

BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

Order Instituting Rulemaking to Investigate and Design Clean Energy Financing Options for Electricity and Natural Gas Customers.

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ORDER INSTITUTING RULEMAKING

Summary

The Commission institutes this rulemaking to examine options to assist electricity and natural gas customers with investments in residential and commercial buildings and at industrial and agricultural sites designed to decrease energy use, reduce greenhouse gas (GHG) emissions, and/or produce clean energy to support customers' on-site needs. This Commission has a long history of utilizing electricity and natural gas ratepayer funds to encourage customers to invest in energy-related equipment, through financial support in various forms. Those funds are used to encourage investments in energy efficiency, demand response, building decarbonization, distributed solar and other self-generation technologies, and energy storage, as well as alternative-fueled (electricity, natural gas) vehicles and related infrastructure located at customer sites.

The Commission has authorized this financial support in individual resource proceedings, which, with few exceptions, has resulted in each funding source being limited to a single resource type (*i.e.*, energy efficiency, self

generation, energy storage etc.). This rulemaking is designed specifically to examine options that encourage larger-scale and deeper investments in one or more clean energy resources at customer sites. In addition, this rulemaking will examine options for multiple sources of funding by combining and leveraging ratepayer funds with private financing to support these more comprehensive investments.

Financing strategies will become increasingly important as California pursues its ambitious climate protection goals in the energy sector, aiming to decarbonize the retail delivery of electricity by the year 2045, as articulated in Senate Bill 100 (De León, 2018) and Executive Order B-55-18, signed by then-Governor Brown.

Achieving these goals will require the involvement of California customers in the residential, commercial, industrial, and agricultural sectors, at unprecedented levels, including people and businesses in urban and rural communities, as well as customers who are low to moderate-income, renters, and/or living in disadvantaged, underserved, or vulnerable communities. As we look to expand clean energy financing strategies, the Commission will look to ensure that new options will be accessible to populations that face issues of creditworthiness and barriers to accessing affordable capital.¹

¹ These strategies will be informed by existing efforts to ensure equitable access to clean energy. An example is the Low-Income Barriers Study initiated pursuant to Senate Bill 350 (De León, 2015). See <https://www.energy.ca.gov/rules-and-regulations/energy-suppliers-reporting/clean-energy-and-pollution-reduction-act-sb-350/sb>

The work being undertaken in this rulemaking will be coordinated with financing-related work already underway in multiple Commission proceedings detailed in this order instituting rulemaking (OIR). In addition, we expect to coordinate closely with the California Energy Commission (CEC), the California Air Resources Board (CARB), and the California Advanced Energy and Alternative Transportation Financing Authority (CAEATFA), housed within the California State Treasurer's Office, and with whom the Commission has already been collaborating on energy efficiency financing options.

1. Definitions

In this section, we define several financing mechanisms that can be used to support customer investments in energy savings or technologies producing clean energy in their homes or facilities. Mechanisms referred to in this section will be discussed in later sections of this order instituting rulemaking (OIR) and may be investigated for use in meeting the Commission's objectives for supporting customer investments as the proceeding progresses.

There may also be additional mechanisms that the Commission should investigate in the course of the proceeding to support customer investments. Parties responding to the OIR are invited to suggest additional mechanisms that the Commission should examine.

1.1. Loans

Regular loans are typically secured by real property, or based on the customer or ratepayer credit rating, or both. Regular loans do not take into account the potential monetary savings achieved by reduced energy costs or increased energy production.

Loans are generally either “secured” or “unsecured.” A secured loan is protected by an asset of value as collateral. In case of loan defaults with a secured loan, the asset can be sold to cover part of the loan. Hence, collateral serves as a risk mitigating tool that potentially enables lower interest rates, longer loan terms, and broader underwriting criteria. Property liens, pledged assets, and utility service disconnection are examples of loan security.

An unsecured loan, on the other hand, relies on the borrower’s promise to repay the loan, instead of collateral. Underwriting criteria to mitigate risk of non-payment may include a minimum credit score requirement, on-time payment history, and low debt-to-income ratios. Typically, the interest rates for unsecured loans are higher than for secured loans, with shorter terms and lower loan caps.

1.2. Green Banks/Revolving Loan Funds/Green Bonds

These are financial institutions or structures set up for the purpose of funding renewable energy and/or energy efficiency. They are differentiated from regular loans by their purpose and by the assumption that the proceeds from currently outstanding loans will be converted into future loans that achieve the same goals.

Green Banks are usually created by a state or local authority. The term typically describes a public or semi-public finance authority that uses limited public dollars to leverage greater private investment in clean energy. These institutions are also known as green investment banks, clean energy banks, or clean energy finance authorities or corporations. The Connecticut Green Bank (CGB) was established in 2011 and was the first state green bank in the United

States. In Maryland, the Montgomery County Green Bank (MCGB) was incorporated in 2016 and is the nation's first county-level Green Bank.

At the state level in California, the State Treasurer's Office partially performs as a Green Bank by investing a portion of funds from the Pooled Money Investment Account (PMIA) in bonds that finance green projects throughout the world. The State Treasurer's Office operates two authorities: CAEATFA and the California Pollution Control Financing Authority (CPCFA) to help industry and government build qualified renewable energy, energy efficiency, pollution reduction, and waste recycling projects. Both authorities administer a wide variety of programs to help businesses and consumers. They finance and administer programs and projects that promote green jobs and green California industries, keep our air and water clean, and encourage conservation of natural resources and the use of renewable energy.

Finally, the California Lending for Energy and Environmental Needs (CLEEN) Center sits within the State's Infrastructure and Economic Development Bank (IBank), which is located within the Governor's Office of Business and Economic Development (Go-Biz) and works to finance clean energy projects using public-private partnerships. CLEEN offers two programs: the Statewide Energy Efficiency Program (SWEEP) and the Light Emitting Diode Street Lighting Program (LED). Financing can be through a direct loan from IBank or through publicly-offered tax-exempt bonds.

1.3. Property Assessed Clean Energy (PACE)

This is a mechanism by which the financing is attached to the property being improved rather than tied to the person who owns the property.

Property Assessed Clean Energy (PACE) programs provide property owners with a property lien-secured loan to finance energy efficiency upgrades, disaster resiliency improvements, water conservation measures, or renewable energy installations for residential, commercial, industrial, and agricultural properties. PACE is usually funded by a bond issuance by regional or local authorities or public funds, and property owners pay back the funds via property taxes. The Federal Housing Finance Agency (FHFA) initially opposed and effectively suspended residential PACE programs because their liens take priority over mortgages. However, although the position of PACE liens has not changed, the FHFA has not taken adverse action against properties with the liens, and residential PACE financing has since become available again. Commercial PACE liens have not been opposed, since commercial mortgages and loans typically require the borrower to get the lender's permission before voluntarily taking on an additional liability, such as a PACE assessment.

In California, PACE financing is available in many jurisdictions, or "PACE districts," in which local governments have authorized special taxes or contractual assessments for these improvements. PACE assessments are associated with the property, not the property owner, and therefore transfer to a new owner upon sale of the property.

Residential PACE financing has also been associated with some anti-consumer business practices in California, particularly by contractors, though this approach may merit further exploration due to its benefits, if stronger consumer protections can be ensured.

1.4. On-Bill Financing (OBF)

On-bill financing (OBF) is a mechanism allowing the utility customer to pay for the cost of the upgrades, currently limited to energy efficiency, which is then repaid through a fixed monthly installment on their utility bills.

In California, each of the major utilities administers an OBF program within its own territory. Each of them offers a nearly-uniform OBF program using ratepayer funds as the loan capital pool, and offer interest-free, energy efficiency funds to qualified non-residential customers with qualified projects. There is no prepayment penalty and loans are not transferable. The loan charge holds equal priority to the energy charge, meaning failure to pay the OBF loan may result in energy service disconnection and hence reduces the risk of defaults.

1.5. On-Bill Repayment (OBR)

This is an arrangement by which a third-party lender provides the funds for the improvement and the utility collects repayment as a part of the monthly bill. It differs from OBF in that the utility or its ratepayers do not provide the capital, but instead provide only the collection mechanism for the loan. It is considered potentially less risky by some private lenders because customers are statistically more likely to pay their utility bills than other monthly bills. In addition, if the financed upgrade saves or produces energy, the mechanism can result in energy savings and little or no net increase in monthly bills to the customer.

On-bill repayment (OBR) is a financing mechanism that enables utility customers who secured financing of their energy efficiency, distributed generation, and storage improvements projects from a third-party lender such as

a bank or credit union, to make repayment of the loan through their utility bill. One of the benefits of this mechanism is to consolidate energy-related payments in one single utility bill. The utility's primary role is billing and payment processing, but the utility could also be involved with marketing, qualification of contractors, and project inspection. However, this mechanism requires a complex arrangement among parties such as utilities, financing institutions, customers, and regulatory entities, as well as robust information technology infrastructure.

1.6. Tariff On-Bill (TOB) or Tariff-Based Recovery (TBR)

This is an opt-in tariff that allows renters and property owners alike to have energy efficiency or related improvements made without any out-of-pocket expenses or incurring any debt. This model generally assumes that energy cost reduction is greater than the cost of repayment for the improvements.

TOB, also known as TBR, is a mechanism through which the utility finances qualifying projects using (usually, but not necessarily) its own capital. In this mechanism, when the utility uses its own capital, the investment in the energy performance of homes and buildings is recognized as a system reliability investment and the utility utilizes its established authority to add tariffs for system investments to customer bills as the collection mechanism. A tariff is not categorized as a loan to the customer; therefore, it does not add to the debt profile of the property owner in the way that a bank loan would. Additionally, the investment in energy savings is tied to the meter of the physical property and it is transferable with the sale of the property or resumption of utility service by a new customer at the premise.

In this mechanism, the utility must request approval of the tariffed service from a regulatory entity such as the Commission. This mechanism can be utilized by renters and customers with lower credit scores than typically required to obtain a loan. These types of mechanisms can reach customers with lower incomes.

1.7. Tax Equity

Tax equity refers to a number of financing structures where entities that have a tax liability are able to provide equity to energy projects, generally renewable energy projects, in exchange for ownership interests sufficient to reduce their tax liability.

Tax equity financing is not limited to the energy sector. These transactions involve one party agreeing to assign the rights to claim the tax credits to another party in exchange for an equity investment (*i.e.*, cash financing). The exchange is sometimes referred to as “monetizing,” “selling,” or “trading” the tax credits. The two energy-related mechanisms are the renewable electricity production tax credit (PTC) and energy investment tax credit (ITC). Policies can also affect the demand for tax equity.

For example, with federal renewable energy tax incentives phasing down, renewable energy investors may have fewer tax credits they are seeking to monetize. For renewable energy projects, tax equity is generally more expensive than other sources of debt financing.² Up until the COVID-19 pandemic, many

² Solar energy projects, especially those on a larger, industrial scale, require a lot of capital. On the flip side, solar energy developments offer some of the most robust tax benefits around, as clean and green energy initiatives become more coveted by both legislators and the public.

industrial and utility solar development projects had been financed through tax equity financing.

1.8. Loan Loss Reserves

Loan loss reserves (LLRs) are funds set aside to ensure that lenders are not impacted, or are less impacted, in the case of a borrower default. The increased surety allows the lending institution to loan the money at more favorable terms. This method has similar effects as interest rate buydowns, but the LLR funds can be used for multiple loans as long as there are not excessive levels of default.

An LLR is a form of credit enhancement. Credit enhancements improve the chances that a lender will be repaid for providing the upfront capital for a clean energy investment. An LLR is a set-aside fund to pay for a portion (*e.g.*, 90 percent of the outstanding loan amount) of defaulted loans. The LLR pool size is typically capped between 5 percent and 20 percent of the total loan pool. This mechanism gives the lender added assurance that may encourage them to broaden their lending criteria and be more willing to lend funds to lower-income customers or those with less favorable credit scores.

1.9. Interest Rate Buydowns (IRBs)

An interest-rate buydown (IRB) is a process where a third party contributes funds to the lending institution for the purposes of making a loan more affordable.

IRBs are often considered as a mechanism to lower the interest rate for the customer. An IRB is essentially a subsidy paid at the closing of the loan to enable a lender to justify a lower interest rate on a loan. IRBs are useful when the cost of capital plus the cost of originating and servicing the loans results in an interest rate that borrowers may not find attractive or affordable. For example, a

regulatory authority could buy down the interest rate on a loan for financing of an eligible energy efficiency project that is offered at a market rate of 7 percent by 2 percent and effectively lower the loan interest rate offered to the customer to 5 percent. In this scenario, the customer pays 5 percent interest on the loan and the financial lender receives the additional 2 percent from a public fund, to bring the total interest earned to the market rate of 7 percent. IRBs can be expensive to the sponsoring public agency, but may be a useful way to jump-start marketing of projects or may act as a stimulus tool to encourage energy saving investments.

2. Background

This section summarizes the Commission's activities with respect to clean energy financing, going back approximately a decade, and organized by resource area.

2.1. Energy Efficiency

The Legislature has regularly sought the actions of the Commission in studying, designing, and implementing financing strategies for energy efficiency purposes. Assembly Bill (AB) 758 (Skinner, 2009), which primarily required the CEC to design a strategy to maximize energy efficiency and conservation strategies in existing buildings in the state, also required the Commission to investigate the ability of electrical corporations and gas corporations to provide energy efficiency financing options to their customers to implement the CEC's comprehensive existing buildings program design required by the law.

The Commission's initial work on financing for energy efficiency purposes was conducted in 2010 and 2011, and culminated in a report titled "Energy

Efficiency Financing in California: Needs and Gaps,” conducted by Harcourt, Brown, and Carey that was published July 8, 2011.³

In 2012 and 2013, the Commission began working with CAEATFA, and in September of 2013 authorized approximately \$75 million in funding for pilot programs to be launched in support of seven specific sectoral approaches.⁴ The pilot programs and approaches have been amended several times since 2013.⁵

SB 350 (De León, 2015), which included a goal of doubling the amount of energy efficiency in buildings in California by 2030, also included financing mechanisms as one of the potential means to achieving this goal.

Currently, the Commission oversees a mix of statewide energy efficiency financing pilots and investor-owned utility (IOU)-administered OBF programs. CAEATFA, on behalf of the Commission, administers the statewide financing pilot programs hub called the California Hub for Energy Efficiency Financing (CHEEF), including a small business pilot and affordable multifamily financing pilots that were launched in 2019.⁶ In addition, as of April 2020, CAEATFA also continues running the Residential Energy Efficiency Loan (REEL) pilot that was authorized as a full-scale program.⁷ The utilities administer non-residential OBF programs in their respective territories.⁸

³ Available at: <http://www.harcourtbrown.com/financing-energy-efficiency/>

⁴ See D.13-09-044.

⁵ See D.15-06-008, D.15-12-002, and D.17-03-026.

⁶ <https://gogreenfinancing.com/>

⁷ See Resolution E-5072.

Below is a chronological summary of the CPUC's major decisions and events on energy efficiency financing:

In D.05-09-043, the Commission directed utilities to explore on-bill financing during 2006-08 as a way to remove the first-cost barrier to rapid deployment of energy efficiency measures by allowing customers to finance these measures on their energy bills at low interest or no interest.

The Long-Term Energy Efficiency Strategic Plan adopted in D.08-09-040 identified the need for financing solutions in both the residential and commercial sectors.

In D. 09-09-047, the Commission, approved a non-residential⁹ OBF program as part of the energy efficiency funding for all four of the major energy IOUs while adopting a nearly-uniform OBF program using ratepayer funds as the loan capital pool for all major IOUs. Additionally, the decision set the budget for each IOU.¹⁰ Under the OBF program, a utility provides eligible customers with unsecured loans covering 100 percent of the energy efficiency equipment and installation costs (net of rebates and other incentives) at zero percent interest.

In D.12-05-015, the Commission envisioned a long-term goal of developing new, scalable, and leveraged financing products to overcome the first cost of energy efficiency upgrades and induce customers to participate in projects that

⁸ A Statewide On-Bill Financing Impact Evaluation study of all IOU OBF programs is scheduled to start in the Summer of 2020 and is anticipated to be completed early 2021.

⁹ The OBF program was limited to non-residential customers due to concerns about limitations on utilities lending directly to residential customers under the California Finance Lenders Law.

¹⁰ D. 09-09-047, Table 35.

produce deeper energy savings than would be achieved utilizing mostly traditional program approaches such as audits, rebates, and access to consumption data.¹¹

In D.12-11-015, the Commission approved up to \$75.2 million¹² of ratepayer funds for innovative and new energy efficiency financing pilots. However, the actual design of the energy efficiency financing pilots was deferred to a later decision, which became D.13-09-044.

D.13-09-044 implemented and expanded incentives for financing options for energy efficiency improvements across all market sectors.¹³ Relevant Commission directives in this decision included:

- The allocation of \$65.9 million to launch selected financing pilots designed to test whether incentives stimulate markets to attract private capital, through investment of limited ratepayer funds;¹⁴
- Authorization for CAEATFA to establish a “hub” for the finance pilots (*i.e.*, CHEEF);¹⁵
- A focus on the goal of expanding access to financing instruments by key customer segments, in particular customers underserved by existing energy efficiency financing and programs;
- Leveraging of limited ratepayer energy efficiency funds for credit enhancements, which function as an LLR, to provide

¹¹ D.12-05-015, at 112-13.

¹² D.12-11-015, Table 7, at 66-67.

¹³ D. 13-09-044, at 2.

¹⁴ *Id.*, Ordering Paragraph 1.

¹⁵ *Id.*, at 15-17.

incentives to lenders to extend or improve credit terms for energy efficiency projects. In this form of credit enhancement, a percentage of a loan is set aside to cover the lender's potential losses; and

- Testing of whether transitional ratepayer support for credit enhancement can lead to self-supporting energy efficiency finance in the future.

D.17-03-026 addressed a number of issues related to the energy efficiency pilot programs, including:

- Establishing that the CPUC will provide for energy efficiency program funding to support the financing pilot programs for their full lifecycle, (*i.e.*, for the full duration of pilot program operation and loan servicing), primarily through funding already authorized in D.13-09-044;¹⁶ and
- Directing that metrics be established for each pilot program, and that the metrics selected should focus on the definition of success for each of the pilots beyond customer uptake or number of transactions, with an ultimate focus on value added toward achieving energy savings.¹⁷

Resolution E-4900, issued on December 14, 2017, adopted metrics as tools to contribute to the determination of the long-term viability of energy efficiency financing pilots. In the Resolution, the Commission ordered a set of metrics to be adopted (Attachment 1 to the Resolution) to be utilized by the Commission, along with other considerations to assess the results of the REEL pilot.

In D.19-03-001, the Commission granted PG&E's Petition for Modification of Decision D.09-09-047 to increase its OBF loan limits. Additionally:

¹⁶ *Id.*, at 11-12.

¹⁷ *Id.*, at 27.

- The Commission allowed the other IOUs to file advice letters for modification of their OBF loans terms and conditions to match PG&E's terms and caps;
- Each of the IOUs was directed to file a Tier 2 advice letter to show that it has appropriate safeguards and controls in place to manage any requested increase in the terms or caps on on-bill financing loans, and to prioritize OBF loan funds to cover projects with the largest savings; and
- Loans of more than \$250,000 were not permitted to be combined with rebates or incentives.¹⁸

Resolution E-5072 for Disposition of the REEL program was issued on April 17, 2020, and provided the following direction:

- The REEL pilot should continue as a full-scale program. CAEATFA was asked to continue as the administrator of the REEL program;
- The authorized budget for the administration of the REEL program and the energy efficiency pilots for fiscal years 2020-2021 and 2021-2022 were continued at near the previous level, and CAEATFA was authorized to make enhancements to the REEL and the financing pilots for maintenance and improvement of information technology and administrative needs during the interim period before the next Commission decision;
- The large IOUs were required to continue to provide funds to CAEATFA for administration of the program and pilots, as already directed through Commission decisions. Should these already-authorized funds become exhausted before the next decision addressing the energy efficiency

¹⁸ To participate in an OBF program, all customers were previously also required to participate in one of the IOU's incentive programs. Savings from OBF-funded projects are claimed through the incentive programs in which customers participate.

- financing program and pilots, then CAEATFA was authorized to shift funds from the existing credit enhancement pool to support the budget for the REEL and energy efficiency pilots while awaiting future direction from the Commission;
- The IOUs also were required to continue providing support for information technology, marketing, and administration of the REEL and other energy efficiency pilots administered by CAEATFA, with funds drawn at the present level until the Commission provides new direction through a decision;
 - The lead utility for finance (*i.e.*, Southern California Gas Company (SoCalGas)) was authorized to extend the contracts that it holds for marketing, education, and outreach (ME&O) to support the energy efficiency financing program and pilots if needed, and the IOUs were required to continue providing funds at the previous levels and in the existing manner to fund the ME&O activities, until the Commission provides new direction through a decision;
 - The IOUs were allowed to use the following mechanisms to support the energy efficiency program and pilots and draw the funds used to continue ME&O contracts:
 - (1) utilize unspent funds from previously approved administrative funding approved through the 2018-2020 Energy Efficiency Finance Pilots Budget advice letters;
 - (2) utilize the Annual Budget Advice Letter (ABAL) process by including funds for the program and pilots in the authorized annual energy efficiency budget or use the ABAL process to request new approval of funding from the previous year's unspent, uncommitted energy efficiency funds;
 - (3) as provided in D.17-03-026, the IOUs may file a separate Tier 2 advice letter containing details of the costs to be covered and proposing the funding source, whether previously authorized energy efficiency program

funding or incremental funding; or (4) The IOUs may also include these funds in future business plan filings subject to future direction from Commission decisions; and

- The resolution did not address any expanded scope for the REEL program nor for any other financing pilot beyond practical enhancements for maintenance or improvement of functions to allow for scaling of the program and pilots, such as provision of information technology, data gathering, or administration.

Evaluation Studies and Reports

In addition to the above-referenced decisions, rulings, and resolutions, several ratepayer-funded evaluations have been conducted on the REEL program. These include but are not limited to:

*Final CPUC REEL Pilot Impact Evaluation Considerations, December 29, 2017*¹⁹

This document was meant to serve as a starting point to consider how to conduct an evaluation of the REEL pilot and what issues would need to be addressed. The document presented recommendations for the upcoming impact evaluation based on loans issued through the program beginning in July 2016. This document summarized the information that Opinion Dynamics and Dunskey Energy Consulting collected to monitor the REEL Pilot, assessed its data tracking, and developed ways to evaluate it for energy savings and cost-effectiveness. The information contained in this document was collected and analyzed between 2015-2017.

¹⁹ This report was prepared by Opinion Dynamics and Dunskey Energy Consulting for the Commission.

*PY 2014 Finance Residential Market Baseline Study Report, March 2016*²⁰

The purpose of this study was to identify the characteristics of the market for financing products for energy efficient upgrades. As a “baseline,” this study provided a “snapshot” of the market before the statewide residential energy efficiency financing pilots launch. This study helped develop an understanding of the market for energy efficiency financing and provided an initial measurement of the market to help assess market transformation over time. Further, because at the time of completion of this report the pilots were not launched yet, this study had the potential to inform their design. Some of the pertinent findings were:

- About one-third of homeowners completed energy-related upgrades in the last two years, but only a small fraction of them (one-quarter) used any type of financing;
- Customers typically used conventional financing rather than energy efficiency-specific financing;
- Awareness of energy-efficient financing is low among homeowners.
- The opportunity for financing to help fund and grow energy-related projects in the near future is significant;
- High interest rates for non-energy-related financing products prevent many homeowners from financing energy efficiency upgrades, but the pilots may help overcome this barrier since energy efficiency financing

²⁰ This document can be accessed through the following link:

http://www.calmac.org/publications/PY2014_Residential_Finance_Market_Baseline_Volume_1_FINAL.pdf.

interest rates are significantly lower than market interest rates; and

- Contractors are aware of energy-efficient financing options, but only a small portion promote them directly.

Overall, this study indicated that the pilots are targeting segments of the energy-related upgrade market that have limited access to energy efficiency financing and conventional lending products.

*Statewide Finance Pilot Marketing, Education, and Outreach Process Evaluation, November 17, 2017*²¹

This report presented the results of a process evaluation of the new California Statewide Financing Pilots' ME&O Campaign ("the Campaign") that began in June 2017. The Campaign's foundational activities were designed to eventually lead to the following longer-term objectives:

- Increased Strategic Partner awareness and understanding of Financing Pilot opportunities available to the relevant market sectors;
- Increased Strategic Partner communications with target customers (potential borrowers) about Financing Pilot opportunities;
- Increased target customer awareness of the availability of financing and the key differentiating benefits of the Financing Pilots; and
- Increased volume of target customers taking initial action to seek financing.

Some of the conclusions were:

²¹ This document can be accessed here:

http://www.calmac.org/publications/MEO_Finance_Study_Report_FINAL12.28.2017V2.pdf.

- The Campaign has developed a strong core theory of market facilitation with a clear path for reaching the customer;
- Financial institutions report that the Campaign has been generally supportive of their needs and that they have seen an uptick in customer interest in energy efficiency financing; and
- The fundamental data tracking systems are in place to assess Campaign progress towards its goals. The Campaign has several highly detailed tracking systems in place to support evaluation, including a monthly metrics report with key performance indicators (KPIs) for each campaign activity, a monthly budget tracker, and a day-to-day marketing activity tracker.

Energy Division Mid-Point Review Document, November 2016

In November 2016, Energy Division developed a mid-point review document that provided background information, described the reasons for the Commission's interest in energy financing, discussed the reasons for cost overruns and uncertainties among the pilots, discussed CAEATFA's budget, and considered lessons learned at that point from the pilots.

Residential Energy Efficiency Loan Assistance Pilot-Impact Evaluation, January, 2020²²

The purpose of this study was to evaluate the first two years of the REEL program,²³ with the overarching goal of determining how well the pilot met metrics set in Resolution E-4900 and achieved or addressed the goals originally

²² The full text of this study is attached as Appendix 2 to the Resolution E-5072.

²³ The first two years start with the first loan issued, which was in July 2016.

set by the Commission in D.12-05-015 and the subsequent decisions and rulings. Beyond metrics set in the Resolution E-4900, the study explored additional performance indicators to provide the CPUC with findings and suggestions to determine if and how a ratepayer-supported mechanism can help remove or reduce hurdles for potential customers. These performance indicators addressed issues including:

- Characteristics of participation;
- Energy savings;
- Influence of REEL on the market;
- Costs vs. benefits to run the pilot;
- Stakeholders' perspectives on the design and implementation approach;
- Potential to further scale the pilot to a full program;
- Comparison of the REEL model to other models in practice outside California; and
- Changes and trends since 2012.²⁴

The following is a summary of key assessments, conclusions, and recommendations:

- Lending does not appear to be going to customers with poor credit scores; many of these energy efficiency projects would not have occurred at all without REEL or customers would have piecemealed the upgrades over a longer period of time; and the pilot has the potential to garner more energy savings for the state than would occur naturally in the marketplace. Concluded REEL is successful reaching underserved communities;

²⁴ D.12-11-015.

- The pilot has measurable gross and net energy savings at the meter level and has the potential to garner more energy savings than would occur naturally in the marketplace. Therefore, the pilot is producing energy savings and the gross and net savings methods will need to account for the appropriate baseline to avoid double counting with rebate programs;
- Loan growth rate is increasing and can scale further. Some changes are necessary to achieve scalability and hence it was recommended to enroll a large volume lender with physical branches covering more of the state. Additionally, it was recommended to make all efforts to support Retail Installment Contracts (RICs), or a single originator clearing house for all loans, regardless of lender; and
- It was too early to assess loan performance in terms of defaults and “bridge loans.” However, if default rates continue to be low, REEL could consider reducing the amount of funds set aside in LLR, thereby increasing leverage ratios.

2.2. Building Decarbonization

The Commission instituted a rulemaking, partly in response to SB 1477 (Stern, 2018), to address policies related to building decarbonization in general. So far, the Commission has issued a decision (D.20-03-027) on pilot programs as required by SB 1477. In later phases of the proceeding, the Commission is addressing larger policy questions related to the decarbonization of buildings, including rate-related considerations and opportunities to support rebuilding after wildfires, among many other issues. In the course of the proceeding, financing options have been discussed as a potential mechanism to encourage more building decarbonization. On the scale that will be necessary to meet the SB 350 and SB 100 goals, as well as the many other state environmental goals,

mechanisms beyond incentives will almost certainly be necessary and there is a strong nexus between our building decarbonization work and the financing mechanisms we intend to explore in this proceeding.

2.3. Self-Generation Incentive Program (SGIP) and California Solar Initiative (CSI)

During the early years of the self-generation incentive program (SGIP), which spawned the California Solar Initiative (CSI) to encourage the installation of solar on rooftops in the state, the solar industry itself began to offer innovative financing options to customers interested in investing in solar. Rooftop solar leases, in particular, were not contemplated at the start of the program, but became the standard marketing approach within a few years. By continuing to own the solar systems, some solar companies were able to take advantage of aggregating numerous small systems and packaging them for tax credit purposes. Incentive funds, instead of being paid to customers directly for purchasing systems, could go to contractors or installers who kept ownership in the systems while passing on the benefits to customers.

Starting in 2015, the Commission authorized Third Party Ownership (TPO) for solar systems funded under the Single Family Solar Homes (SFSH) program, one of two low-income solar installation programs under CSI. This TPO model has enabled monetization of the ITC for hundreds of low-income single-family homeowners who lack sufficient tax liability to utilize the ITC to reduce the cost of installing clean energy technologies. This is one example of how, by ensuring adequate consumer protections, financing mechanisms can be deployed to benefit low-income customers.

In 2020, Pacific Gas and Electric Company (PG&E) proposed a financial assistance pilot to support low-income customers taking advantage of SGIP incentives for energy storage. Through D.19-09-027, the Commission increased the incentive available under the SGIP equity budget to \$0.85 per watt hour (Wh) and established a new equity resiliency budget with an incentive of \$1.00 per Wh. These incentive levels were adopted to cover, substantially or completely, the cost of installing energy storage for low-income customers and vulnerable communities. Notably, however, SGIP only pays rebates for technologies after they are installed. As such, PG&E recognized that the need for upfront capital to cover the cost of system installation poses a potentially insurmountable barrier for many equity customers. Through Resolution E-5086, adopted by the Commission on July 16, 2020, PG&E will begin enabling project developers working with these customers to receive 50 percent of the rebate amount upfront, but they must guarantee that customers will not be asked to pay any funds out of pocket prior to receiving the SGIP rebate.

While PG&E also proposed an OBF pilot for non-residential equity customers pursuing energy storage, Resolution E-5806 rejected this component of PG&E's proposal without prejudice, due to an insufficient level of detail provided in the advice letter. As discussed in Resolution E-5086, PG&E may revise and resubmit its OBF proposal for non-residential customers for further consideration. Notably, through this effort, PG&E proposed to pilot pairing OBF-funded energy efficiency projects with OBF-funded energy storage projects occurring at the same site, albeit with different sources of capital for the different portions of the projects.

2.4. Transportation Electrification

On February 3, 2020, in the transportation electrification rulemaking (R.18-12-006), the Commission issued a ruling releasing a Commission staff draft Transportation Electrification Framework (TEF).²⁵ The approximately 200-page staff proposal included a section discussing alternative financing options for customer-owned transportation electrification infrastructure.²⁶ Comments on the TEF's alternative financing section are due in August 2020. Thus, the Commission's transportation electrification team is actively considering financing programs to pay for customer side of the meter transportation electrification infrastructure.

The TEF proposal explicitly identified OBF and TOB as potential options for the IOUs to explore to help mitigate the ratepayer-funded share of TE investments, but cautioned against authorizing a program until further information is collected. The TEF highlighted a number of key factors that make replicating the IOUs' previous OBF and TOB efforts difficult, primarily due to the higher cost per site for TE programs compared to the average project funded by OBF for energy efficiency. There are additional complications with implementing the pay-as-you-save model used for energy efficiency programs, as the inherent nature of TE programs will increase customer demand, rather than reduce it. The TEF recommended that the Commission direct the utilities to

²⁵ Available at: <https://docs.cpuc.ca.gov/SearchRes.aspx?DocFormat=ALL&DocID=326172086>, including attachment.

²⁶ *Id.*, Attachment Section 9.3 at 110.

host a public workshop to discuss their capacity to administer an OBF or TOB program and the potential structures for such programs.

2.5. Resiliency and Microgrids

The Commission opened an OIR regarding microgrids and resiliency strategies (R.19-09-009) in September 2019, pursuant to SB 1339 (Stern, 2018). The rulemaking was initiated to design a framework surrounding the commercialization of microgrids and additional technologies and strategies for achieving resiliency goals, particularly in the face of wildfires and public safety power shutoffs.

New microgrids in California often include at least two different types of distributed energy resources with high capital costs (generation and storage), making them subject to the same financing challenges that such resources face individually, compounded. Moreover, the additional technical challenges associated with having the capability to serve local loads safely during islanded operation mean that microgrids can also require detailed engineering design and commissioning work. These soft costs further increase the initial costs of a microgrid.

Microgrids that rely on inverter-based resources, such as solar photovoltaics, battery energy storage, or fuel cells, trend even higher than those based on rotating masses, such as reciprocating engines or turbines. The higher initial costs of such microgrids is a result of both the underlying technology capital costs of those resources, and because of the additional engineering, or oversizing, required to ensure safety in the absence of rotating masses (rotating

masses generate higher fault currents than inverter-based devices, and protection systems usually depend on fault current generation to operate safely).

High initial costs can discourage investment in low-emissions microgrids, particularly for low-income individuals or communities that may stand to benefit the most from avoiding emissions of alternative solutions, such as diesel backup generators. As a result, it is particularly important to ensure that differences in financing opportunities for lower-emissions microgrids does not replicate and exacerbate historical inequities in air pollution and health burdens.

Although microgrids come in a wide variety of sizes and configurations, one of the most important characteristics for regulatory purposes is whether or not the utility owns the underlying physical assets. Financial and operational aspects of utility-owned assets are subject to specific rules and oversight consistent with the utilities' status as regulated entities. Furthermore, the barriers to financing utility-owned assets are usually different from those facing individual customers. In general, microgrid assets that are not utility-owned are more similar to other types of distributed energy resources. Consequently, it is reasonable to exclude utility-owned microgrid assets from the scope of this rulemaking.

To that end, the Commission approved a program proposed by PG&E in the microgrids and resiliency rulemaking that includes defraying costs of microgrid development, with priority given to vulnerable groups, including disadvantaged communities. The Commission is also currently considering financing program ideas for microgrids in two staff papers issued by ruling in

R.19-09-009 on July 22, 2020 and could benefit from opportunities developed in this rulemaking as well.

3. Preliminary Scoping Memo

This rulemaking will be conducted in accordance with Article 6 of the Commission's Rules of Practice and Procedure, "Rulemaking."²⁷ As required by Rule 7.1(d), this OIR includes a preliminary scoping memo as set forth below, and preliminarily determines the category of this proceeding and the need for hearing.

3.1. Issues

As described in Section 2 above, the Commission has been investigating and piloting financing-related mechanisms for a number of years, especially in the area of energy efficiency. In other areas, such as during the development of the CSI and the success of the rooftop solar installation industry in California, the industry itself developed innovative financing mechanisms such as solar leases. PACE was another innovation that has helped some customer segments finance energy improvements.

While a number of these initiatives have had success in some markets, the Commission has thus far lacked a cohesive and comprehensive strategy for helping customers finance energy improvements to their homes and buildings. Much work has been done in a resource-specific manner, for either rooftop solar or energy efficiency.

²⁷ All references to "Rules" are to the Commission's Rules of Practice and Procedure unless otherwise indicated.

However, as more customers consider investing in additional technologies, such as battery storage to complement their solar systems, heat pumps, or electric vehicles, it is time for the Commission to consider options for financing more holistically and comprehensively.

From research and experience particularly with financing energy efficiency projects at customer premises, it is clear that customers do not approach investments in the same resource-specific manner that the Commission uses to make funding decisions. Customers may want to invest in some energy efficiency upgrades at the same time they install a solar system or a battery storage system and an electric vehicle. Currently, they may have some PACE options that will allow all of these investments to be rolled into one loan, but otherwise our offerings are specific to energy efficiency, or may come in the form of a lease from a solar or storage company. Viewing these projects holistically can also benefit the customer when it comes to accurate system sizing for both generation and storage.

The purpose of this proceeding is to provide a venue for investigating and designing mechanisms that can help customers finance all of the energy investments they might wish to make on their properties, without artificial barriers, such as those caused by regulatory rules related to funding source. This proceeding will also recognize that just as there are different financing needs across customer segments, there are a diversity of needs within customer segments. This diversity includes, but is not limited to, access to capital, creditworthiness, funding to rehabilitate the home or building, awareness of and

exposure to new energy technologies, and potential that results in certain communities continually being underserved.

In addition, ultimately our goal is not to rely solely on ratepayer sources of funding to help encourage customers, potentially through their contractors, to make more comprehensive investments in their buildings. The most successful long-term strategies are likely to involve the use of a small amount of ratepayer support, coupled with a much larger amount of private capital provided by financial institutions.

To help ensure long-term programmatic success, it will likely be necessary to track data on the performance of energy projects and provide some ratepayer funding to reduce risks, in order to show the financial industry that there is a large and viable market in California for financing energy projects.

In addition, because of the large number of households qualifying as low-income in California, and with Californians' financial situations likely worsening considerably since the onset of the COVID-19 pandemic, it is all the more critical to become even more creative about how we can support customers investing in energy projects that ultimately improve their properties, save money on energy bills, improve air quality, and provide for health and comfort in the long run.

Thus, this endeavor will require crossing traditional regulatory boundaries and bringing creativity to the process of enabling investment in energy infrastructure on the customer side of the meter.

Within the scope of this proceeding will be any mechanism that provides a financing option to a customer investing in energy equipment behind the meter.

The mechanisms may include, but are not limited to, the mechanisms listed in Section 1 of this OIR:

- Loans
- Green Banks
- PACE
- OBF
- OBR
- TOB/TBR
- Tax Equity
- Loan Loss Reserves
- Interest Rate Buydowns

We expect it will be logical to develop a set of options that the Commission can consider for deployment via the IOUs and/or in partnership with other entities including the CEC, CAEATFA, community choice aggregators (CCAs), as well as private sector entities.

During consideration of these mechanisms, one of the key questions will be how to ensure consumer protection so that customers are appropriately informed about the obligations they may be taking on by financing one or more energy improvements. We will also need to be careful to ensure that opting in to one or more financing mechanisms does not significantly increase the risk of disconnection from service for non-payment of utility bills.

In addition, we will explore how to ensure equity and inclusion of different types of customers, so that benefits accrue to the broadest possible set of customers, regardless of income or credit history.

In so doing, we will explore the traditional barriers to deployment of energy efficiency, renewable energy, storage, and zero-emission vehicles, to try to find solutions to those barriers, which may include, but not be limited to:

- Split incentives, where investments are made by a landlord but accrue to a renter, or vice versa;
- Lack of access to capital and/or constraints on cash flow;
- Low credit scores; and
- Challenges with offering utility financing tools to residential customers under current California lending laws.

In the past,²⁸ the Commission has identified numerous potential benefits to expanding financing options, including:

- Overcoming the “first cost” of energy upgrades;
- Leveraging ratepayer funds by bringing in private capital;
- Increasing sales of clean energy products and services;
- Reaching a broader set of customers and market segments; and
- Encouraging customers to invest in projects that will achieve deeper benefits in the form of energy savings or energy production.

In order to provide value and accessible financing options to the broadest possible population, we may also need to explore options that are specific to affordable housing and/or multi-family buildings, which have a particular set of challenges and barriers that have been traditionally difficult to crack.

²⁸ See, particularly, D.12-05-015 at 107.

At this stage, the scope of this proceeding is intended to be very open-ended, and we seek comments from parties about how best to target and scope the proceeding to result in maximum benefit to customers in California. Ultimately, we hope to identify several options that can be scaled to address large parts of both the residential and non-residential customer sectors in California.

One specific set of issues that we know we will need to address in the short term relates to the energy efficiency financing pilot programs that CAEATFA has been administering in partnership with the Commission for a number of years. CAEATFA has been consistently hearing feedback from their financial partners, particularly in the REEL program, that it would be beneficial if the program could allow financing of other types of measures in addition to energy efficiency. We will explore this issue in the proceeding, as well as address the need for continued and/or expanded budget support for CAEATFA to continue to administer the energy efficiency financing programs.

CAEATFA's budget for the administration of the REEL program and the energy efficiency pilots is authorized for Fiscal Years 2020-2021 and 2021-2022, and CAEATFA is authorized to make enhancements to REEL and other financing pilots for maintenance and improvement of information technology and administrative needs during the interim period before another Commission decision.²⁹

²⁹ See Resolution -5072, issued April 17, 2020.

The precise issues to be addressed and the process for addressing those issues will be set forth in an Assigned Commissioner’s Scoping Memo.

3.2. Categorization; *Ex Parte* Communications; Need for Hearing

The Commission’s Rules of Practice and Procedure require that an order instituting rulemaking preliminarily determine the category of the proceeding and the need for hearing. As a preliminary matter, we determine that this proceeding is quasi-legislative, because our consideration and approval of this matter would establish policy or rules affecting a class of regulated utilities. Accordingly, *ex parte* communications are permitted without restriction or reporting requirement pursuant to Article 8 of the Rules.

We are also required to preliminarily determine if hearings are necessary. We preliminarily determine that hearings are not necessary.

3.3. Preliminary Schedule

The preliminary schedule is as follows:

EVENT	DATE
Comments on OIR filed and served	30 days from OIR publication
Reply comments on OIR filed and served	45 days from OIR publication
Prehearing conference	Fall 2020
Scoping memo	Fall 2020
Preliminary workshop to discuss financing mechanism options	Fall/Winter 2020

EVENT	DATE
Staff proposal and/or request for post-workshop comments	Winter 2020
Party comments and replies filed and served	Winter 2020-2021
Ruling seeking comments on issues specific to CAEATFA continuing administration of financing programs in partnership with the Commission	Spring 2021
Party comments and replies filed and served	Spring 2021
Proposed Decision addressing CAEATFA-related financing issues and other preliminary options	Summer 2021
Other activities related to broader financing options	TBD

A prehearing conference (PHC) will be held for the purposes of informing the scoping memo and discussing schedule and process. The PHC will be scheduled as soon as possible.

The Assigned Commissioner or the assigned Administrative Law Judge (ALJ) may modify the schedule to promote efficient and fair administration of this proceeding. Today's decision sets due date for comments and reply comments on the OIR. The schedule for the remainder of the proceeding will be adopted in the Assigned Commissioner's Scoping Memo.

Due to the complexity and number of issues in this proceeding, it is the Commission's intent to complete this proceeding within 24 months of the date this decision is adopted. (Public Utilities Code § 1701.5(b).)

If there are any workshops in this proceeding, notice of such workshops will be posted on the Commission's Daily Calendar to inform the public that a decision-maker or an advisor may be present at those meetings or workshops. Parties shall check the Daily Calendar regularly for such notices.

4. Respondents

The large electricity and natural gas investor-owned utilities are named as respondents to this proceeding. These include: PG&E, San Diego Gas & Electric Company, Southern California Edison Company, and Southern California Gas Company.

We also invite the other small and multi-jurisdictional IOUs, electric cooperatives, as well as other load-serving entities in electricity including community choice aggregators and electric service providers, to become parties to this rulemaking should they wish to participate and offer some of the alternatives developed in the course of the proceeding.

5. Service of OIR

This OIR shall be served on all respondents.

In addition, in the interest of broad notice, this OIR will be served on the official service lists for the following proceedings, which may be undertaking activities relevant to the consideration of the topics in this OIR.

Proceeding Topic	Proceeding Number
Energy Efficiency	R.13-11-005
Demand Response	R.13-09-011 and A.17-01-012 et al.
Net Energy Metering	R.14-07-002
Evaluation of Integrated Distributed Energy Resource Programs	R.14-10-003
Distribution Resources Plans	R.14-08-013
California Solar Initiative and Distributed Generation	R.12-11-005 R.20-05-012
Renewables Portfolio Standard Program	R.18-07-003 and R.15-02-020
Energy Storage	A.20-03-002 et al.
Transportation Electrification	R.18-12-006

Electric Program Investment Charge (EPIC) Research and Development	R.19-10-005
Energy Savings Assistance Programs	A.19-11-003 et al. and A.20-05-014 et al.
Building Decarbonization	R.19-01-011

In addition, in the interest of broad notice, this OIR will be served on the following state and local agencies:

- CAEATFA;
- CEC;
- CARB; and
- California Department of Business Oversight.

Service of the OIR does not confer party status or place any person who has received such service on the Official Service List for this proceeding, other than respondents. Instructions for obtaining party status or being placed on the official service list are given below.

6. Filing and Service of Comments and Other Documents

Filing and service of comments and other documents in the proceeding are governed by the Commission’s Rules of Practice and Procedure.

7. Addition to Official Service List

Addition to the official service list is governed by Rule 1.9(f) of the Commission’s Rules of Practice and Procedure.

Respondents are parties to the proceeding (see Rule 1.4(d)) and will be immediately placed on the official service list.

Any person may be added to the “Information Only” category of the official service list upon request, for electronic service of all documents in the proceeding, and should request this promptly in order to ensure timely service of comments and other documents and correspondence in the proceeding. (*See*

Rule 1.9(f).) The request must be sent to the Process Office by e-mail (process_office@cpuc.ca.gov) or letter (Process Office, California Public Utilities Commission, 505 Van Ness Avenue, San Francisco, California 94102). Please include the Docket Number of this rulemaking in the request.

Persons who file responsive comments to the OIR also thereby become parties to the proceeding (*see* Rule 1.4(a)(2)) and will be added to the “Parties” category of the official service list upon such filing. *In order to assure service of comments and other documents and correspondence in advance of obtaining party status, persons should promptly request addition to the “Information Only” category as described above; they will be removed from that category upon obtaining party status.*

8. Subscription Service

Persons may monitor the proceeding by subscribing to receive electronic copies of documents in this proceeding that are published on the Commission’s website. There is no need to be on the official service list in order to use the subscription service. Instructions for enrolling in the subscription service are available on the Commission’s website at <http://subscribecpuc.cpuc.ca.gov/>.

9. Intervenor Compensation

Intervenor Compensation is permitted in this proceeding.

Pursuant to Pub. Util. Code § 1804(a)(1), a customer who intends to seek an award of compensation must file and serve a notice of intent to claim compensation by 30 days after the prehearing conference. Parties new to participating in Commission proceedings may contact the Commission’s Public Advisor.

10. Public Advisor

Any person or entity interested in participating in this rulemaking who is unfamiliar with the Commission's procedures should contact the Commission's Public Advisor in San Francisco at (415) 703-2074 or (866) 849-8390 or e-mail public.advisor@cpuc.ca.gov. The TTY number is (866) 836-7825.

O R D E R

IT IS ORDERED that:

1. This Order Instituting Rulemaking is adopted pursuant to Rule 6.1 of the Commission's Rules of Practice and Procedure.
2. The preliminary categorization is quasi-legislative.
3. The preliminary determination is that a hearing is not needed.
4. The preliminary scope of issues and schedule is as stated above Section 3.
5. The schedule for the proceeding will be adopted in the Assigned Commissioner's Scoping Memo.
6. Pacific Gas and Electric Company, San Diego Gas & Electric Company, Southern California Edison Company, and Southern California Gas Company are respondents to this Order Instituting Rulemaking.
7. Pacific Gas and Electric Company, San Diego Gas & Electric Company, Southern California Edison Company, and Southern California Gas Company shall, and any other person may, file and serve comments responding to this Order Instituting Rulemaking by no later than 30 days after issuance.
8. Reply comments may be filed and served by no later than 45 days after issuance of this Order Instituting Rulemaking.

9. The Executive Director will cause this Order Instituting Rulemaking to be served on all respondents and on the service lists for the Commission proceedings listed in Section 5. In addition, the Executive Director will cause this Order Instituting Rulemaking to be served on the Executive Directors of the California Energy Commission, the California Air Resources Board, the California Alternative Energy and Advanced Transportation Financing Authority in the State Treasurer's Office of California, and the California Department of Business Oversight.

10. Any party that expects to claim intervenor compensation for its participation in this Rulemaking must file its notice of intent to claim intervenor compensation within 30 days of a prehearing conference once one is held. (*See* Rule 17.1(a)(2).)

This order is effective today.

Dated August 27, 2020, at San Francisco, California.

MARYBEL BATJER

President

LIANE M. RANDOLPH

MARTHA GUZMAN ACEVES

CLIFFORD RECHTSCHAFFEN

GENEVIEVE SHIROMA

Commissioners