Draft LCFS Guidance Document for Crude Oil Innovative Method Application-Solar Generated Electricity

This is a guidance document for the Low Carbon Fuel Standard (LCFS) regulation (California Code of Regulations (CCR), title 17, §§ 95480-95497). The unofficial LCFS regulation text is available on the LCFS Rulemaking website.¹

This document is intended to assist the crude oil producer (referred to as “applicant” in this document) to apply for the solar generated electricity innovative method under LCFS section § 95489(d).

After reviewing this document, if you have additional questions please contact California Air Resources Board (CARB) staff:

Questions about innovative crude method application:

Jim Duffy:  jduffy@arb.ca.gov
Kamran Adili: kamran.adili@arb.ca.gov

Questions about reporting to the LCFS Reporting Tool and Credit Bank and Transfer System (LRT-CBTS):

Manisha Singh:  manisha.singh@arb.ca.gov
Greg O'Brien:  gobrien@arb.ca.gov

¹ This document is intended to provide helpful guidance in interpreting the LCFS rule, but in the case of any discrepancy between this document and the official text found in the California Code of Regulations (a non-official version of which is available at the following link) the text of the CCR governs what the applicant should do:  https://www.arb.ca.gov/regact/2015/lcfs2015/lcfsfinalregorder.pdf
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1) Introduction/Overview

This guidance document is meant to assist the crude oil producer in making an application for a solar generated electricity project under the Innovative Crude Oil provision of the Low Carbon Fuel Standard. In the following pages staff attempts to cover many of the issues the applicant may encounter when deciding to undertake such projects, preparing and submitting application materials, obtaining project approval, and registering and reporting to receive LCFS credit. Figure 1 depicts the steps required to obtain approval for a solar electricity project.

Figure 1: Application Process for a New Solar Generated Electricity Project

Pre-application
Contact CARB to discuss the potential project and address any questions or concerns about project eligibility and the application process.

Submit Application
The crude oil producer (applicant) initiates review of the innovative method by submitting a written application and supporting documents to CARB.

Review for Completeness
Staff has 30 days to review the application for completeness. After staff review, the applicant will be notified that the application is complete or if further work is needed.

Public Comment
After determining that an application is complete, CARB staff will post the application for a 10 day public comment period.

ARB Approval
After the applicant addresses all pertinent comments, the Executive Officer or designee will approve or disapprove the application.

Register
The applicant must register in the LCFS Reporting Tool (LRT) as an opt-in LCFS regulated party, either concurrently with the application submittal, or later, in order to receive credits for the approved solar generated electricity project.
2) Pre-Application

After reading through this document, the LCFS regulation\textsuperscript{2}, and previously approved applications\textsuperscript{3}, CARB staff recommends that a prospective applicant contact CARB to discuss the potential project and to address any questions or concerns that the applicant may have about project eligibility, the application submittal and approval process, registration requirements, and post-approval recordkeeping and credit generation procedures.

The following are general requirements for a solar electricity project:

- The project must become operational no earlier than January 1, 2015.
- The solar electricity must be produced and consumed onsite or be provided directly to the crude oil production facility from a third-party generator and not through a utility owned transmission or distribution network (i.e. the solar electricity must be supplied “behind the meter”).\textsuperscript{4}
- The project must result in either a total emission reduction of 5,000 metric tons carbon dioxide equivalent (CO$_{2}$e) annually or a carbon intensity reduction of 0.10 gCO$_{2}$e per MJ of crude produced. Calculations to determine if the project meets the threshold criteria are described in Appendix A of this document.
- If more than one crude producer receives electricity from a single third-party facility, each crude producer must submit an independent application with the third party as a joint applicant for each submittal. The threshold requirements above may be calculated using the aggregated project total emission reduction or carbon intensity improvement across all applications.

3) Application Submittal

The crude oil producer must initiate the review of the solar electricity project through a written application. The application package can be sent by mail or electronically through email. Every application package will be reviewed for completeness and applicants will be notified if any additional information or documentation is required. If the application is found to be complete and no other information is needed, staff

\textsuperscript{2} Non-official version of the LCFS regulation text can be found at: https://www.arb.ca.gov/regact/2015/lcfs2015/lcfsfinalregorder.pdf

\textsuperscript{3} The LCFS Innovative Crude Oil Applications page: https://www.arb.ca.gov/fuels/lcfs/crude-oil/innovative-crude/innovative-crude.htm

\textsuperscript{4} LCFS credit will not be awarded to any solar electricity supplied to the grid. There must be systems installed to prevent reverse flow of electricity to the grid or there must be separate metering systems in place to track both the solar electricity that is consumed by the crude production facility and the solar electricity supplied to the grid.
will notify the applicant by email or the LRT-CBTS communication to indicate the application is complete.

An application must contain the following material:

1. A complete description of the innovative method and how emissions are reduced. This description must also clearly show that the project meets one of the threshold requirements discussed above and in Appendix A.

2. An engineering drawing(s) or process flow diagram(s) that illustrates the combined solar electricity and crude oil production facilities and clearly identifies the system boundaries, relevant process equipment, material flows, and energy flows necessary to calculate the innovative method credits. The diagrams must clearly show that the solar electricity is being provided “behind the meter”. The applicant must also identify the type(s) and location(s) of meters to be used to measure and record the amount of solar electricity being supplied for crude oil production.

3. A map including global positioning system coordinates for solar generation facilities described in item “2” above.

4. A preliminary estimate of the potential innovative method credit including descriptions and copies of production and operational data or other technical documentation utilized in support of the calculation. See Appendix A for calculation.

5. An attestation letter stating that the information sent by the applicant to CARB is accurate and represents the actual or intended long-term, steady-state operation of the solar electricity innovative method.

If solar electricity production is likely to exceed consumption of electricity for crude oil production during periods of high solar production, then the preliminary estimates of innovative method credit and the demonstration that the project meets the eligibility threshold must take this into consideration. Only the amount of solar electricity supplied directly for crude production will generate LCFS credit.

All documents that are claimed to contain confidential business information must prominently be labeled as “Contains Confidential Business Information” (CBI) and a separate redacted version of such documents must also be submitted.

4) Application Approval Process
The application must be approved by CARB before the crude oil producer may generate credit for the innovative method. The applicant will be able to generate LCFS credits starting with the calendar quarter in which the project is approved.
Within 30 calendar days of receipt of an application designated by the applicant as ready for formal evaluation, CARB shall advise the applicant in writing that the application is complete, or the application is incomplete, in which case CARB will identify which requirements have not been met. If deemed incomplete, the applicant may submit additional information to correct deficiencies. If the applicant is unable to achieve a complete application within 180 days of CARB's receipt of the original application, the application will be denied on that basis, and the applicant will be informed in writing.

Once deemed complete, the version of the application with all CBI information redacted will be posted to CARB’s webpage for a 10 day public review and comment period. CARB will forward to the applicant all comments identifying potential factual or methodological errors. Within 30 days, the applicant must either submit a revised application addressing the comments or a detailed response explaining why no revisions are necessary.

The application will then be submitted for approval by CARB’s Executive Officer or his designee. At the time of approval, CARB may prescribe conditions of the approval that contain special limitations, recordkeeping and reporting requirements, and operational conditions. If CARB determines that the application will not be approved, the applicant will be notified in writing.

5) LRT-CBTS Registration Requirements
A crude oil producer must also register under section 95483.1 of the LCFS regulation as an opt-in regulated party to receive credits for an approved innovative method. Opting into the LCFS program becomes effective when the crude oil producer establishes an account in the LRT-CBTS, pursuant to section 95483.2. Some screen shots for registering in the LRT-CBTS are shown in Appendix B.

If the crude oil producer using an approved innovative method does not register as an opt-in regulated party, credits generated by the producer’s use of the innovative method may be claimed by the California refinery (or refineries) that purchase the crude produced using the innovative method, if CARB receives all information it needs to ensure compliance with limitations and reporting requirements applied to the method.

5 For the LRT-CBTS instructions, refer to the LRT-CBTS User Guide, located at: www.arb.ca.gov/lcfsrt
6) Post-approval Recordkeeping, Reporting, and Auditing

In order to earn LCFS credits following project approval, the applicant will be required to report on a quarterly basis beginning with the quarter in which the project is approved.

1. The quarterly volume of crude oil produced using the approved innovative method and the crude name(s) under which it is marketed. If the crude oil produced with an approved innovative method is marketed as part of a crude blend (that is not wholly refined in California), the crude oil producer must also report the name of the blend and the volume fraction that the crude produced with the innovative method contributes to the blend;
2. Any additional records that CARB requires to be kept pursuant to project approval.

Pursuant to item 2 above, CARB specified the following additional recordkeeping and reporting requirements for the first approved solar electricity project. These reporting requirements will likely also apply to subsequent approved projects.

3. The metered data on solar electricity consumed for crude oil production at the Oil Field during the quarter (kWh);
4. The total electricity consumed for crude oil production at the oil field during the quarter (kWh);
5. An attestation letter stating that all solar electricity was supplied directly for crude oil production at the oil field and that the solar electricity reported for generating LCFS credit did not produce renewable energy certificates or other renewable attributes recognized or credited by any other jurisdiction or regulatory program; and

This information must be uploaded into the LRT-CBTS within the first 45 days after the end of the quarter. It is recommended that documents be uploaded in a zip-archived format.

All records shall be retained for five years and all data and calculations supplied to CARB for credit determination are subject to verification by CARB or a third-party approved by CARB.

7) Credits for Producing Crude Oil Using Innovative Methods

After receiving the required quarterly data and verifying that the innovatively produced crude was supplied to California refineries, CARB staff will determine the number of credits to be issued to the crude oil producer (or purchasing refinery) using the credit equation for solar electricity projects specified in section 95489(d)(1)(F). In general, credits will be issued during the first month of the
quarter following the reporting of data. For example, solar electricity produced in
quarter one will be reported in quarter two, and credits will be issued during the
first month of quarter three.
A) Threshold Calculation

The innovative method must achieve one of the following threshold criteria:

1. An emissions reduction of at least 5,000 metric tons CO\textsubscript{2}e per year, or
2. A carbon intensity reduction from the comparison baseline of at least 0.10 gCO\textsubscript{2}e/MJ.

If the innovative method involves more than one crude producer using electricity produced at a single third-party facility, the threshold criteria listed above may apply to the aggregated project total.

The emission reduction is estimated using the following equation:

\[
\text{Emission Reduction} \left( \frac{\text{MTCO}_2\text{e}}{\text{yr}} \right) = 511 \left( \frac{\text{gCO}_2\text{e}}{\text{Kwh}} \right) \times E_{\text{solar}} \left( \frac{\text{Kwh}}{\text{yr}} \right) \times \frac{1}{10^6} \text{gCO}_2\text{e} \]

where \( E_{\text{solar}} \) is the amount of qualifying solar electricity supplied to the oil field for crude oil production.

A carbon intensity reduction from the comparison baseline is estimated using the following equation:

\[
\Delta CI_{\text{Innov}} \left( \frac{\text{gCO}_2\text{e}}{\text{MJ}} \right) = \frac{\text{Emission Reduction} \left( \frac{\text{MTCO}_2\text{e}}{\text{yr}} \right) \times 10^6 \text{gCO}_2\text{e}}{\text{MTCO}_2\text{e}} \times \frac{\text{V}_{\text{crude produced}} \left( \frac{\text{bbl}}{\text{yr}} \right) \times \text{LHV}_{\text{crude}} \left( \frac{\text{MJ}}{\text{bbl}} \right)}{\text{LHV} - \text{SI units}}
\]

where \( V_{\text{crude produced}} \) is the volume of crude produced at the oil field by the operator(s) using solar electricity.

For convenience, approximate lower heating values (LHV\textsubscript{crude} ) are shown in Table A1 as a function of crude density (API gravity or specific gravity).

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Appendix B:

The LRT-CBTS Online Registration Process

Registration Process Flowchart

To participate in California’s Low Carbon Fuels Standard Program, Regulated Parties, Opt-In Parties, and Brokers must have an LRT-CBTS account(s). This is required for reporting purposes and to bank, transfer, and retire LCFS credits. To obtain an LRT-CBTS account, each organization must complete the registration process as instructed in this section. The figure below provides an overview of the account registration process for Regulated and Opt-In Parties.
LRT-CBTS Account Registration Process for Regulated and Opt-In Parties

The Account Registration Form is provided for download which must be completed per the instructions and uploaded by the applicant in Step 2. The form downloads in a fillable PDF format (typed enabled).
Complete and sign the Account Registration Form and save it in PDF format. Upload the completed form using the upload button as shown below.
Applicants must agree to LRT-CBTS General Use Conditions & Disclaimer before they can proceed with the registration.

On the LCFS Organization Registration page, the applicant needs to check the box labeled “A producer of crude oil that has an innovative production method…”. The applicant also has to provide organization and administrator details along with primary contact information. All fields marked with an asterisk (*) are mandatory.
An automated email will be generated confirming receipt of the application. The LRT Administrator will review the submitted information and send an email notification indicating if the account has been approved or not. If approved, the account will be activated. If the account is not approved, an explanation of the outstanding issues will be emailed to the registrant and an opportunity to resubmit the application is provided.

Terms of System Use for LRT-CBTS

The LCFS Systems Administrator will activate the account for the requesting user upon approval. All users are required to accept the Terms of System Use Agreement (TOU) for the system as part of their first login.

As shown below, there are two sections of the TOU that need to be read and acknowledged. This is accomplished by checking the boxes that follow each of the two sections and entering the user’s name (see top right of the TOU web page) to “Electronically Sign” the document. All users have access to the TOU for reference via a hyperlink on each web page of the LRT-CBTS.
Adding User Accounts

Additional user accounts can be added by the account administrators of the registered organization. To add a new user account, follow these steps.

**Step 1:** Go to **User Profile** tab. A form will appear requesting **User Details, User Role, Username** and **Password**.

**Step 2:** Complete all the required fields marked under **User Details**. Select other options as required. *(Ensure User Active is checked for all new users)*

- **User Locked:** Select to lock the user account.
- **User Active:** Select to ensure user account is active.
- **Password Reset:** Select when a password reset is required.
- **Primary Contact:** Select if user needs to be a primary contact for communication with ARB regarding the account.
Step 3: Select the **User Role** through the drop down and select options as required. User roles include Administrator, Credit Facilitator, Contributor, and Reviewer. For more detail refer to Section 3 of this document.

- **Signatory Authority**: Select if the user needs signatory authority to submit quarterly/annual LCFS reports. This designation is not available to all user roles, but only to Administrators and Reviewers.
- **Data Tab**: Select to provide the user account access to LCFS reported data for download.

Step 4: Create a **username** and **password** for the user and click **Add User Profile**.

![Manage User Profile](image)

User Profile Management

The existing user (account) profile can only be updated by the account administrator. To update an existing user profile follow these steps:

**Step 1**: Go to **User Profile** tab. A grid table containing a list of existing user accounts will be displayed below the new user top section of the page.
Step 2: Click on **See Details** from the list for the User Profile you want to update.

Step 3: This will repopulate the fields in the form with the information included for the user account. To complete this step makes the required updates and click **Update User Profile**.

**Correspondence Feature in the LRT-CBTS**

The Correspondence tab is used to post questions and/or issues by either users of the LRT or by the LRT administrator. An accompanying email notice is sent by the system to the recipient of the correspondence instructing them to login and access the posted correspondence in the LRT.