DOCKETED	
Docket Number:	20-FINANCE-01
Project Title:	Strategies to Attract Private Investment in Zero Emission Vehicle Charging Infrastructure and Other Clean Transportation Projects
TN #:	232724
Document Title:	Enel X North America, Inc Comments - Enel X Comments on CEC RFI
Description:	N/A
Filer:	System
Organization:	Enel X North America, Inc.
Submitter Role:	Public
Submission Date:	4/10/2020 5:25:10 PM
Docketed Date:	4/13/2020

Comment Received From: Enel X North America, Inc.
Submitted On: 4/10/2020
Docket Number: 20-FINANCE-01

Enel X Comments on CEC RFI (Docket 20-FINANCE-01)

Additional submitted attachment is included below.

Enel X North America Inc.
846 Bransten Rd
San Carlos, CA 94070
+1 (844) 584-2329

April 10, 2020

California Energy Commission
Docket Unit MS-4
Re: Docket No. 20-FINANCE-01
1516 9th Street
Sacramento, CA 95815

Re: Strategies to Attract Private Investment in Zero Emission Vehicle Charging Infrastructure and Other Clean Transportation Projects

Dear California Energy Commission Staff:

Enel X North America, Inc. (Enel X) respectfully provides the following comments in response to the California Energy Commission's (CEC or Commission) Request for Information (RFI) in Docket 20-FINANCE-01, Strategies to Attract Private Investment in Zero Emission Vehicle Charging Infrastructure and Other Clean Transportation Projects.

Introduction. In testimony and comments offered to the Commission since Q1 2017,[1] Enel X and a predecessor company, eMotorWerks, have been making the following points regarding the deployment of grid-integrated EV charging infrastructure:

- California public funds, substantial though they are, are inadequate to accomplish deployment of EV charging infrastructure fast enough to meet the State's goals for transportation electrification.
- Large pools of private capital are available to fund EV charging infrastructure through project financing. Hundreds of billions of US$ in capital are controlled by investment banks and dedicated to clean energy project finance. There are not

[1] For example:

Charting a Course for EV Charging Infrastructure Deployment in California: One Million EVs by 2020. A Road Map to Attracting Private Capital into the Deployment of Residential Charging Infrastructure, comments by eMotorWerks, 21 March 2017, submitted to CEC staff.

A Road Map to Attracting Private Capital into the Deployment of Residential Charging Infrastructure, comments by eMotorWerks, submitted to the CEC IEPR Workshop, 18 April 2017.

enough credit-worthy renewable energy projects to soak this capital up, so many investment banks are seeking opportunities to invest in EV charging infrastructure.

- The current environment for investment in EV charging infrastructure does not support project financing. As a result, much risk-averse private capital is still sitting on the sidelines, deferring the investment opportunity to more risk-tolerant investors. This is delaying deployment and raising the cost of capital.
- Through various public policy initiatives, California can use public funds to change the environment for investment in EV charging infrastructure to attract large amounts of project finance, at high leverage ratios and low cost of capital.
- To draw the involvement of the project finance industry, it is necessary to have policies that are "always on", as opposed to programs such as CALeVIP that are only intermittently made available through distinct funding rounds. Investment banks are more willing to invest the resources necessary to develop financing models if they can see a pipeline of projects ahead.

Background on project finance. Project finance is a vehicle for providing low-cost capital to energy projects. The overall approach is to mitigate all investment risks, enabling the financing to attract conservative, "widows and orphans" - type investors. In general, this means that the investor must be protected by outsourcing all salient risks to reliable providers, including:

- Completion risk (if the financing closes pre-COD)
- CapEx overrun risk
- OpEx overrun risk
- Resource risk (i.e., whether the project will produce the projected quantities of energy commodities)
- Operating risk
- Offtaker credit risk
- Offtake price risk

In general, project finance investors have learned how to mitigate these risks through bilateral agreements with private sector third parties, except for offtake price risk. To mitigate that risk, project finance investors generally look to a long-term, fixed-price offtake agreements with credit-worthy entities. At present, no such agreements are widely available for EV charging infrastructure. This makes investment in EV charging infrastructure a merchant business, which typically does not qualify for project finance, unless there is a price hedge available to mitigate the offtake price risk. [2]

[2] Public EV charging is, to some extent, inherently a merchant activity, since the revenue from EV driver charging customers is inherently retail. It is analogous to a gas station with retail customers, not to a generating plant with a wholesale offtaker.

An important part of the revenues for public charging stations in California are LCFS credits. The market price for LCFS credits varies in real time, but a long term hedge for LCFS credit prices would enable this important part of the revenues for EV charging infrastructure to qualify for project financing. However, at present, no long-term price hedges for LCFS credits are commercially available.

Note that this is not a problem of inadequate revenues for EV charging infrastructure. CARB's LCFS program provides substantial revenue for charging infrastructure, in addition to revenue from charging and advertising. In the case of public DCFC, the LCFS program also pays for charging capacity, mitigating the market risk of the utilization rate.[3] The problem is that the revenues from LCFS depend on the market price of the credits, and that price fluctuates.

To rectify this, Enel X recommends the following policy initiatives for consideration by the CEC, the legislature, CARB, CaISO, the CSTO, and other State entities:

1. Put a floor under the market price of LCFS credits through legislation. We refer to the 30 March 2020 comments by the UC Irvine Advanced Power and Energy Program concerning an LCFS credit price support mechanism proposed in SB 1383 (2018, De Leon). Enel X believes that such a mechanism would be adequate to mitigate the offtake price risk, thereby allowing project finance to flow into EV charging infrastructure, provided:
    a. such a support mechanism applies to all producers of LCFS;
    b. the floor price is reasonably close to the current market price[4]; and
    c. the duration of the support lasts for most or all of the expected service life of charging equipment (typically 10 years).

2. Put a floor under the market price of LCFS credits through public/private partnership. Although we are aware of no such program at present, we believe that a public/private partnership may be able to stabilize the price of LCFS credits more efficiently than either sector could do alone. Such a program might be

[3] Enel X commends CARB for this program. Drivers need readily available access to public chargers before EVs can be widely adopted, and investors need widespread adoption of EVs in order to accept the market risk of investing in charging infrastructure. The CARB capacity credit program resolves this chicken-and-egg problem by providing a revenue stream which is independent of charger utilization rate.

An apt analogy is the past California State tax credits for wind generation, offered during the early days of the wind industry. Unlike the later production tax credits, the State tax credits were based on installed capacity, not on production. This mitigated operating risk for investors, appropriate for an industry in its technological infancy. As a result, the wind industry was incubated here, before spreading worldwide. In 1990, 90% of the world's wind capacity was located in California.

[4] The current market price of LCFS credits is approximately $190/tonne.

structured like the CEC/CSTO CalCAP program. Using CalCAP as a template, an example of how the program can work is this:[5]

a. A credit-worthy entity, such as an investment bank or commodities broker, issues a 10-year put option of LCFS credits to an EV charger investor at 90% of the current market price for LCFS, sized to the projected LCFS revenues, for the life of the investment (typically the service life of the charging equipment). The put issuer takes an up-front fee from the investor.

b. The State deposits 25% of the CapEx[6] into the seller's loss reserves. Since the CARB capacity credits enable an investor to recover CapEx over 5 years, the put amount of 25% of CapEx is approximately the amount of LCFS capacity credit revenue for the 1st year of operation. [7]

c. The seller of the put may draw from the reserves to cover any losses incurred in settling the put.

d. This enables the project to attract project finance, lowering the cost of capital from the mid-teens to mid-to-high single digits.[8]

e. At the end of each year of the option period, provided that the market price of LCFS credits has remained stable, the seller returns to the State a portion of the balance in the reserve account, pro-rated over the term of the put.

CARB can make this program more readily implementable by explicitly adopting a policy of sustaining the price for LCFS credits by adjusting the compliance requirements for credit buyers.

If this program gets traction in the market, it will provide approximately 3x the leverage of private to public funds, compared to the CalEVIP program. Furthermore, if the market price of LCFS credits remains stable, it will recycle the public funds, without depriving the investor of LCFS revenues as the EVIP program does.

---

5 We are taking educated guesses about the terms that will be commercially available for the program.

6 This program may put a $ limit on the amount of public funds, as the CalEVIP program does.

7 The 5-year CapEx recovery period starts when the funds are reserved, not at COD, but the credits begin to flow only as of COD. Therefore, the actual CapEx recovery period is typically a few months less than 5 years. Hence, the proposal to set the put amount at 25%, not 20%, of CapEx.

8 Public EV charging is, to some extent, inherently a merchant activity, since the revenue from EV driver charging customers is inherently retail. It is analogous to a gas station with retail customers, not to a generating plant with a wholesale offtaker. For that reason, until the demand for public EV charging is more certain, EV charging investments may be able to attract project finance only at lower leverage ratios than is typical for generating plants. We expect this gap to decrease over time. The value of the proposed program is to put a floor under a significant portion of the charging stations revenue, the LCFS credit sales. This will enable the project finance industry to enter the market, if only with a toe in the water, and grow more adept at managing the risks over time.

3. Enable distributed energy resource aggregations to enter into long-term, fixed price contracts for ancillary services, through a Standard Offer (SO) contract or Feed-in-Tariff (FiT). Currently, ancillary services (A/S) are procured through the CAISO wholesale markets, with prices set in real time. This exposes the projected revenues for an investment to merchant risk. An SO contract or a FiT will provide price certainty, qualifying the deployment of EVSEs for project financing.

   We note that, at the four agencies-VGI workshop held on 7 December 2016, an auto OEM representative stated that it would be necessary for the wholesale markets to offer substantially higher unit revenues than at present, in order to attract private capital into the deployment of charging infrastructure. We respectfully disagree; we believe that the CAISO wholesale markets are economically efficient and provide price signals that reflect inherent value. We consider these revenues sufficient to attract project financing capital into the deployment of charging infrastructure. Rather, it is the transitory nature of the prices, not their level, that presents an obstacle to qualifying EV charging equipment for low-cost project financing. In other words, increasing unit payment levels for services is one solution, but making payment levels more predictable is another, potentially superior and more efficient economically, solution.

   It is also important to offer long-term, fixed price contracts through an SO process or FiT, not through an RFP. As discussed above, it is necessary to have policies that are "always on"; investment banks are more willing to invest the resources necessary to develop financing models if they can see a pipeline of projects ahead. The RFP process is time-consuming and risky, adds friction to the process, reduces the number of projects participating, and slows deployment.

   In addition, we submit that the interests of ratepayers are furthered by an SO or FiT offering, since the SO contracts will provide protection against spikes in market prices for ancillary services which could result from increasing renewable penetration on the CAISO grid.[9] If the offtakers are concerned that an SO or FiT might result in overpaying for ancillary services, an alternative approach could be for the offtakers to offer long-term, fixed-price put options for ancillary services service-territory-wide, priced at a major fraction[10] of the expected prices for ancillary services on the wholesale markets. This would result in minimal exposure of the ratepayers to overpaying, while preserving a compromise with the private sector investor on merchant risk and still attracting project financing.

---

[9] Of course, there is a countervailing argument that DERPs and other price-takers in the A/S market will ultimately undercut the price. It is our opinion that, as renewable penetration approaches 100%, the demand for frequency regulation will increase exponentially and spot prices will remain high.

[10] For example, the strike price could be set at the reciprocal of a typical debt service coverage ratio for the project financing. Assuming a DSCR of 150%, the strike price for the put would be set at 2/3 of the market price. It may work best if the offtaker and the investor side of the put transaction share the delta between the share price and the market price; this would further justify the possible risk to the ratepayer of overpaying through an SO or FiT.

It may also make sense for any UDC programs to be eligible for rate-base, as is the case with UDC investments in energy efficiency, to vitiate political resistance from the UDCs.

4. Allow DERPs to provide ancillary services to the wholesale markets without the 500 KW per SubLAP-LSE minimum resource quantity prerequisite. This goal can also be accomplished by allowing DERPs to provide ancillary services on a DLAP basis, not constrained by SubLAP or LSE.

   Although, in the aggregate, residential EVSEs provide very significant grid resources,[11] most residential EVSEs provide only single-digit KW of ancillary services or energy dispatch per device. Under current CAISO rules, this means that, for a residential EVSE to participate in the wholesale markets within a DERA, the customer must be part of an aggregation that comprises approximately 50 to 150 EVSEs in each SubLAP, is aggregated by a single DERP, and is served by a single LSE. Under the best circumstance, there is friction and delay built into the process of getting a customer/EVSE from program entry to revenue production, while the aggregation builds up to the minimum size. Under the worst circumstance, this means that customers that have EVSEs and want to participate may be stranded outside the program. This obstacle can be mitigated by allowing customers anywhere in a DLAP and served by any LSE to participate, or by allowing customers to participate as part of a DERA without a minimum size.

5. Expand and invigorate the loan support CalCAP program offered by the CEC/CSTO. The CalCAP program has reportedly achieved only modest traction in the market. We believe that it is a fundamentally sound program concept and can be a useful tool for the State in attracting project finance and leveraging pubic funds efficiently. To achieve that, and to attract the interest of investment banks and incentivize them to build a project financing program for grid-integrated EV charging infrastructure, we recommend consideration of the following changes to the CalCAP program design:

   a. Increase substantially the total funding available to the program.

   b. Expand eligibility for loan support from the program to include large companies and investors in public charging infrastructure, in addition to small businesses.

   c. Raise the limit of the loan support from $500,000 to $10,000,000 per borrower.

[11] For example, *eMotorWerks provides CAISO with 30 MW of DR through smart EV charging*, Utility Dive, Sept 12, 2018, https://www.utilitydive.com/news/emotorwerks-provides-caiso-with-30-mw-of-dr-through-smart-ev-charging/532110/.

d. Extend the loan support period from 4 years to 10 years (to correspond to the life of an investment in public charging infrastructure).

6. Finally, Enel X is generally supportive of the comments by Stacey Reineccius, CEO, Powertree Services Inc. We concur that the MUD/DAC sector has structural obstacles to EV charging penetration, and we support public initiatives to overcome them.

Thank you very much. Enel X appreciates the opportunity to provide these comments and commends the CEC for taking this initiative.

Sincerely,

/s/ Steve Taber

Steve Taber
Enel X e-Mobility