

MEMORANDUM

TO: UTILITIES ADVISORY COMMISSION

FROM: UTILITIES DEPARTMENT

DATE: JUNE 1, 2016

TITLE: Staff Recommendation that the Utilities Advisory Commission Recommend the City Council Approve the Proposed Low Carbon Fuel Standard Credit Program, Including the Use of Revenues from the Sale of Low Carbon Fuel Standard Credits

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REQUEST

Staff requests that the Utilities Advisory Commission (UAC) recommend that the City Council approve the proposed Low Carbon Fuel Standard Credit program, including the use of revenues from the sale of Low Carbon Fuel Standard Credits.

EXECUTIVE SUMMARY

The California Air Resources Board (CARB) developed the Low Carbon Fuel Standard (LCFS) program in compliance with AB 32 (the Global Warming Solutions Act of 2006) to reduce the carbon intensity of transportation fuels used in California by 10% by 2020. Electric utilities that provide electricity to charge electric vehicles (EVs) are eligible to receive LCFS credits. The City began participating in the program in April 2014 and CARB has been allocating LCFS credits to the City since then. The credits accumulated the past two years are currently valued at \$600,000. The value of future credits is expected to be \$500,000 to \$1 million per year through 2020 as the number of EVs increase in Palo Alto.

These credits are intended to be sold to providers of transportation fuel in the state. The regulations require the City to use all proceeds from the sale of LCFS credits received for EVs to benefit current or future EV customers, educate the public on the benefits of EV transportation, and provide rates that encourage off-peak charging to minimize grid impacts. The City must also provide CARB an annual compliance report.

The CARB regulations also allow dispensers of compressed natural gas (CNG) to earn LCFS credits. Since the City dispenses CNG at the Municipal Service Center, it is eligible to receive LCFS credits worth about \$30,000 per year.

The City's proposed LCFS program complies with CARB's regulatory requirements and is designed to direct revenues from the sale of the LCFS credits for the benefit of EV and CNG vehicle owners. The program includes rebates for EV chargers, discounts to utility connection fees, the exploration of discounts for off-peak charging, encouragement of flexible charging, education and outreach. The program meets the State's objective of reducing the carbon intensity of transportation fuels and the City's Sustainability and Climate Action Plan goal of reducing the City's carbon footprint by 80% by 2030.

BACKGROUND

CARB's LCFS program aims to reduce the carbon intensity of transportation fuels used in California by 10% by 2020. The primary method for reducing the carbon content of transportation fuels is by blending standard fuels with fuels such as cellulosic ethanol or biodiesel which have lower carbon intensities than traditional fuels. Electricity and CNG are also recognized as low carbon intensive transportation fuels.

CARB adopted the most recent version of LCFS regulations in September 2015, effective January 1, 2016. Electric utilities that provide electricity to charge EVs are eligible to receive LCFS credits based on the number of EVs registered in their service territory and the amount of electricity dispensed.¹ CARB approved the City of Palo Alto Utilities' (CPAU's) application to participate in the LCFS program in April 2014, and has been allocating LCFS credits to the CPAU since then. Under CARB's formula, Palo Alto received 1,855 credits in 2014, 3,311 credits in 2015, and anticipates receiving 4,500 credits in 2016. As of March 2016, Palo Alto had approximately 1,300 EVs.

CNG related credits are based on the amount of CNG actually dispensed at the City's CNG fueling station. In 2016 the City anticipates dispensing approximately 12 million cubic feet of CNG and receiving about 270 credits.

At the prevailing market price of \$116 per credit, the sale of credits allocated in 2014 and 2015 is expected to yield \$600,000. Revenues from the sale of 2016 credits are expected to be \$500,000. With projections of 3,000 to 5,000 EVs in Palo Alto by 2020, the revenue from LCFS sales credit could range from \$800,000 to \$1.2 million per year by 2020. The value of credits related to CNG is projected to be \$30,000 per year and projected to stay relatively flat through 2020.

In March 2016 Council approved a master agreement template to enable the City to sell LCFS credits to transportation fossil fuel providers in California ([Staff Report #6489](#)). Staff anticipates using this template to make the first credit sale in late spring 2016 in order to fund the programs described in this report. These projected revenues and costs are included in the fiscal year (FY) 2017 budget request.

¹ CARB's LCFS program overview is provided here: <http://www.arb.ca.gov/fuels/lcfs/lcfs.htm>

DISCUSSION

Use of EV Related LCFS Funds

Electric distribution utilities like CPAU that receive LCFS credits must comply with the regulatory requirements outlined in California Code of Regulations Sec. 95483(e)(1) in order to receive credits, including:

- (A) Use all credit proceeds to benefit current or future EV customers;
- (B) Educate the public on the benefits of EV transportation (including environmental benefits and costs of EV charging, or total cost of ownership, as compared to gasoline);
- (C) Provide rate options that encourage off-peak charging and minimize adverse impacts to the electrical grid; and
- (D) Include in annual compliance reporting the following supplemental information: an itemized summary of efforts to meet requirements (A) through (C) above and costs associated with meeting the requirements.

After engaging with industry and community stakeholders, staff explored a number of programs for using the LCFS funds, and screened the options based on the following criteria:

- Cost and simplicity of program administration;
- Breadth of EV customer segments to which program would be applicable;
- Impact on the rate of EV adoption; and
- Potential funds that could be utilized in the program option.

Outlined below is a list of the program options identified and their relative merits based on the criteria. A presentation of the relative merits of the options is provided in Attachment C.

The following options may be considered in the future, but were determined to be not ready for implementation in the initial phase of the program:

1. Discount Development Center permit fees related to EV charger installations. Such a program would waive or discount the permit fee related to EV chargers which currently range from \$160 for residential chargers to \$560 for commercial Level 3 chargers. This option was initially found to be administratively burdensome.
2. Provide cash rebates to EVs registered in Palo Alto. This would likely require EV owners to apply online with their vehicle registration information. The rebate could be one-time or annual. The large investor-owned utilities in California and the Sacramento Municipal Utility District are contemplating this type of a program. Since this option was administratively burdensome and could consume the bulk of the funds available, it is not recommended at this time. Staff feels that the funds could be better utilized in other LCFS program options and that such a rebate would not be a significant influence for those contemplating an EV purchase.
3. Discount or provide free charging at public EV charging stations. This option was found to be suboptimal for Palo Alto because free charging may attract EV owners that casually take

the opportunity since charging is free, an impact that crowds out EVs that need to charge and are willing to pay for the service.

The following options were determined to be the best ones for CPAU's initial LCFS program:

1. Rebates for the installation of Electric Vehicle Supply Equipment (EVSE, or chargers). Staff determined that providing rebates for EVSE installations at underserved segments of the market would be valuable. Those market segments include public and non-profit buildings as well as at private buildings with multiple tenants, such as multi-family or mixed use buildings or on corporate campuses. The landlord, property owner, or tenant would own the EVSE, not the City of Palo Alto.
2. Discount electric utility fees associated with upgrading electric services due to the installation of EV chargers. The utility connection fees are periodically required if the installation of chargers at homes requires a utility service upgrade². Such upgrades have been triggered a dozen times the past year. The related fees ranged from \$400 to \$9,000, with an average fee of \$1,300. This use of the LCFS funds was identified as a preferred option. Utility Rate E-15 and related Utility Rules and Regulations may have to be modified to reflect this discount.
3. Discount off-peak electric rates for residential customers to encourage off-peak EV charging. Though this option has many implementation hurdles, the option was identified as an option that merits further investigation for possible implementation in the future.
4. Provide a payment to customers who provide CPAU access to their EV charging patterns via the telematics in their EV or their charging equipment. This information will assist CPAU better assess impacts of such charging systems on the distribution grid and seek EV customer interest in various EV-related Utilities programs. This was identified as a preferred option, though all elements related to harnessing the information provided are not yet fully defined.
5. Fund education and outreach efforts. This is a key element to enable EV adoption at a rapid clip and was identified as a preferred program to fund. This may include the cost of temporary staff resources or a third-party program manager or administrator.

Initial EV Related LCFS Program Details

Based on staff's analysis of program options, the following rebate/discount amounts are proposed for inclusion in CPAU's initial LCFS program. The City Manager will determine the final details and make any modifications, as necessary, to respond to changes in technology, funds available and costs for various program components. Detailed eligibility and guidelines for each of the programs will be provided on the City's website. The initial program and designation of funds by program area is summarized below and more detail is provided in Attachment B.

² When a customer wishes to install EVSE at home, an upgrade to their home's electric service may be required. Per CPAU Utilities Rule and Regulation 18: "The Customer is responsible for all costs associated with relocation or modification of Utility Service." The costs are determined based on Utility Rate Schedule E-15 and periodically EVSE projects require the preparation of a cost estimate. Customers are invoiced for the labor and material costs, excluding the cost of the transformer itself.

LCFS Program Area	Funds Expended Annually
Rebate of up to \$3,000 for the installation of EVSE at non-single family residential buildings and parking areas. To ensure that funds are dispersed over many locations, a limit of 3 EVSEs per location is recommended for non-public locations. Similarly, allocation to all Palo Alto Unified School District (PAUSD) locations is recommended to be limited to \$30,000 per fiscal year for EVSE installations.	\$225,000 to \$375,000
Discount the Utilities Connection fee related to the installation of EVSE in single family and multi-family residential applications for up to \$3,000 ³ .	\$30,000 to \$60,000
Discount off-peak electricity rate of residential customers with registered EVs who elect to be on the time-of-use electricity rate.	\$40,000 to \$150,000
Rebate of \$300 for EV owners who provide CPAU access to information related to their EV charging patterns.	<\$30,000
Fund educational and outreach activities to facilitate early adoption of EVs at \$20,000/year and an additional \$20,000/year to fund related staffing needs	\$40,000

Use of CNG Related LCFS Funds

While EV related LCFS credits account for more than 90% of the funds, LCFS credits related to dispensing CNG will generate approximately \$30,000 annually. CARB's regulations do not impose specific requirements for how regulated parties must use revenues earned from the sale of CNG-related LCFS credits, but staff's proposal is to use the funds to expand the use of CNG vehicles. Staff's primary recommended use of these funds in FY 2017 is for the installation of a credit card reader at the pump to expand the number of CNG vehicle owners that could use the station. In subsequent years, the funds could be used for annual service and maintenance costs for the public CNG station, and if funds remain, they could be used to explore purchasing carbon neutral CNG (e.g. using certified environmental off-sets or renewable natural gas supplies) or reduce the CNG retail rate charged.

Reporting Requirements

The current LCFS regulation extends through 2020, but it is expected to be extended. Hence, staff recommends revisiting the LCFS Program in 2020. As required by the regulations, staff will file various quarterly reports to CARB to claim credits, and annually report on the use of funds. Staff will report to Council annually on the progress and impact of the LCFS and may request changes to the LCFS Program if additional or alternative uses of funds are identified. A balancing account will be maintained to smooth out short-term fluctuations in annual revenue and expenses.

³ Staff may seek modifications to the Utility connection fee schedule E-15 to incorporate this program.

City Manager to Manage Program

The City Manager may change the rebate amounts annually or suspend them based on funds available. Under the program, the City Manager may make changes to the programs and implementation details to optimally utilize the revenues to benefit EV and CNG vehicle owners.

RESOURCE IMPACT

The revenue generated by participating in the State's LCFS program is estimated to be \$500,000 to \$1 million per year. Staff time of approximately 0.25 FTE will be required to administer this program; existing staffing resources will be utilized for this effort. Funds from the program revenues may be allocated to hire temporary staff to manage tasks related to encouraging EV adoption.

POLICY IMPLICATIONS

The recommendation is consistent with City's 2011 Electric Vehicle Infrastructure Policy and the draft 2016 Sustainability and Climate Action Plan.

ENVIRONMENTAL REVIEW

Approving a program to utilize LCFS revenues does not meet the California Environmental Quality Act's definition of a "project" under Public Resources Code Section 21065, thus, environmental review is not required.

ATTACHMENTS

- A. Program for the use of Revenues from the sale of LCFS Credits
- B. Outline of Palo Alto LCFS Program Implementation Details
- C. Relative Merits of LCFS Program Options

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CITY OF PALO ALTO PROGRAM FOR USE OF REVENUES FROM THE SALE OF LOW CARBON FUEL STANDARD CREDITS

Low Carbon Fuel Standard (LCFS) credits are allocated to the City of Palo Alto by the California Air Resources Board (CARB) based on the estimated amount of electricity used by electric vehicles (EVs) served by City of Palo Alto Utilities (CPAU) and Compressed Natural Gas (CNG) dispensed at the Municipal Service Center for CNG-fueled vehicles. The City's Program for the use of revenues from the sale of LCFS credits outlines the types of programs the City intends to promote to meet state's objective of reducing the carbon intensity of transportation fuels, in compliance with the state's LCFS regulations¹.

A. Use of Revenues from the Sale of LCFS Credits for Electric Vehicles

The City may use revenues from the sale of LCFS credits to provide customer rebates, discounts or funding for the following purposes:

1. Provide rebates for the installation of Electric Vehicle Supply Equipment (EVSE) at non-single family residential buildings and parking areas.
2. Discount the Utilities Connection fee related to the installation of EVSE in single-family and multi-family residential buildings.
3. Discount off-peak time electricity rate of residential customers, with registered EVs, who elect to be on the time-of-use electricity rate.
4. Pay EV owners who provide CPAU access to information related to their EV charging patterns and are willing to be part of CPAU's voluntary demand response program
5. Fund CPAU programs designed to lower the cost of electric utility services for EV charging or to enable EVs owner to modulate charging patterns to lower charging cost.
6. Educational and outreach activities to accelerate adoption of EVs

B. Use of Revenues from the Sale of LCFS Credits for CNGVs

The City may use the LCFS credit sales revenues to facilitate CNG vehicle adoption in the following order of preference:

1. Fund capital and maintenance costs associated with the CNG station at the Municipal Service Center to facilitate expanding the CNG vehicle customer base.
2. Fund activity to dispense carbon neutral CNG (e.g. use of certified environmental off-sets or renewable natural gas supplies).
3. Reduce the CNG retail rate charged for vehicles.

C. City Manager Authority

1. The actual rebate and discount amounts and individual program budgets shall be based on funds available and shall be determined by the City Manager. The CNG retail rate,

¹ Currently set forth in Title 17 of CA Code of Regulations, Section 94580, *et. seq.*

including the discount offered based on available LCFS sales revenue available, shall be determined by the City Manager.

2. The City Manager is authorized to:
 - a. Annually make changes to the programs and implementation details to optimally utilize the revenues to benefit of EV and CNG vehicle owners.
 - b. Suspend the rebates if funds are depleted or if a program is found to be ineffective at meeting stated program goals or regulatory requirements.

D. Program Term and Reporting Requirements

1. This Program shall be in place until December 31, 2020, unless revised by Council.
2. The Council shall be provided annual reports on the sale revenues and expenditures associated with the LCFS program and this policy.
3. The rebate amounts and related detailed guidelines shall be published on the City's website.

**Outline of Palo Alto's Initial (FY 2017) LCFS Program Implementation
(To be updated annually by the City Manager as appropriate)**

1. Rebate for the installation of EVSE

- A. Multi-family residential, mixed use, and commercial building garages and parking areas
 - (1) EVSE must be installed in a shared parking location not assigned or dedicated to particular tenants or owners, but available to any tenant, owner, employee or guest. In a rental apartment building, assigning a space to an EV owner is allowed.
 - (2) Information about EVSEs receiving a rebate shall be posted on public EV station locaters on the internet, and to the extent possible, made available to the public.
 - (3) Rebates may cover up to 75% of the total cost of the installation including the cost of the EVSE, electrical wiring, and all capital costs related to the installation.
 - (4) Rebate limited to \$3,000 per EVSE installed up to a maximum of 3 chargers per service address.
- B. Public Buildings and not-for-profit organizations
 - (1) Information about EVSEs receiving a rebate shall be posted on public EV station locaters on the internet and made available to the public.
 - (2) Rebates may cover up to 100% of the total cost of the installation including the cost of the EVSE, electrical wiring, and all related capital cost.
 - (3) A rebate shall be \$3,000 per EVSE installed, with a maximum rebate of \$9,000 per service address with the installation of 3 chargers.
- C. Palo Alto Unified School District (PAUSD) Facilities
 - (1) Allocate up to \$30,000 per fiscal year towards EVSE installations in PAUSD facilities.
 - (2) Rebates may cover cost of electrical wiring, cost of EVSEs and all related cost for up to 100% of the total cost.
 - (3) The anticipated reimbursement per EVSE is \$3,000, but in no event shall it exceed \$5,000 per EVSE installed.
 - (4) If networked EVSEs are installed, PAUSD shall provide access to the EVSE charging information to CPAU.
- D. Additional requirements for EVSE receiving rebates:
 - (1) All EVSE rebates above are based on Level 2 EVSEs with 30A circuits or larger. In the event Level 2 EVSE is suboptimal for a location, to claim a \$3,000 EVSE rebate, the City requires the installation of two units of Level 1 EVSE with 20 A circuits. All EVSEs for which rebates are requested are encouraged to be equipped with a J1772 plug.
 - (2) Physical signage for easy identification of EVSE location.
 - (3) The three EVSEs per service address limit may be increased for a publicly accessible parking location if applicant can demonstrate need.

(4) The rebates for EVSEs may not be provided to install EVSEs already required by the City's Building Code.¹

2. Rebate for Utilities Connection Fee

- A. Provide a rebate on the utility connection fee to residential single- and multi-family customers, when the installation of an EVSE triggers the need for a utility service upgrade.
- B. The rebate could cover the full cost of the fee² for up to \$3,000 per utility service address.

3. Discount night-time electricity rates

- A. Investigate the merits of providing a night-time electricity use rate discount of about 5 cents per kWh for EV customers, with the objective of lowering the adverse impact of EV charging on the distribution grid and lowering the charging cost to the EV owners.
- B. If found feasible and desirable, bring a time-of-use electricity rate proposal to Council for consideration and approval.

4. Rebate for EV owners who provide CPAU access to their EV's charging system

- A. Provide a rebate to EV owners who are willing and able to provide CPAU access to their networked charging systems and are qualified to participate in CPAU's Voluntary Demand Response (DR) programs³.
- B. The rebate this activity shall be a one-time payment of \$300⁴.

5. Fund educational and outreach activities to facilitate early adoption of EVs

- A. Support community and stakeholder generated initiatives to advance goals of the LCFS program.
- B. Utilize up to \$20,000 per year to fund educational and outreach activities related to facilitating early adoption of EVs. An additional \$20,000 may be used to fund staffing needs related to the programs.

¹ Palo Alto Municipal Code Section 16.14.420, [Ordinance 5324](#)

² Utility Service Connection Fee is in accordance with Council approved Utility Rate Schedule E-15. Historically, such fees, when triggered, average \$1300, but the actual fee could vary widely.

³ Conditions to be qualified to participate in the Voluntary DR program: a) the EV must primarily charge within City of Palo Alto; b) ability for EV owner to communicate and control vehicle charging system remotely; c) EV owners must agree to provide connectivity to the charging system via the EV owner's charging system service provider; and d) CPAU must have agreements with charging system's service provide. Access to the connected and communicating charging system may be provided either through vehicle onboard telematics or through the customer EVSE system. Note: CPAU's voluntary DR programs are and will be designed to reduce the adverse impacts of EV charging on the electrical grid and assist California better integrate intermittent renewable resources.

⁴ In return for the \$300 payment, the expectation is that the EV owner will participate in CPAU's DR program on a voluntary basis over a 3 to 5 year period. The participation is limited to no more than 15 days per year. Notification will be provided to the EV owner to voluntarily reduce or stop EV charging during specified time periods between noon and 6pm on hot summer days. For details see: [Staff Report 3454 of February 2013](#)

Relative Merits of Program Options to Return LCFS Credit Value to Current & Future EV Owners in Palo Alto

- Annual LCFS credit value of \$500,000 in 2016 and increasing to \$1 million by 2020 (CY 2014 & 2015 credits worth \$600,000)
- Objective of Programs: To encourage EV adoption by residents and commuters, and minimize adverse impacts on the electrical grid

Criteria for Evaluating → Customer Program Options ↓	[A] Simple and Easy to Admin?	[B] Serve large segments of EV customers?	[C] Spur new EV Buyers?	[D] # of EV or EVSE owners served/year	[E] Cost per Customer Served/ year	[F] Anticipated Cost/ year	[G] Merit of Program through 2020	[H] Segment of current and future EV owners served	Notes
1. Discount EVSE Permit Fee for homes, schools & businesses	✓✓	✓✓	✓	100-300	\$400	\$40 to \$120k	✓	Residents, businesses	Difficult to implement; long term option
2. Annual or one-time rebate for EVs registered in Palo Alto	✓	✓✓	✓✓	1,200 existing, 500 new EVs per year	\$200 to \$500	\$100k to \$300k	✓ High Admin	residents	Preferred option for CA utilities; not supported by most PA community EV advocates, high admin
3. Discounted or free EV charging at public chargers in Palo Alto	✓✓✓	✓✓	✓	20-40 EV chargers	\$1,500 /charger if made free	\$30-60k	✓✓ Would not make big difference	Mainly commuters	Do not recommend making EV charging free long term, perhaps discounted by 50%.
4. Rebate installation of EVSE at public & non-profit buildings	✓✓	✓✓	✓✓	25 -50 EVSE per year	\$3000/EVSE	\$75 to \$150k	✓✓✓	Mainly commuters	Underserved segment of the EVSE market
5. Rebate installation of EVSE at private buildings with multiple tenants (multifamily, mixed use)	✓✓	✓✓	✓✓	50 -75 EVSE per year	\$3000/EVSE	\$150k to \$225k	✓✓✓	Multi-family residents, commuters	Underserved segment of the EVSE market

Criteria for Evaluating → Customer Program Options ↓	[A] Simple and Easy to Admin?	[B] Serve large segments of EV customers?	[C] Spur new EV Buyers?	[D] # of EV or EVSE owners served/year	[E] Cost per Customer Served/ year	[F] Anticipated Cost/ year	[G] Merit of Program through 2020	[H] Segment of current and future EV owners served	Notes
6. Discount CPAU fees for upgrading customer's electrical service connection, triggered by EVSE installation	✓✓✓	✓	✓✓	10-20	\$3k	\$30-\$60k	✓✓✓ Easy to administer; valued by customer	Single- and Multi-family residential	Small number of customers; but reduce uncertainty
7. Use LCFS funds to lower/rebate off-peak electric rates for EV-TOU customers	✓✓	✓✓✓	✓✓	250 to 1000	@5¢/kWh discount, \$150/yr	\$40k to \$150k	✓✓✓ Long lead time to set-up	Mainly Single-family residential	Attractive long term solutions, requires smart meters to implement
8. EV owners provide CPAU access to their charging system	✓✓	✓	✓	50-100	\$300, one time	< \$30k	✓	Residential and commuters	Assist CPAU manage electrical loads through Demand Response
9. Education/ Outreach and staffing	✓✓	✓✓	✓✓	N/A	N/A	\$40k	✓✓✓	All	As EV penetration increases, value of outreach declines

- Level of merit denoted by ✓
- Recommended programs highlighted in green