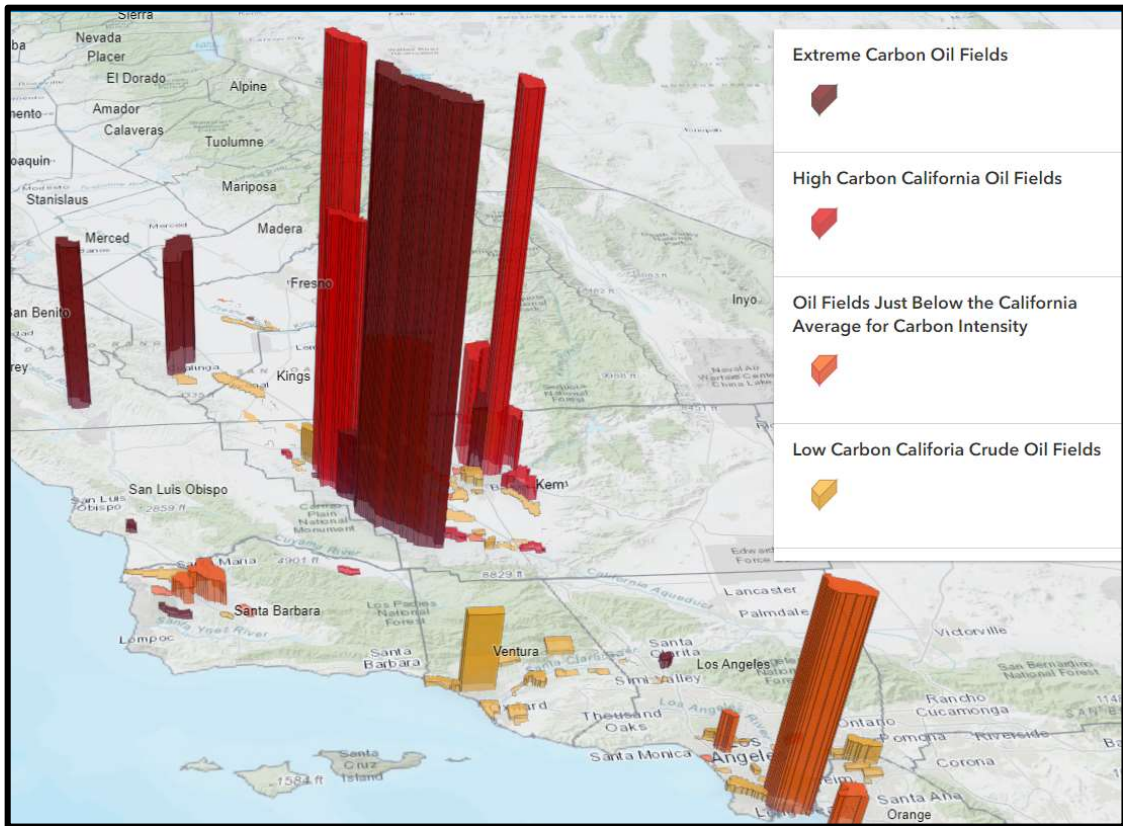


SUPPLEMENT TO APPLICATION TO THE EXECUTIVE OFFICER  
FOR LCFS CREDITS FOR USING INNOVATIVE METHODS FOR CRUDE  
PRODUCTION OR TO AMEND §95849(c)(1)(A)

# CYCLIC STEAM REPLACEMENT

CLEAN SURFACTANT ENERGY (CRSE) PROJECT

RENEWABLE AND BIODEGRADABLE SURFACTANT



Thermal Heavy Oil Fields, Kern County California

**SUPPLEMENT TO APPLICATION TO THE EXECUTIVE OFFICER  
FOR LCFS CREDITS FOR USING INNOVATIVE METHODS FOR CRUDE  
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RENEWABLE AND BIODEGRADABLE SURFACTANT**

Recognizing that CARB's world leading LCFS is designed to decrease the carbon intensity of California's transportation fuel pool, Senergy submitted its application for approval of credits for CRSE, an innovation that uses renewable chemistry to eliminate steam in production of crude oil. Senergy's application gives focus to the operational advantages of the innovation. This supplement describes externalities that merit attention in Staff's evaluation.

**1. CRSE advances social justice in impacted communities in California.**

Where oil is produced in California, the most impacted and least protected communities are near its source and bear the brunt of GHG emissions. Reducing that impact is the priority of CARB. CRSE immediately facilitates significant progress toward that equity goal.

**2. CRSE brings economic advantages to disadvantaged communities.**

Enabling production of clean oil provides increased local employment in communities that are presently under economic pressure. In turn, CRSE multiplies economic opportunity for local businesses. The CRSE innovation will redress long-standing inequities for communities which are otherwise disadvantaged by the loss of well-paying jobs.

**3. CRSE enables decarbonizing around the clock.**

Current accredited innovations that reduce emissions from steam do so only during daylight hours, in favorable weather. CRSE, by contrast, enables GHG reduction from the point source of oil production 24/7/365—without land use changes. This is a concrete example of how new technology is better than old technology.

#### **4. CRSE ensures buy-in from the dirtiest industry in the state.**

Forcing emission abatement on the oil industry has met with some resistance from recalcitrant operators, and too little active participation even by the most enlightened companies. Burning natural gas to generate steam remains economically attractive. The proposed credit will alter the calculation and incentivize adoption of the CRSE innovation.

CRSE abates emissions and maintains efficient production, eliminating any excuse to delay decarbonizing efforts. By accelerating the production of existing oil supplies, CRSE abbreviates oil production in California, *and* cleans up the fuel pool to advance the energy transition.

#### **5. CRSE eliminates dirty oil in California.**

As long as oil is produced in California, CARB should favor production of the *cleanest possible oil*. Awarding credits to companies that adopt efficient abatement measures incentivizes decarbonization. The marketplace will nudge every oil producer in the right direction. Even the most truculent oil producer can appreciate the cost-benefit analysis that will mandate implementation of this innovation.

#### **6. Granting the CRSE application encourages further innovation.**

By allowing credits for carbon abatement, CARB acts as a clearing house for the best and brightest advancements in abated emissions in oil production. The potential exists for upstream advancements like CRSE to encourage additional decarbonizing throughout the transportation fuel chain.

### **CONCLUSION**

Senergy wants to express gratitude for everything CARB does to make California a better place to live and work. We remain ready to answer your tough questions about our product and process.

RESPECTFULLY SUBMITTED,

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Jesse Holman, President, and CEO