there was considerable discussion on identifying accurate data that would be used in the analysis.
14. Virgin oil effects: The topic was raised as an item for discussion in the context of the used oil management system.

The intent was to broadly define “safe” and “responsible” management of used oil.

Stakeholder meeting notes reflect the discussions, deliberations, and actions for all of the issues. The intent was to identify the key issues while crafting strategies to best manage them. Further, subgroups were identified and charged with developing work to support discussions in future stakeholder meetings. The discussions helped to better frame the analysis and modeling process used by the contractors. The discussions on these issues appeared to lead to a more robust analysis in the LCA study.

## OUTCOMES

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Overall, the goals of the stakeholder meetings were accomplished for Phase I of the project. Several positive outcomes are apparent. They include: attendance, participation, quality, and process. First, CalRecycle made every effort to ensure maximum attendance by stakeholders at meetings. Meetings were scheduled with sufficient lead time to ensure the maximum number of participants could attend. Generally, future meetings were scheduled as part of the agenda of the current meeting—usually several months in advance. CalRecycle used Internet technology to survey stakeholders to identify the optimal dates for stakeholder meetings. In addition, whenever stakeholders were unable to physically attend the meetings then remote, distance format technologies such as webcasts were enabled to ensure attendance and participation.

Participation was an essential element in the success of the stakeholder meetings. CalRecycle contracted an independent consultant to facilitate the meetings to ensure objectivity, manage participants, and achieve buy-in among stakeholders. Stakeholders participated on multiple levels of engagement. They included:

1. Larger stakeholder audience
2. Subgroups
3. Emails
4. Internet portal conventions
5. Telephone conferences
6. Written correspondence
7. “Envision” software tool, which gave stakeholders access to the LCA modeling tool

## 8. Webinar meetings

All of these venues were available and utilized by stakeholders to share information and communicate their messages. These venues represented multiple methods for stakeholders to have an imprint on the Used Oil LCA Project, and many stakeholders repeatedly expressed their appreciation for these means of sharing information during the meetings. The “voice” of the stakeholders was always considered and desired to ensure transparency in the process.

Quality was always a keen concern among stakeholders, contractors, and CalRecycle leadership during the project. Data and other information was shared, discussed, and vetted repeatedly in the meetings to ensure its integrity, reliability, and relevance. Stakeholders were allowed to review, assess, and discuss critical information and data throughout the process. In this way, the quality of data drove both the process and the models considered by stakeholders for inclusion in the LCA project.

The stakeholder involvement process involved a deliberate and reflective approach to ensure full participation and to achieve the desired outcome. Each stakeholder meeting had a complete agenda, topics were well developed and discussed, and action items noted responsible parties and timelines for completion. Time was frequently scheduled during meetings for open discussions to share concerns, raise questions, and consider alternative strategies and future courses of action. Further, the process provided for open dialogue, collaborative efforts through subgroups, and individual action based on personal interests. In addition, webinar meetings were scheduled to allow stakeholders expanded opportunities to interact with contractors and CalRecycle leadership. Overall, the intent was to create a process that engaged stakeholders in a transparent environment while garnering greater understanding for the LCA project.

## LESSONS LEARNED

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In any project, there are opportunities to reflect about the process and ways to improve it. The strategies for improvement do not diminish the positive outcomes achieved; they do reflect strategies for consideration as the project moves forward. The following list represents areas for future consideration in the project. They include:

1. Opportunities for integration among subgroups and teams.
2. Securing contractors.
3. Informal time for stakeholders to discuss issues.
4. No late Friday afternoon sessions.

### ***Opportunities for Integration***

Early in the project process, stakeholders recognized the interrelationships across key topics and the need to communicate and coordinate activities. Some subgroups did engage others in their discussions. There were opportunities throughout Phase I for subgroups to conduct dialogue about key topics, coordinate work, discuss data sources, and share findings. Similarly, more opportunities were accessible, but not all stakeholders availed themselves to participate.

### ***Securing Contractors***

The timeline for securing multiple contractors was cumbersome and dysfunctional at times. As the project proceeded, it became apparent that more consultants were needed. A discussion for designing contracts and criteria for the selection of consultants was essential. The timelines for offering requests for proposal often created delays in completing critical tasks associated with the project. The project would have gone more smoothly if all required consultants had been identified earlier in the process. However, the consultants, once selected, did respond quickly to the tasks.

### ***Informal Time for Stakeholders***

Toward the end of the series of stakeholder meetings, it became apparent there was interest to build in more time for informal stakeholder interaction. The time would allow more discussion on topics and information shared. CalRecycle made great efforts to provide all information to stakeholders well in advance of meetings for review, reflection, and discussion. However, stakeholders wanted more informal time during the meetings to converse with others on key topics. Strategies for consideration moving forward could include more breakout sessions, evening meetings, a planned dinner, and early arrival on meeting days for those interested. It appears some stakeholders may only have chatted with others during the scheduled date of meetings.

### ***Friday Afternoon Sessions***

Some of the two-day meetings were scheduled toward the end of the week and included all-day Friday agendas. It soon was obvious that Fridays were not good days to conduct these meetings because of long-distance travel schedules. Consequently, Fridays were avoided to accommodate the distance travelers. In the future, Friday meetings should be avoided; midweek meetings are preferred.

Some of the lessons learned were captured during Phase I, and improvements were made to ensure more effective meetings. Other strategies are offered to enhance the effectiveness of future meetings. CalRecycle has demonstrated a willingness to consider all worthy strategies to ensure the effectiveness of meetings and project outcomes while allowing stakeholders their personal discretion to participate.

## **COLLABORATIVE EFFORTS**

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A primary objective in the project was to achieve high involvement among the stakeholders. A parallel objective was to build collaboration among the stakeholders in completing the scope, design, and desired outcomes. The project involved extensive collaboration among individual stakeholders, stakeholder subgroups, contractors, and CalRecycle staff.

There was no single source controlling the process; rather, CalRecycle created the platform to facilitate the work to be completed by independent contractors. The approach was to ensure high involvement among the stakeholders. Stakeholders were provided multiple opportunities to participate individually, in subgroups, and collectively. Information was shared with stakeholders who expressed an interest even though not all attended every scheduled meeting. The intent was to provide access to garner as much participation as possible.

CalRecycle was supportive throughout the process to stakeholders, contractors, and others. CalRecycle Senior Integrated Waste Management Specialist Robert Carlson served continuously throughout the LCA project as the project manager. His efforts were commendable in arranging schedules, providing critical information and data, serving as point of contact for contractors and stakeholders, and attending to all details for successful meetings and outcomes. He was a

calming influence and helped to guide the process, keeping the focus on the primary objectives for the project. His leadership ensured a transparent environment and was recognized and appreciated among stakeholders and contractors. He served genuinely and honorably in fulfilling his charge.

## CONCLUSIONS

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CalRecycle has fulfilled its charge in Phase I of engaging stakeholders to design a scope of work, vet contractors, and identify key data sources. There are several accomplishments that are identified in the project. They include:

1. Stakeholder engagement in developing a scope of work, designing the work plan, and identifying data sources.
2. Collaborative process
3. Objectivity through multiple contractors
4. Stakeholder vetting of contract work
5. Transparency
6. Multiple opportunities to review and comment on data and information

The initial stakeholder meeting began the process to develop the scope of work, design how work was to be accomplished, and identify data sources. These items were constantly reviewed and vetted throughout the 18-month process. The process allowed collaboration among stakeholders, consultants, and CalRecycle to ensure maximum participation. Further, stakeholders were allowed to review and critique the work of contractors. Objectivity was achieved through the use of multiple contractors for the original analysis and separate contractors to validate the work. Finally, CalRecycle maintained transparency by availing information to stakeholders via multiple venues and offering many opportunities for them to review and comment on the project.

Some of the limitations included:

1. Data collection
2. Sensitivity of sharing data
3. Multiple levels of collaboration

Stakeholders were invited to share data about their organizations or help identify pertinent sources that may be used in the analysis. Because the sources of some data were confidential, accepting the data as reliable and valid was a concern. The use of nondisclosure agreements helped to mitigate some of those concerns. Finally, while the use of multiple levels of collaboration helped keep many stakeholders engaged, it was also challenging to manage the requests of so many stakeholders for more information while eliciting their support. The multiple levels of collaboration did not appear to be a major limitation, but did require frequent and repeated communication.

Overall, CalRecycle staff members were very effective in conducting a comprehensive analysis that garnered greater understanding among stakeholders about the LCA project. Their effort to achieve collaboration and buy-in among stakeholders was evident during the 11 meetings. Stakeholders were very active in the discussions about the topics while offering suggestions to guide the process. In addition, the process was transparent throughout the project. All meeting notes, documents, and work were posted for review and edited by stakeholders. CalRecycle has successfully achieved its objectives for Phase I of the LCA. This report frames the basis for the contractor's charge in facilitating broad stakeholder input for CalRecycle in its tasks outlined in SB 546.