PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

ENERGY DIVISION **RESOLUTION E-5228**
September 15, 2022

R E S O L U T I O N

Resolution E-5228. Adopts updates to the Avoided Cost Calculator for use in demand-side distributed energy resource cost-effectiveness analyses.

PROPOSED OUTCOME:

- Adopts certain data input updates and minor modeling adjustments for the Avoided Cost Calculator for use in distributed energy resource cost-effectiveness analyses.

SAFETY CONSIDERATIONS:

- There are no safety considerations associated with this resolution.

ESTIMATED COST:

- No incremental cost. Funds necessary for updates to the Avoided Cost Calculator were authorized in Decision (D.)16-06-007.

Authorized by D.16-06-007, issued on June 15, 2016, D.19-05-019, issued on May 21, 2019, and D.22-05-002, issued on May 5, 2022.

SUMMARY

The Avoided Cost Calculator (ACC) is used in cost-effectiveness analysis of distributed energy resource (DER) programs and policies. D.16-06-007 adopted annual updates to the ACC, and D.19-05-019 adopted a schedule for both major and minor changes to the ACC, with minor changes occurring in odd-numbered years by Staff-initiated Resolution. D.22-05-022 adopted specific major changes

to the ACC, as detailed below, as well as changes to update the schedule to eliminate the biennial minor updates.

This Resolution provides a link to the final 2022 ACC and related documentation and data files, consistent with policies adopted in D.16-06-007, D.19-05-019, and D.22-05-002. The documentation provides additional detail about this update, including a comparison of the 2022 and 2021 ACC outputs. This Resolution describes the data and major modeling updates to the 2022 ACC.

BACKGROUND

The ACC, first adopted in D.05-04-024,[1] was originally used to measure Energy Efficiency (EE) cost-effectiveness. The assumptions, data, and models used in the ACC require periodic updates to stay current with market conditions, prices, and trends. Thus, semi-regular improvements to the ACC modeling software and data input updates were adopted in decisions from several EE proceedings (e.g., D.06-06-063, D.09-09-047, and D.12-05-015).

D.09-08-026 expanded the use of the ACC beyond EE by modifying and adopting the tool for customer generation (then called distributed generation) programs.

D.10-12-024 modified and adopted the ACC for use by demand response programs and adopted Demand Response Cost-Effectiveness Protocols, which detailed those ACC modifications. The Demand Response Cost-Effectiveness Protocols were subsequently updated in D.15-11-042, including updates to the ACC.

In 2014, the CPUC opened the Integrated Distributed Energy Resources (IDER) proceeding (Rulemaking (R.) 14-10-003), with a focus on developing policy to facilitate the use of Distributed Energy Resources (DERs). Among the goals of R.14-10-003 was to establish a unified cost-effectiveness framework that would apply to all DER programs, technologies, and proceedings. The IDER proceeding established a four-phase plan to accomplish this, the first phase of which was to

[1] The Commission opened R.04-04-025 to develop avoided costs in a "consistent and coordinated manner across Commission proceedings." D.05-04-024 adopted the report, *Methodology and Forecast of Long-Term Avoided Cost(s) for the Evaluation of California Energy Efficiency Programs*, and associated spreadsheet models developed by the firm E3, to use in determining the cost-effectiveness of EE programs.

establish one ACC for use in all DER-related proceedings and define a process to regularly update the ACC.

D.16-06-007 authorized annual updates to the ACC, consisting of minor changes, corrections, and data updates, via Resolution drafted by Energy Division staff.

D.19-05-019 revised D.16-06-007, authorizing biennial processes for making both major and minor changes to the ACC. Specifically, the Decision modified the schedule set out in D.16-06-007, by authorizing a Resolution adopting minor changes to the ACC to be released for public comment no later than May 1st of every odd-numbered year,[2] as well as establishing a process for making major changes (in addition to minor changes and updates) during even-numbered years.

In 2020, major changes to the ACC focused on creating greater alignment between the ACC, the Integrated Resource Planning (IRP) proceeding (R.16-02-007), and the Distributed Resource Planning proceeding (R.14-08-013) and included the addition of a new avoided cost for high global warming potential (GWP) gases. These major changes were adopted in D.20-04-010.

D.22-05-002 revised D.19-05-019 by making the following changes to the ACC update process:

- Adjusts the ACC update schedule to eliminate the minor updates in odd-numbered years.
- Orders that the biennial major update process begin with an Energy Division Staff Proposal in July of odd-numbered years.
- Provides for more opportunity for stakeholder comment as part of the informal Resolution process.
- Orders the use of the most recently adopted capacity expansion plan adopted in the Integrated Resource Planning proceeding.
- Provides more opportunity for stakeholder comment in the informal resolution process by requiring Energy Division to:
    - Release the results of the "No New DER" Scenario and several data sets[3] after adoption of a capacity expansion plan in the IRP proceeding.

[2] D.19-05-019, p.8.
[3] D.22-05-002, p. 35.

- Provide a draft of the updated Avoided Cost Calculator, after adoption of the decision adopting policies and modeling changes but not later than six weeks prior to the issuance of the draft resolution adopting the updated Avoided Cost Calculator.
- Hold a workshop on the draft updated ACC and the data sets provided above.
- Establish a schedule for data requests and the submission of informal comments on the draft calculator and the data sets.
- Include a discussion of the workshop and the informal comments in the draft resolution adopting the updated ACC.

In addition, D.22-05-002 ordered the following specific changes to the ACC, beginning with the 2022 update:

- Removes load growth distributed energy resources from the "No New DER" Scenario.
- Adopts the practice of using the ACC to determine the increased supply costs of fuel substitution.
- Revises the generation capacity annualization method to modify the real discount rate and adjust for end-of-year value using the Real Economic Carrying Charge (RECC) method, as described by the National Economic Research Association (NERA)[4].
- Allocates generation capacity value using the Strategic Energy and Risk Valuation Model (SERVM), with Expected Unserved Energy from early morning spring hours removed.
- Includes secondary distribution with primary distribution costs on a two-year basis only.
- Adds an additional avoided cost – the Avoided Gas Infrastructure Cost (AGIC), to be on a separate ACC spreadsheet tab and not included in the hourly marginal costs. The AGIC includes three categories of costs: i) mainline extensions; ii) service extension; and iii) meter. Separately, and only for new construction projects, measures, and programs that have this benefit, the AGIC values will be added to the benefits used in cost-effectiveness tests. Values

[4] As published by the National Economic Research Association in *A Framework for Marginal Cost-Based Time-Differentiated Pricing in the United States topic 1.3 (February 1977)*

for in-house infrastructure and plan reviews will be determined through a Commission Decision in individual proceedings for programs and measures that have this benefit.

- Adopts the value of $52.45 per kilowatt-year as the avoided transmission cost for Pacific Gas and Electric Company, and the continues the use of the same method as was conducted in the 2020 ACC to obtain the avoided transmission cost for Southern California Edison Company.
- Uses the natural gas forecast from the California Energy Commission's Integrated Energy Policy Report.
- Uses the 2040 and 2045 modeling runs from the Integrated Resource Planning proceeding to determine post-2032 Production Cost Modeling values.
- Adopts an interim natural gas-specific greenhouse gas adder, based on building electrification costs, using data contained in the California Energy Commission's analysis on gas sector decarbonization to develop the value for the adder. The value will be reviewed in this Resolution.

Pursuant to D.22-05-002, Energy Division released draft SERVM data on May 20, 2022, and a draft ACC on June 17, 2022, for informal comment. Energy Division held a workshop to discuss these drafts on June 30, 2022, inviting additional informal comment.

Informal comments were received both before and after the June 30 workshop, from California Efficiency and Demand Management Council, California Large Energy Customers Association, Joint Investor-Owned Utilities (PG&E, SCE and SDG&E), Solar Energy Industries Association, and Southern California Gas Company.

DISCUSSION

In response to the informal comments, certain changes were made to the draft ACC, ACC_2022_v1a released on June 17, 2022, as reflected in the draft ACC, ACC_2022_v1b, described below. An explanation of these changes, as well as Energy Division's responses to the informal comments, are discussed below.

California Efficiency and Demand Management Council (CEDMC)

CEDMC recommended changes to the modeled natural gas prices because the natural gas prices in the ACC are lower than futures market prices. CEDMC also recommended changes to the trajectory of the No New DER Scenario, arguing that it conflicted with the trajectory of clean energy markets and the State's greenhouse gas (GHG) emissions reduction targets.

No changes were made to the ACC because of these recommendations. These recommendations were previously raised and already litigated in R.14-10-003 and resolved in D.22-05-002. D.22-05-002 determined that all assumptions, data, and methodologies for natural gas prices and the No New DER scenario should be consistent with the IRP process, and the 2022 ACC appropriately executes this directive.

California Large Energy Customers Association (CLECA)

CLECA believes that the ACC does not implement the RECC method as described in the NERA paper, and that there is no explanation or demonstration in the ACC documentation of how the ACC obtains a result that is equivalent to the NERA method. CLECA provides several specific details of how they believe the ACC is inconsistent with NERA. CLECA also states that the ACC documentation on this topic is confusing and incomplete.

As a result of CLECA's comments, the ACC documentation was changed to clarify and provide more detail of the RECC calculation. In addition, Energy Division has provided detailed answers to the specific concerns that CLECA and other stakeholders have about the RECC calculations directly to the service list of R.14-10-003 on August 5, 2022

D.22-05-002 states that "The application of the NERA method and specific values used in the Avoided Cost Calculator should be determined by Energy Division and its consultants, and will be included in the draft Avoided Cost Calculator for discussion and comment by parties.[5]" Energy Division and its consultants determined that certain adjustments to the NERA method were needed to harmonize the ACC with IRP, which is an overarching objective of the IDER proceeding, as detailed in D.20-04-010 and D.22-05-002. As such, we believe that

[5] D.22-05-022, Section 3.2.2, pp. 58-59

the RECC calculation presented in the draft ACC is accurate and consistent with D.22-05-002, and no changes to the ACC were made in response to CLECA's comments.

More explicitly, the NERA method specifies the use of a deferral framework to determine the avoided cost of an investment in a specific year. The ACC deferral methodology compares the net present value (NPV) of the cost of a long-term contract in a specified year to the NPV of a long-term contract in the successive year. As part of this calculation, assumptions about battery costs and other contract details are consistent with the assumptions used in IRP model. These assumptions are not necessarily identical with those stated by NERA, as Energy Division's understanding of D.22-05-002 is that consistency with IRP, rather than consistency with NERA, is the goal.

Joint Investor-Owned Utilities (Joint IOUs)

The Joint IOUs also recommend several adjustments should be made to the RECC calculation. No substantial changes were made to this calculation, for similar reasons as discussed above in response to CLECA's comments. However, several changes were made to the ACC spreadsheet in response to the Joint IOU recommendation:

- The steps related to the RECC calculation have been reorganized in the spreadsheet to make it easier for stakeholders to follow.
- The ACC has been updated to consider storage costs out to 2072, instead of just the lifetime +1 year of storage, to better capture the effects of replacement upon the end-of-life of the two initial contracts. The 2072 date reflects the lifetime of the battery storage plus its end-of-life replacement.
- An error was corrected in the replacement cost to differentiate the declining costs of the first and second replacement until the replacement costs flatten out.

In addition and as stated above, Energy Division has provided detailed answers to the specific concerns expressed by the Joint IOUs and other stakeholders directly to the service list of R.14-10-003 on August 5, 2022.

The Joint IOUs ask for an explanation of the cause of the stability of SERVM midday energy prices in the later years of the forecast horizon, even as the No New DER scenario adds more renewables to meet demand.

Staff observe stable prices until 2030, after which there is a gradual decline in midday prices. In the midterm, the NoNewDER capacity replaces the low-cost energy from Diablo Canyon, which leads to stable prices. Most of the solar additions occur after 2030, which then results in price declines. The NoNewDER case removes behind-the-meter photovoltaics (BTM PV) and additional achievable energy efficiency (AAEE) that would otherwise be in the modeling forecasts, which partially works against the price effects of the solar additions.

The Joint IOUs state that Energy Division should further investigate a disparity between the generation from fossil fleet load in the Renewable Energy Solutions Model (RESOLVE) model, which is used for IRP, and SERVM. SERVM shows significantly more generation from these resource types in the latter half of the forecast horizon than RESOLVE.

This is due to the differences in modeling approach between the RESOLVE and SERVM models. RESOLVE and SERVM differ in how they model imports and in-CAISO generation. However, the total generation does not differ, so we find no reason to reconcile this difference, as GHG emissions from both imports and in-CAISO generation are included in statewide GHG targets.

The Joint IOUs state their belief that deviating from the current practice of using 2030 as the anchor year for the GHG value is not consistent with CPUC decisions, and reiterate their belief that GHG shadow prices from IRP should be used as the basis for the GHG value.

D.22-05-002 declined to update the methodology for determining the GHG value, which is described in D.20-04-010. While it is true that 2030 has been used in the past as the anchor year, D.20-04-010 states that "we direct staff to continue using the straight-line adder previously adopted by the Commission but consider modifying the values based on post 2030 data[6]." Accordingly, 2035 was chosen as the anchor year because the GHG values in 2030 (and 2032) are zero. As in previous year's ACCs, GHG shadow prices were not used because they fluctuate across years and so do not provide good price signals for determining the actual value of GHG reductions.

[6] D.20-04-010, Section 7.1.4, p. 43

Solar Energy Industries Association (SEIA)

SEIA states that the draft ACC documentation indicates that BTM PV is not included in the list of resources removed in the No New DER scenario. SEIA recommends that if BTM PV is not removed that the GHG portfolio rebalancing adjustment should not be applied to BTM PV.

Energy Division clarifies that BTM PV was removed to construct the No New DER scenario. We believe that SEIA has misunderstood the footnote to Table 3 in the ACC documentation, which states that "BTM PV is not removed in the calculation here because it's modeled as a supply-side resource in RESOLVE."

DERs in the RESOLVE model are modeled as one of two types of resources. Most DERs are included in RESOLVE as demand-side load resources, but BTM PV is modeled as a supply capacity resource. The "load" outputs in the RESOLVE results viewer only reflect the demand side load changes and do not include the impact of removing BTM PV, as indicated by the footnote. However, BTM PV is a load-reducing DER that has been removed from the supply side in the No New DER under the "Customer Solar" resource type. This practice has been in place since the 2020 ACC and there is no methodology update this cycle. Clarifications have been made in the ACC documentation to explain this method.

SEIA also states that the carbon costs that are removed from scarcity adjusted prices exceed the carbon costs that are included as the GHG cap & trade component in the electric model, during the hours that contain scarcity adjustments only.

Energy Division acknowledges that the "Prices w Scarcity" tab in the SERVM Prices model is complex, and identified inaccuracies in the calculation for scarcity hours. The tab was updated to be consistent with the ACC electric model, which uses the correct approach to calculate scarcity-adjusted energy prices with carbon. The previous approach was incorrect because the scarcity adjustment should only have been applied to energy prices, not the carbon component of the prices, to capture scarcity conditions. The approach in the ACC electric model is correct because it calculates energy prices with scarcity by first using capped implied heat rates to calculate the GHG values and then adding the GHG value on top of the scarcity-adjusted energy prices without carbon. In addition to updating the models, we have provided a detailed explanation of the formulas used in the responses to informal comments sent to the service list.

Southern California Gas Company (SoCalGas)

SoCalGas made the following recommendations on the draft SERVM and ACC results:

1. The electric and gas model indicate different units for the value of CO_2 and should be changed.
2. The interim Natural Gas GHG adder is too high, which could be disruptive to energy efficiency (EE) programs if it is changed in the future.
3. Additional clarity is needed on whether the CO_2 cost in the gas model is, as labeled, a "societal" value.
4. Inflation is lower in the 2022 model compared to the 2021 model.
5. The Refrigerant ACC (RACC) output fields shows that the avoided costs are provided in 2020 dollars, which makes it incompatible with the energy efficiency cost effectiveness tool.
6. SoCalGas asks staff to clarify why the RACC uses the electric GHG adder rather than the gas GHG adder, and points out that in the June 30, 2022 workshop it was discussed that because this tool is used mostly for fuel substitution measures, the gas GHG adder is more appropriate.
7. SoCalGas also asks if the costs in the RACC are "societal" costs, as they are not currently directly borne by utilities or ratepayers.
8. SoCalGas recommended minor changes to the AGIC tab in the spreadsheet and the text in the draft ACC documentation to fix incorrect headings, footnotes, and units.

Energy Division provides the following response to SoCalGas' comments, many of which resulted in changes to the ACC:

1. The CO_2 unit was changed so that both the electric and gas ACCs use the unit $/tonne.
2. Energy Division does not believe that the interim natural gas GHG adder is too high. While we understand SoCalGas' concern that future fluctuations in this value could be disruptive, we believe this is unlikely, as explained below:
   Reducing GHG emissions in the natural gas sector is likely to be far more expensive than reducing GHG emissions in the electric sector. In the electric sector, renewable technologies are cost-competitive with natural gas technologies, and established planning efforts and goals mean that

this process is already underway. In the natural gas sector, alternative technologies are still in their infancy and will require large investments in research, commercialization, and infrastructure. For these reasons we believe that the natural gas GHG value is far higher than the electric sector value. Hence, this interim value, and future permanent values, will correct the current under-valuing of programs that reduce natural gas use.

3. All references to "societal" values in the spreadsheets have been removed. This was an inadvertent and obsolete reference to GHG values that does not reflect what the various GHG values actually represent, which is the cost to ratepayers of achieving the state's GHG goals, rather than a societal cost of carbon abatement.
4. The inflation rates used were 2.2% in 2021 and have been adjusted to 2.0% in 2022 to be consistent with the assumptions used by IRP, as required by D.22-05-002.
5. The RACC was adjusted to consistently use, and produce outputs in, 2022 dollars. While this change was inadvertently left out of RACC spreadsheet previously issued with ACC ACC_2022_v1b, it will be corrected with the final set of data files. The new RACC file is "2022 ACC Refrigerant Calculator version 1b updated."
6. As discussed at the June 30 workshop, the draft ACC ACC_2022_v1a used the electric GHG value in the RACC, but was adjusted to use the gas ACC in ACC_2022_v1b.
7. The question of whether the value of refrigerants and other high global warming potential (GWP) gases such as methane should be included in the ACC, even though there are currently no specific reduction targets for high GWP gases, has already been litigated. This issue was considered in D.20-04-010, which adopted this avoided cost.
8. Minor changes were made to the text of the ACC and documentation as a result of SoCalGas' helpful suggestions.

SoCalGas also suggests changing the natural gas GHG adder to reflect both commercial and residential building electrification.

Staff did not make changes to the natural gas GHG adder as a result of this suggestion. The natural gas GHG adder is an interim value based on the marginal cost of abatement. In the supply curve from the CEC report, the marginal cost is set by low-cost synthetic gas, but it was assumed for simplicity that all feasible renewable natural gas supply will be targeted to end-uses that are difficult to electrify. Hence, the marginal measure for decarbonization in the

natural gas sector would be electrification of buildings. The cost of residential electrification measure then sets the marginal costs of abatement, as it is the second highest cost measure in the supply curve after low-cost synthetic gas and it is the higher than the abatement cost of commercial electrification. The costs of commercial building electrification are considerably lower (in fact, they are negative) and are therefore unlikely to be setting the marginal value for this technology. In addition, using the average price of two different resources would be inconsistent with marginal-price valuation. As discussed in D.22-05-002, further consideration of a permanent GHG value for the gas sector will be determined in future proceedings.

The update of the ACC was completed by Energy and Environmental Economics, Inc. (E3) under direction from Energy Division staff. E3 issued a draft ACC spreadsheet (and related data files) on June 17, 2022, ACC_2022_v1a, and documentation (released June 22, 2022) that detailed the proposed set of changes to the ACC. In response to informal comments by stakeholders, E3 updated the draft ACC spreadsheet, as described above and found in the file ACC_2022_v1b. Energy Division staff posted these files to the CPUC website, as described in Appendix A.

The Commission has reviewed the ACC updates made by E3 under direction from Energy Division staff and find that the proposed ACC updates are within the scope ordered by D.16-06-007, D.19-05-019, D.20-04-010, and D.22-05-002. The ACC updates are found to be necessary to more accurately reflect Commission policies and priorities related to resource planning, as well as to better reflect market conditions, trends, and prices. We have determined that it is reasonable to adopt these changes.

COMMENTS

Public Utilities Code Section 311(g)(1) provides that this resolution must be served on all parties and subject to at least 30 days public review and comment prior to a vote of the Commission. Section 311(g)(2) provides that this 30-day period may be reduced or waived upon the stipulation of all parties in the proceeding. The comment period for this resolution was neither waived nor reduced.

Comments were received on September 1, 2022, from CLECA, Joint IOUs, SoCalGas, and the California Public Advocates Office (CalAdvocates).

CLECA again states that there are errors in the RECC calculation, specifically that the ACC does not correctly account for technical progress that will lead to future decreases in battery storage costs. We believe that the approach used in the ACC is fully consistent with the core principles described in the NERA paper to calculate avoided generation capacity costs, assuming the marginal capacity resource to be energy storage. The approach used in the ACC calculates the difference between the cost of an investment this year versus the cost of deferring the investment by one year and account for declining technology costs in the calculation of the deferral value, as described in the NERA paper.

The NERA paper describes one formulaic approach using real discount rates to account for declining technology costs. However, the CPUC's IRP process already provides declining-cost estimates for generation resources. This process is consistent in principle with the NERA approach. The IRP includes technological progress assumptions that drive down the costs of batteries over time, which is reflected in the IRP storage costs and based on the vintage of the resource. The cost of power purchase agreements declines from over time under IRP assumptions. To be consistent with the IRP assumptions regarding the real discount rate and declining technology costs, we use the declining cost estimates provided by the IRP. This obviates the need to separately calculate real cost declines in the RECC formula as described by NERA. Using the RECC formula exactly as described in the NERA paper with the IRP cost estimates would either double-count the annual cost declines, or provide declining costs that are different than those used in IRP. Furthermore, the formula described in the NERA paper requires using a constant rate of technological progress whereas the IRP cost assumptions reflect a varying rate of storage cost declines over time. The blended approach adopted in the ACC using the IRP declining cost estimates with RECC formulas slightly modified from those described by NERA is necessary to provide consistency with the IRP while also accounting for the real discount rate and end-of-year value. This is consistent with the direction in D.22-05-002, quoted above, that application of the NERA method should be determined by Energy Division and its consultants.
The Joint IOUs state that the method for determining the avoided cost of generation capacity deserves more scrutiny. They believe that the RECC method may not capture the impact of rapidly declining electric load carrying capacity (ELCC) values, and that we are conflating average and marginal ELCC values. The Joint IOUs also state that, as a result, the effective cost of battery storage capacity increases in certain years. First, we do not agree that the updated ACC

documentation conflate average and marginal ELCCs. The RECC calculation uses the marginal ELCC, and a more detailed clarification of this will be added to the ACC documentation. Second, the increasing values for effective generation capacity avoided costs are due to rapid decreases in ELCC, as battery storage penetration increases substantially in the near-term. Since the decrease in ELCC is larger than the expected decrease in battery costs, the effective avoided cost increases in the near term. Nevertheless, we welcome the Joint IOUs suggestion that we give further scrutiny to this calculation during the 2024 update. In addition, we note that we are continuing to work on the Market Equilibrium Model, as discussed previously in R.14-10-003, which may lead to a different, more accurate method of determining this value.

SoCalGas reiterates its belief that the Interim Natural Gas GHG Adder should be based on both commercial and residential electrification. For reasons stated above, we believe that residential electrification is a more accurate estimate of the marginal cost of electrification. SoCalGas also points out that, while the draft resolution stated that values in the RACC have been converted to 2022 dollars, in fact the RACC values in version 1b are in 2020 dollars. We have corrected the RACC accordingly, as noted above.

SoCalGas also requests additional guidance with this Resolution to address how benefits calculated through the RACC should be applied, or direct that guidance be provided in the individual proceedings for programs and measures that have this benefit. We are not clear exactly what sort of guidance SoCalGas is seeking. Hence, we recommend that SoCalGas – in concert with other utilities – work with Energy Division staff in the various resource proceedings when guidance is needed to apply the refrigerant avoided cost.

Cal Advocates expresses concern that energy prices between the hours of 1 and 4 a.m. are increasing, so that the differential between prices in these hours and on-peak prices is decreasing, resulting in a sizable decrease in this differential in later years. While we understand this concern, CalAdvocate's discussion is based on a graph provided by the Joint IOUs, and not on actual SERVM data. Energy Division staff have not been able to reproduce the graph provided by the Joint IOUs, and staff's own analysis does not show the same price differential. Nevertheless, we welcome future discussion of this issue as we proceed with the 2024 and subsequent ACC updates.

FINDINGS

1. D.20-04-010 OP 7 directs CPUC staff to make major changes to the Avoided Cost Calculator, as specified in that Decision, during even-numbered years.
2. D.22-05-022 provided additional time for review of the draft Avoided Cost Calculator and required a workshop and informal comments.
3. The updates to the Avoided Cost Calculator, as described by Energy and Environmental Economics, Inc. in its Avoided Cost Calculator spreadsheet and documentation, are reasonable for use in DER cost-effectiveness. It is reasonable to adopt this 2022 Avoided Cost Calculator, specifically referred to as ACC_2022_v1b.

THEREFORE, IT IS ORDERED THAT:

1. The updates to the Avoided Cost Calculator, as specified herein and further enumerated in documents made available through Appendix A of this Resolution, are adopted for use in demand-side distributed energy resource cost-effectiveness analyses.

This Resolution is effective today.

I certify that the foregoing resolution was duly introduced, passed, and adopted at a conference of the Public Utilities Commission of the State of California held on September 15, 2022; the following Commissioners voting favorably thereon:

/s/ RACHEL PETERSON
Rachel Peterson
Executive Director

ALICE REYNOLDS
President

CLIFFORD RECHTSCHAFFEN
GENEVIEVE SHIROMA
DARCIE HOUCK
JOHN REYNOLDS
Commissioners

Appendix A

Avoided Cost Calculator 2022 Update documents are available online.

The 2022 Avoided Cost Calculator ACC_2022_v1b, the 2022 Natural Gas Avoided Cost Calculator, the Avoided Cost Calculator 2022 Documentation, and related data files are all available for download on the CPUC website: https://www.cpuc.ca.gov/industries-and-topics/electrical-energy/demand-side-management/energy-efficiency/idsm

Note that because only the Refrigerant Calculator (RACC) and the ACC Documentation have changed since version 1b was released, the version numbers have not changed. The new RACC and Documentation are referred to as "version 1b updated."

As a backup, these documents are also temporarily available here: https://willdan.app.box.com/v/2022CPUCAvoidedCosts