Staff Summary
Innovative Crude Oil Production Method Application

Holmes Western Oil Corporation

Midway Sunset Oil Field Solar Project, Kern County, California

Date of Application: May 24, 2018, (Resubmitted July 26, 2018)
Date Posted for Public Comment: July 31, 2018
Date Approved: TBD

Project Summary

Under the Low Carbon Fuel Standard (LCFS), crude oil producers may generate credits for oil that has been produced using innovative methods and delivered to California refineries for processing. Holmes Western Oil Corporation (Holmes) has applied for the approval of a solar generated electricity project, for producing crude oil at the Midway Sunset Oil Field.

The Holmes Solar Project is a 1.12 megawatt (MW) direct current, 0.876 MW alternating current, solar array using fixed-tilt mounted solar photovoltaic panels, located near the city of Maricopa in Kern County, California, at Holmes' Midway Sunset oil field (Oil Field). In 2017, the oil wells connected to the solar system produced 332,600 barrels (bbl) of crude oil. Holmes holds additional leases on wells that produce crude oil in the Midway Sunset field that are not connected to the solar field. A list of these leases are availabe in Exhibit D-1 of the Application.

According to the documents supplied by the Applicant, the construction of the Solar Project was completed in July 2017, but is currently operating at partial capacity until Pacific Gas and Electric Co. (PG&E) completes necessary mitigation work on their electric grid. Once the upgrades are completed, the system will be fully operational in approximately mid-2018. The applicant is requesting for approval of the current partial operation capacity, and will notify staff when full capacity is achieved.

The solar project in full operation will generate approximately 1,849,931 kilowatt-hours (kWh) annually. Applicant states that in full operation 1,738,935 kWh (ninety four percent) of the produced solar electricity will be consumed onsite by Holmes' crude oil production equipment, and another 110,996 kWh (six percent) will be delivered back to the utility using a Net Energy Metering ("NEM2") tariff. In current partial operation, the system is generating 511,013 kWh (twenty seven percent of the full operation), all of which will be consumed onsite.

The estimated amount of electricity generated is based on the system equipment specifications of the Solar Project, historical weather data in the region and estimated system losses based on system design. The estimated potential for innovative method credit is about 889 metric tons (MT) for the first twelve months of full operation, or 261 MT for its current partial operation.

Threshold Eligibility

Holmes meets the eligibility threshold of 0.10 grams of carbon dioxide-equivalent emissions per mega joule (gCO_2e/ MJ) carbon intensity (CI) reduction for both partial and full operation based on the following estimation:

Partial Operation:

$$\Delta CI_{Innov}\left(\frac{gCO_2e}{MJ}\right) = 511\frac{gC02e}{kWh}\,emissions\ reductions \times 511{,}013\ kWh\ (first\ year\ solar\ electricity\ production) \times 1\ (fraction\ of\ kWh\ of\ solar\ electricity\ used\ onsite) \times \frac{1}{332{,}600\ (bbl\ of\ oil\ produced\ at\ the\ Oil\ Field)} \times \frac{1}{6{,}000}(bbl\ of\ oil\ to\ MJ\ conversion\ factor) = 0.13\ gC02e/MJ\ reduction$$

Full Operation:

$$\Delta CI_{Innov}\left(\frac{gCO_2e}{MJ}\right) = 511\frac{gC02e}{kWh}\,emissions\ reductions \times 1{,}849{,}931\ kWh\ (first\ year\ solar\ electricity\ production) \times 0.94\ (fraction\ of\ kWh\ of\ solar\ electricity\ used\ onsite) \times \frac{1}{332{,}600\ (bbl\ of\ oil\ produced\ at\ the\ Oil\ Field)} \times \frac{1}{6{,}000}(bbl\ of\ oil\ to\ MJ\ conversion\ factor) = 0.45\ gC02e/MJ\ reduction$$

Staff Analysis

Holmes has provided all the required documentation, including the engineering and process flow documents, geo location, solar generation equipment capacity and electrical load schematics for staff review in its innovative method application. The applicant has also shown that the project meets the minimum threshold requirement in CI reduction for innovative method, and attests to the accuracy of the information submitted in the application to represent the actual and/or intended long term, steady-state operation of the solar project. Holmes will demonstrate that the solar electricity will be exclusively consumed by the Holmes Oil Field equipment, or delivered to PG&E. Holmes will be eligible to earn LCFS credits on the portion of the solar electricity consumed onsite from the Project. Given that currently the Project is partially operating, staff approves the Project according to the specifications and parameters laid out by the current application. Once the utility mitigation work is completed and the Project is in full operation, the Applicant is required to submit a subsequent attestation letter to confirm that the full solar generation operation is as stated in the original application.

Reporting Requirements

In order to earn LCFS credits, following the Project approval, the applicant will be required to provide on a quarterly basis:

- The volume (bbl) of crude oil produced during the quarter using the innovative method and the crude name(s) under which it is marketed,
- the metered data on solar electricity consumed for crude oil production at the Oil Field during the quarter (kWh),
- the total electricity consumed for crude oil production at the Oil Field during the quarter (kWh),
- the net metered data for solar generated electricity delivered to PG&E,
- a copy of the PG&E electricity bill for the quarter,
- an attestation letter stating that all solar electricity was supplied exclusively 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.

All information supplied to CARB for credit determination is subject to verification.