

**PUBLIC UTILITIES COMMISSION**505 VAN NESS AVENUE  
SAN FRANCISCO, CA 94102-3298**FILED**

05/24/24

11:42 AM

R2211013

May 24, 2024

**Agenda ID #22638**  
**Ratesetting**

TO PARTIES OF RECORD IN RULEMAKING 22-11-013:

This is the proposed decision of Administrative Law Judge Elaine Lau. Until and unless the Commission hears the item and votes to approve it, the proposed decision has no legal effect. This item may be heard, at the earliest, at the Commission's July 11, 2024 Business Meeting. To confirm when the item will be heard, please see the Business Meeting agenda, which is posted on the Commission's website 10 days before each Business Meeting.

Parties of record may file comments on the proposed decision as provided in Rule 14.3 of the Commission's Rules of Practice and Procedure.

The Commission may hold a Ratesetting Deliberative Meeting to consider this item in closed session in advance of the Business Meeting at which the item will be heard. In such event, notice of the Ratesetting Deliberative Meeting will appear in the Daily Calendar, which is posted on the Commission's website. If a Ratesetting Deliberative Meeting is scheduled, *ex parte* communications are prohibited pursuant to Rule 8.2(c)(4).

/s/ MICHELLE COOKE

Michelle Cooke

Chief Administrative Law Judge

MLC:jnf

Attachment

Decision PROPOSED DECISION OF ALJ LAU (Mailed 5/24/2024)

**BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA**

Order Instituting Rulemaking to  
Consider Distributed Energy Resource  
Program Cost-Effectiveness Issues,  
Data Access and Use, and Equipment  
Performance Standards.

Rulemaking 22-11-013

**DECISION ADOPTING THE SOCIETAL COST TEST**

## TABLE OF CONTENTS

Title	Page
DECISION ADOPTING THE SOCIETAL COST TEST.....	1
Summary .....	2
1. Background.....	2
1.1. The Societal Cost Test.....	2
1.2. Procedural History .....	5
1.3. Staff Report.....	9
1.4. Equity Implications of Implementing an SCT.....	10
1.5. Air Quality Research .....	11
2. Issues Before the Commission .....	12
3. Party Comments on the SCT .....	12
3.1. Parties Supporting Using the SCT for Informational Purposes .....	12
3.2. Parties Recommending Using the SCT as a Primary Cost- Effectiveness Test.....	15
4. Party Comments on the Air Quality Impacts Study.....	16
5. The Commission Should Adopt the Societal Cost Test.....	17
5.1. An Information-Only Cost Effectiveness Test versus a Primary Cost-Effectiveness Test.....	20
5.2. The Societal Cost Test Should be Adopted as an Information-Only Cost Effectiveness Test .....	23
5.3. The Commission Should Require the SCT be Considered in All DER Proceedings .....	24
6. Adopting Input Values for the Societal Cost Test.....	25
6.1. Social Cost of Carbon .....	26
6.2. Social Discount Rate .....	28
6.3. Methane Leakage Adder.....	30
6.4. Air Quality Adder.....	31
6.5. Treatment of Federal Tax and Benefits.....	35
7. Comments on Proposed Decision.....	36
8. Assignment of Proceeding .....	37
Findings of Fact.....	37
Conclusions of Law .....	42
ORDER.....	44

## DECISION ADOPTING THE SOCIETAL COST TEST

### Summary

Consistent with Public Utilities Code Section 701.1(c), this decision adopts the Societal Cost Test (SCT) as an additional test for the Commission to consider when evaluating the cost-effectiveness of Distributed Energy Resources (DER) programs, and adopts the following four required inputs in the SCT:

- 1) Two Values for the Social Cost of Carbon:
  - Base Social Cost of Carbon = 2020\$/metric ton values in the range of approximately \$53 in 2020 and approximately \$81 in 2045; and
  - High Social Cost of Carbon = 2020\$/metric ton values in the range of approximately \$155 in 2020 and approximately \$249 in 2045 (95th percentile of possible climate impacts).
- 2) Social Discount Rate of three-percent.
- 3) Base Value of Methane Leakage (Based on the National Average Natural Gas Leakage Rate of 2.3%).
- 4) A Statewide Air Quality Adder of \$14 per megawatt-hour (MWh).

The SCT, with the above inputs, is adopted and must be considered in all DER proceedings. This test will be used as one component to inform the broader framework of tests used as an input for determining cost-effectiveness for DER programs.

This proceeding remains open to address the remaining issues in the proceeding.

### 1. Background

#### 1.1. The Societal Cost Test

Societal Costs are the monetized indirect costs that result from the provision of energy service borne by all members of society, including future

generations, rather than directly borne by ratepayers. These costs include adverse health impacts, air pollution, climate change, and other environmental damages resulting from the production of energy.

By statute, the Commission is mandated to consider the costs and benefits to the environment when assessing the cost-effectiveness of energy resources.

Public Utilities Code<sup>1</sup> Section 701.1(c) states

In calculating the cost-effectiveness of energy resources, including conservation and load management options, the commission shall include, in addition to other ratepayer protection objectives, a value for any costs and benefits to the environment, including air quality.

The Commission meets this statutory mandate in many ways, including in the Integrated Resource Planning (IRP) process, through which the Commission and all load serving entities select the most cost-effective portfolios of clean energy resources to displace fossil fuel resources. The IRP process focuses on benefits to the environment, specifically targeting greenhouse gas (GHG) emissions and including an analysis of air quality benefits, in addition to ratepayer protection objectives such as cost and reliability.

This proceeding considers the Societal Cost Test (SCT), which is designed to incorporate the quantified societal costs and benefits of avoided energy generation, including the costs to the environment and air quality. It has been proposed for use to measure the cost-effectiveness of distributed energy resources (DER or demand-side resources) programs. The SCT is one of the five cost-effectiveness tests identified in the California Standard Practice Manual<sup>2</sup>

---

<sup>1</sup> All references to Code sections in this decision are to the California Public Utilities Code, unless otherwise specified.

<sup>2</sup> California Public Utilities Commission. *California Standard Practice Manual. Economic Analysis of Demand-Side Programs and Projects*. October 2001.

(SPM) to assess DER programs. The other four cost-effectiveness tests identified in the SPM are: a) the Participant test (from a participant's perspective), b) the Ratepayer Impact Measure (RIM) test<sup>3</sup> (from the perspective of all ratepayers), c) the Program Administrator Cost (PAC) test (from a program administrator's perspective), and d) the Total Resource Cost (TRC) test<sup>4</sup> (from the combined perspectives of the program administrator and the program participant).

Traditionally, cost-effectiveness assessments of DER programs have focused on direct economic costs related to the grid and thus rates. Direct economic costs include the utility's direct operational costs such as equipment and administration costs and the utility's avoided costs of providing service. As such, the TRC, as confirmed in D.19-05-019 (Integrated Distributed Energy Resources or IDER Decision), is the CPUC's primary test to be used in cost-effectiveness evaluations of DER programs. In contrast, societal benefits and costs have not been consistently used to assess cost-effectiveness of DERs. The primary reason for this approach is that the question of quantifying the cost of harm to society from current use of fossil-fuel energy sources, is different than the question of what particular clean energy program should be paid for by California ratepayers. For example, societal benefits are provided from many types of clean energy generation resources. Accordingly, when evaluating the cost-effectiveness of a measure to reduce reliance on fossil fuels, the cost to ratepayers is viewed in comparison to the cost of other measures that retail electricity providers may deploy to achieve the same goal, including the

---

<sup>3</sup> Previously described as the "Non-Participant Test"

<sup>4</sup> Previously described as the "All Ratepayers Test"

resources included in the load serving entities' integrated resource plans, and is calibrated to meet economy-wide GHG emissions targets.

The SCT, which shares some structural similarities to the TRC but quantifies societal costs and benefits, has not been fully defined in the Commission's framework for cost-effectiveness assessments of DER programs, even though some guidelines for the SCT are outlined in the SPM.

## **1.2. Procedural History**

On November 23, 2022, the Commission issued Rulemaking (R.) 22-11-013, a successor proceeding to R.14-10-003, to achieve consistency of cost effectiveness assessments, improve data access and use, and consider equipment performance standards for DER customer programs.<sup>5</sup> R.22-11-013 provides the procedural framework for advancing the vision articulated in the Customer Programs Track of the Commission's DER Action Plan 2.0, which states:

The DER Action Plan's Customer Programs Track focuses on improving coordination, planning, and developing consistent metrics across DER proceedings related to customer programs to maximize their contributions to [greenhouse gas (GHG)] reductions and other state energy goals. The goal is to enable all customers to effectively manage their energy usage in a manner that ensures equitable participation and distribution of benefits, alignment with evolving rate design and load flexibility, alignment with distribution

---

<sup>5</sup> DER customer programs are programs offered to ratepayers by utilities, or other load-serving entities, that enable participants to manage their energy use by purchasing energy efficient or electric generation technologies, making behavioral changes, or engaging in other activities that occur on the customer's premises (often called "behind-the-meter"). They are sometimes referred to as "demand-side management" programs because they allow customers to manage their own demand for electricity or natural gas. They are also referred to as "distributed energy resource" programs since the technologies used may be small, modular devices that can be distributed throughout the electric grid or natural gas system, rather than centrally-stationed like most utility-scale generation (e.g., power plants). This proceeding will use the terms DER or customer programs to refer only to behind-the-meter activities. The term "distributed energy resources" as used elsewhere sometimes includes small, distributed utility-scale generation.

planning objectives, and alignment with integrated resource planning objectives.<sup>6</sup>

On May 31, 2023, the assigned Commissioner issued the Scoping Memo and Ruling and bifurcated this proceeding into two phases. Phase One focuses on issues related to cost-effectiveness of customer DER programs, including updating the Avoided Cost Calculator, and policies on improving data usage and access to help customers make informed decisions about adoption, evaluation, and utilization of DERs. Phase Two focuses on developing equipment performance standards.

Phase One has two tracks. Track One examines how to make cost-effectiveness assessments more accurate and consistent across DER programs. Track Two examines the rules and requirements to improve data access to facilitate adoption, evaluation, and utilization of DERs by customers and other entities and to improve DER integration with the grid.

As part of considering a framework to evaluate the cost-effectiveness of DER programs in Track One of Phase One of this proceeding, the Commission is examining whether to adopt a SCT as a tool to evaluate cost-effectiveness of DER programs and how to best apply the recent air quality research results in the evaluation of cost-effectiveness of DER programs.

In R.14-10-003, the predecessor to this proceeding, the Commission issued the IDER Decision. The IDER Decision authorized Energy Division staff to perform an evaluation of the SCT in the IRP proceeding, R.16-02-007.<sup>7</sup> The IDER Decision also directed Energy Division to test three inputs of the SCT, which are

---

<sup>6</sup> Available at: <https://www.cpuc.ca.gov/about-cpuc/divisions/energy-division/der-action-plan>. Last accessed March 21, 2024.

<sup>7</sup> D.19-05-019 (IDER Decision) at 29-36 and Ordering Paragraph (OP) 4.

the societal discount rate, the avoided social cost of carbon, and the air quality adder, and authorized testing of a fourth input, the societal methane leakage adder.<sup>8</sup> Energy Division staff, in accordance with the IDER Decision, was to evaluate results of the SCT testing and recommend the best use of the SCT, including the recommended inputs, in future decision-making.<sup>9</sup> In January 2022, Energy Division staff issued a staff report with the results of its study on the impacts of using a SCT to guide resource procurement, *Societal Cost Test Impact Evaluation: CPUC Staff Report on the Impact of a Societal Cost Test on Resource Procurement* (Staff Report).<sup>10</sup>

In January 2022, Energy and Environmental Economics, Inc. (E3) and Advanced Power and Energy Program (APEP) at University of California, Irvine published a report, *Quantifying the Air Quality Impacts of Decarbonization and Distributed Energy Programs in California: A sector-specific study of the potential air quality benefits of vehicle electrification, building electrification, energy efficiency, and other clean energy resources* (Air Quality Impact Report).<sup>11</sup> The report quantified the impacts climate change mitigation and air pollution mitigation policies have on the air quality and health of people living in California.

---

<sup>8</sup> D.19-05-019 (IDER Decision) at 3, 29, 48 and OP 4-7.

<sup>9</sup> D.19-05-019 (IDER Decision) at 37 and OP 8.

<sup>10</sup> Societal Cost Test Impact Evaluation; Commission Staff Report on the Impact of a Societal Cost Test on Resource Procurement (January 2022), available as of February 8, 2023 at: [https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/energy-division/documents/integrated-resource-plan-and-long-term-procurement-plan-irp-ltpp/2019-2020-irp-events-and-materials/societal\\_cost\\_test\\_impact\\_evaluation.pdf](https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/energy-division/documents/integrated-resource-plan-and-long-term-procurement-plan-irp-ltpp/2019-2020-irp-events-and-materials/societal_cost_test_impact_evaluation.pdf).

<sup>11</sup> The Air Quality Impact Report is available, as of February 8, 2023 at: <https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/energy-division/documents/integrated-resource-plan-and-long-term-procurement-plan-irp-ltpp/2019-2020-irp-events-and-materials/quantifying-air-quality-impacts.pdf>.

On February 13, 2023, the assigned Administrative Law Judge issued a ruling (February 13, 2023, Ruling) seeking comments from parties on how to use the results from the SCT and the Air Quality Impact Report when considering cost-effectiveness of DERs. The February 13, 2023 Ruling posed the following questions to the parties:

Societal Cost Test (SCT)

1. Should the Commission adopt an SCT?
2. If so, should the adopted SCT be used for informational purposes across all DER proceedings, as recommended by Staff, or for some other purpose?
3. Do you agree with inputs used for discount rates, the air quality adder, the social cost of carbon, and methane leakage in the SCT as described in the *Societal Cost Test Impact Evaluation* Staff Report? If not, explain any modifications that you recommend.
4. Should “society,” as defined in the *Societal Cost Test Impact Evaluation* Staff Report, be specific to California, such that federal tax benefits are included in the SCT? Federal tax benefits, such as the EV tax credit, are included in the results in the *Societal Cost Test Impact Evaluation* Staff Report, but do not necessarily have to be included in a future SCT, if “society” is defined broadly enough such that tax payments are considered a transfer payment.

Air Quality Impact Report

1. Are the data and modeling methods used in *Quantifying the Air Quality Impacts of Decarbonization and Distributed Energy Programs in California* reasonable and accurate? If not, how could they be improved?
2. Should the results and data in *Quantifying the Air Quality Impacts of Decarbonization and Distributed Energy Programs in California* be used as inputs to an SCT? If so, how?
3. Do the results and data in *Quantifying the Air Quality Impacts of Decarbonization and Distributed Energy Programs in*

*California* have any implications for the Commission to consider when determining a framework for evaluating cost-effectiveness of DER programs? If so, how do you recommend they be used?

The following parties filed comments in response to the February 13, 2023 Ruling: Western Riverside Council of Governments (I-REN), Recurve Analytics, Inc., Solar Energy Industries Association (SEIA), Natural Resources Defense Council (NRDC), Southern California Gas Company (SoCalGas), San Diego Gas & Electric Company (SDG&E), Utility Consumers' Action Network (UCAN), California Efficiency and Demand Management Council (Council), Public Advocates Office (Cal Advocates), 350 Bay Area, Pacific Gas and Electric Company (PG&E), Southern California Edison Company (SCE), Clean Coalition, Center for Biological Diversity (Center), Protect Our Communities Foundation (PCF), Center for Accessible Technology (CforAT), Coalition of California Utility Employees (CUE), Southern California Regional Energy Network (SoCalREN), and Small Business Utility Advocates (SBUA).

### **1.3. Staff Report**

The Staff Report analyzed the impacts of four inputs of the SCT: Social Cost of Carbon (SCC), Air Quality Adder (AQA), Social Discount Rate, and Methane Leakage Adder.

Staff modelled three different scenarios, using different magnitudes of each input in each scenario:

- 1) SCT Base: Base SCC, Interim AQA, No Methane Adder, three percent Social Discount Rate;
- 2) SCT Core: Base SCC, Updated AQA, Base Methane Adder, three percent Social Discount Rate; and
- 3) SCT with High SCC: High SCC, Updated AQA, High Methane Adder, three percent Social Discount Rate.

Energy Division studied the four inputs from both the supply-side and demand-side resource modelling. Supply-side modelling was done in IRP's RESOLVE model. Demand-side modelling was done using the Avoided Cost Calculator (ACC). The four inputs were incorporated into the IRP's RESOLVE process and then were studied under the framework of DER cost-effectiveness evaluation.<sup>12</sup>

Results of the SCT study show that under the SCT Core scenario, which uses central estimates for all four societal cost inputs, the SCT results would lead to minimal changes to the supply-side portfolio currently proposed in IRP proceeding and minimal changes to the cost-effectiveness of DERs, except to building electrification measures. Staff concludes that this result demonstrates that the societal costs are of similar magnitude to the costs ratepayers currently incur to meet California's carbon abatement targets, which, is a 2030 statewide Greenhouse Gas (GHG) target of 38 Million Metric Tons (MMT)

#### **1.4. Equity Implications of Implementing an SCT**

In the Staff Report, Energy Division staff recommends that the Commission consider the impacts on low-income and disadvantaged communities when using the results of the SCT to make energy resource decisions. Staff observed that if the Commission were to make energy resource decisions under the High SCC Scenario, higher cost clean energy programs that are currently not cost effective under the TRC test, but may be considered cost effective under the SCT test, would be funded. All else being equal (i.e., DER programs being funded by ratepayers through rates), electric rates would increase and electricity would become less affordable, particularly for low-

---

<sup>12</sup> Supply-side modelling was done in IRP's RESOLVE model. Demand-side modelling was done in the ACC model.

income and disadvantaged customers who spend a higher proportion of their income on energy.<sup>13</sup>

While recognizing the need to ensure that additional economic hardship for low income or disadvantaged communities is avoided, we also find that the benefits of improved air quality and reduced carbon emissions through the use of DERS is an important consideration when evaluating the cost-effectiveness of DERS. For example, the Staff Report found that use of the SCT increased the cost-effectiveness result for building electrification measures relative to other DER measures, demonstrating how the SCT could produce useful results when comparing DER measures to each other. All of California's clean energy policies are intended to achieve the state's clean energy goals, which include phasing out fossil fuel energy sources that would be replaced by clean energy sources.

### **1.5. Air Quality Research**

In January 2022, E3 and the University of California, Irvine jointly published the Air Quality Impact Report. Using advanced atmospheric transport modeling of air quality impacts, they conducted a comprehensive study of the air quality impacts to quantify the impacts climate change mitigation and air pollution mitigation policies have on the health of people living in California. The Air Quality Impact Report analyzes health impacts at the census-tract level and the statewide level, and compares the impacts of improved air quality resulting from decreased use of fossil fuels in buildings, for electric power generation, and in vehicles on human health.

The results of this study show that the elimination of natural gas generation results in very small changes to the annual average particulate matter

---

<sup>13</sup> Staff Report at 6.

concentrations, but the elimination of fuel combustion in buildings, on-road transportation, and off-road transportation leads to significant improvements in annual average particulate matter concentrations, especially in the Central Valley and the South Coast Air Basin, where air quality is the most degraded.

## **2. Issues Before the Commission**

This decision addresses the following Phase One, Track One issues:<sup>14</sup>

1. Should the Commission adopt a Societal Cost Test? If so, how should the results of the Societal Cost Test be considered in the DER cost-effectiveness framework? If appropriate, how should the Societal Cost Test consider equity issues, such as affordability and public health inequalities?
2. Should the Commission consider the results from the research report *Quantifying the Air Quality Impacts of Decarbonization and Distributed Energy Programs in California*<sup>15</sup> when evaluating DER cost-effectiveness? If appropriate, how should we apply and incorporate these results in the ACC?

As appropriate, we also consider whether and how equity and environmental social justice concerns are related to the two issues above.

## **3. Party Comments on the SCT**

### **3.1. Parties Supporting Using the SCT for Informational Purposes**

PG&E supports using the SCT to provide additional analysis but does not support the SCT as a primary cost-effectiveness test. According to PG&E, the SCT, which includes the value of societal benefits in determining cost-effectiveness, may cause the results of a cost-effectiveness analysis to favor non-

---

<sup>14</sup> Assigned Commissioner's Scoping Memo and Ruling, Phase One, Track 1, Issues #3 and #4 at 3-4.

<sup>15</sup> Available at: <https://www.ethree.com/wp-content/uploads/2022/01/CPUC-Air-Quality-Report-FINAL.pdf>. Last accessed April 12, 2024.

cost-effective technology or resources. PG&E is also concerned that using the SCT, which favors demand-side programs, may disproportionately shift costs to low-income and disadvantaged customers who historically do not participate in DER programs as much as participants with greater means and accessibility to participate.

SCE recommends that the SCT be used for informational purposes but not in all DER proceedings. SCE asserts that using the SCT to base resource procurement decisions could lead to an inequitable result in which ratepayers pay higher rates to finance investments in clean electricity resources considered cost-effective under the SCT, while the societal benefits are enjoyed by others who are not burdened by those costs. Increased electric rates, according to SCE, also adversely impact low-income communities, which spend a higher percentage of their income on energy costs.

Cal Advocates recommends using the SCT only for select programs, on a case-by-case basis, because requiring the SCT across all proceedings could make cost-effective evaluations more expensive and complicated when using the SCT may not be relevant in some cases. Cal Advocates recommends retaining the TRC for decisions on funding but using the SCT when customer programs have similar cost-effectiveness scores under the TRC and RIM.

I-REN recommends using the SCT for informational purposes across all DER proceedings. Because the SCT considers societal benefits such as non-energy benefits like improved air quality and related health impacts, using the SCT may help the Commission align its energy procurement decisions with the equity goals set forth in the Environmental and Social Justice (ESJ) Action Plan and in energy efficiency proceedings.

SoCalREN recommends that the SCT be adopted as an informational test until the impacts of using the test to justify resource procurement budgets are better understood, specifically the potential impacts on affordability. SoCalREN asserts that the SCT is a critical tool in capturing environmental and other benefits when evaluating DER programs.

The Council recommends using the SCT as an information-only test across all DER proceedings. The Council is concerned that the SCT does not accurately measure current day benefits of DER resources and recommends that the SCT be updated.

UCAN has concerns that adopting the SCT could raise electric rates and adversely impact equity. UCAN recommends that, if the Commission adopts the SCT, the SCT should be used for informational purposes.

CforAT represents low-income customers. While using the SCT mitigates air pollution and the societal impacts on low-income customers who are most at risk of these effects, CforAT raises a concern that the SCT may increase electric rates. Because of these concerns, CforAT recommends using the SCT as an informational test.

CUE recommends that the SCT be used for information only and for purposes limited only to building electrification because the Staff Report shows that using SCT only materially affects the investment in building electrification programs. CUE advises against using the SCT across all DER proceedings, citing concerns of increasing electric rates and worsening affordability.

Recurve recommends that the Commission adopt the Program Administrator Cost Test as a primary test. Alternatively, Recurve recommends that, if the Commission adopts the SCT, it should be for information only.

NRDC recommends that if the SCT is applied, that it be applied to all resources. Even though the SCT does not reflect the most cost-effective way for the Commission to achieve energy and policy goals, the SCT, according to NRDC, helps the Commission achieve broader social goals.

PG&E, Cal Advocates, and CUE recommend that the SCT, as an information-only cost-effectiveness test, serve as a tie-breaker when DER programs have similar scores under TRC or other primary cost-effectiveness tests.<sup>16</sup>

### **3.2. Parties Recommending Using the SCT as a Primary Cost-Effectiveness Test**

SEIA recommends that the Commission use the SCT to base decision-making, because extensive research and studies have been conducted to quantify societal benefits of DERs. SEIA also argues that the high SCC more accurately aligns to the costs of carbon, as demonstrated in recent literature. Because resource procurement under the IRP changes when modelling under the scenario with high SCC, SEIA asserts that using the SCT for decision-making purposes is appropriate. If the SCT is used for informational purposes, SEIA is concerned that ratepayer costs would always dominate decision-making. Additionally, SEIA recommends that the scope of the SCT be expanded to include other societal benefits, such as enhanced reliability and resiliency, conserving land and water, and benefits to the local economy.

Clean Coalition recommends that the Commission adopt the SCT as one of the main cost-effectiveness tests to inform decision-making. By monetizing social benefits and costs, Clean Coalition asserts that the SCT is an essential tool to help the Commission measure the costs of transitioning to more demand-side

---

<sup>16</sup> PG&E comments at 9; Cal Advocates comments at 2; CUE comments at 2.

resources and achieving the goals outlined in the DER Action Plan and ESJ Action Plan. The SCT, according to Clean Coalition, incorporates the social costs and benefits of energy production, in which the social costs have been disproportionately borne by low-income customers.

PCF and the Center filed comments jointly. They argue that the Commission should use the SCT for decision-making to fulfill its mandate under Section 701.1(c). They recommend that the Commission incorporate social costs and other non-energy benefits, such as avoided fuel price, avoided water supply, avoided land use, resiliency benefits, and indoor air quality, when determining DER cost-effectiveness.

350 Bay Area recommends that the SCT be used as the primary cost-effectiveness test to comply with the legislative mandate under Section 701.1(c).

#### **4. Party Comments on the Air Quality Impacts Study**

The April 2023 ALJ Ruling sought comments from parties on whether the Commission should use the results of the Air Quality Impact Study as inputs in the SCT.

Parties<sup>17</sup> generally agree or do not object to using the results and data from the Air Quality Impacts Study as inputs into the SCT. SoCalREN strongly recommends including the results as inputs to the SCT.<sup>18</sup> I-REN applauds the study for its granular approach to modelling air quality impacts and states that the results could provide valuable inputs into the SCT.<sup>19</sup> SBUA notes that the results of the Air Quality Impacts Study represent the most accurate data

---

<sup>17</sup> PG&E, Clean Coalition, NRDC, SBUA, IREN, SoCalREN, and SEIA.

<sup>18</sup> SoCalREN comments at 7.

<sup>19</sup> I-REN comments at 6.

available.<sup>20</sup> PG&E also agrees that the data are the best California-specific estimates available.<sup>21</sup> SoCalGas and SDG&E, on the other hand, oppose including any of the study results into the SCT and request that the Commission develop a more robust record before adopting the study or using any results from the study.<sup>22</sup> Additionally, some parties<sup>23</sup> assert that some inputs in the air quality study are outdated and recommend that the study be updated with current values.

## **5. The Commission Should Adopt the Societal Cost Test**

As discussed below, we adopt the SCT, and the four inputs identified and discussed in this decision, as informational components when evaluating the cost-effectiveness of DERs. The SCT, as adopted herein, complies with the statutory direction in Section 701.1(c) for the Commission to include environmental values, including air quality values, in resource cost-effectiveness evaluation.

In compliance with the IDER Decision, Energy Division staff tested the impact of using the SCT in the IRP proceeding, R.20-05-003, to guide resource procurement, and reported the results of their evaluation in the Staff Report. After reviewing the Staff Report, many of the parties<sup>24</sup> support adopting the SCT.

---

<sup>20</sup> SBUA comments at 8.

<sup>21</sup> PGE& comments at 13.

<sup>22</sup> SoCalGas/SDG&E comments at 10.

<sup>23</sup> PG&E, Clean Coalition, SBUA, and IREN.

<sup>24</sup> 350 Bay Area comments at 2; Council comments at 4; CforAT comments at 2; PCF/Center comments at 4-5; Clean Coalition comments at 4; CUE comments at 2; NRDC comments at 6; PG&E comments at 2-4; Cal Advocates comments at 1; Recurve comments at 5; SCE comments at 1; SoCalGas/SDG&E comments at 1; SBUA comments at 1; SEIA comments at 2; SoCalREN comments at 2; I-REN comments at 1-2.

Other parties condition their support of the SCT on an information-only cost-effectiveness test or as an information-only cost-effectiveness test applied to certain DER settings. They generally agree that the SCT is beneficial because it provides the Commission with the analyses needed to consider societal costs and benefits. Some parties assert that analysis on societal costs and benefits are necessary in cost-effectiveness evaluations in order for the Commission to comply with the statutory mandate set forth in Section 701.1(c),<sup>25</sup> which directs the Commission to adopt “a value for any costs and benefits to the environment, including air quality” when calculating the cost-effectiveness of energy resources.<sup>26</sup> Other parties note that societal costs analysis also can help the Commission achieve broader social goals, such as those outlined in the DER Action Plan 2.0 and the ESJ Action Plan.<sup>27</sup>

Recurve does not support using the SCT as the primary test to determine cost effectiveness of DERs. Instead, Recurve proposes using the Program Administrator Cost test as the primary test and including the social cost of carbon in the ACC.<sup>28</sup> As an alternative to its proposal, Recurve is amenable to the Commission adopting the SCT as an information-only test. Adopting the SCT, as proposed here, aligns with Recurve’s recommendation of including, as an informational component, the social costs of carbon in funding of DER resources. Through adopting the SCT, the social cost of carbon will be considered as one input of the cost-effectiveness evaluations of DERs. This approach will provide information in addition to the TRC evaluations which do

---

<sup>25</sup> 350 Bay Area at 2; PCF/Center comments at 3-4; SEIA comments at 5.

<sup>26</sup> Section 701.1(c)

<sup>27</sup> NRDC comments at 4; Clean Coalition comments at 1.

<sup>28</sup> Recurve Comments at 4-5.

not consider or measure the societal costs of energy production such as the social cost of carbon.

UCAN does not support adoption of the SCT and argues that there may not be a need to adopt the SCT because results from the Base SCC Scenario in the Staff Report do not show any changes in supply-side energy procurement or any increases in cost-effectiveness of DERs from using the SCT as compared to using the TRC. UCAN points to the results in the Staff Report, which show that electric rates would increase if the higher input values of the SCT are used, and argues that adopting the SCT may increase rates and cause harm to ratepayers, particularly in terms of equity implications.<sup>29</sup> Even if demand-side resource cost-effectiveness does not change when central estimates for the SCT inputs were used, estimates for SCT inputs may change over time such that the resulting set of cost-effective resources under the SCT may not always align with that under the TRC. When adopting the SCT, we are adopting a tool that enables the Commission to consider the societal benefits of avoided energy generation. In the section below, we discuss in detail how adopting the SCT as an information-only cost-effectiveness test addresses concerns of potential equity implications.

We find that the SCT can provide the Commission with the critical analyses needed to evaluate, measure, and consider societal costs and benefits, such as non-energy benefits like environmental effects, air quality effects, and improved health outcomes. The adoption of the SCT allows the Commission to consider societal benefits and costs when assessing the cost-effectiveness of demand-side energy resources and to further comply with its statutory mandate as set forth in Section 701.1(c). We, therefore, find it appropriate for the

---

<sup>29</sup> UCAN Comments at 1-2.

Commission to adopt the SCT with the input values described later in this decision. Below, we discuss in detail why the SCT should be adopted as an additional information-only cost-effectiveness test, similar to the other tests, and retain the TRC as the primary cost-effectiveness test.

### **5.1. An Information-Only Cost Effectiveness Test versus a Primary Cost-Effectiveness Test**

Although parties support adopting the SCT, parties diverge on whether the SCT should be used as a primary cost-effectiveness test or an information-only test, and whether the SCT should be used in limited settings or across all DER proceedings. If the SCT were used as a primary cost-effectiveness test, the SCT would become the main cost-effectiveness test the Commission uses to base its decisions on the allocation of funds for DER programs. In contrast, if the SCT were an information-only test, the results from the SCT, along with results from other cost-effectiveness tests, would provide additional information about demand-side resource cost-effectiveness for the Commission to consider in its decision-making.

Most parties support using the SCT as an information-only cost-effectiveness test and retaining the TRC as the current primary cost-effectiveness test. These parties include PG&E, SCE, SoCalGas, SDG&E, Cal Advocates, I-REN, UCAN, Council, SBUA, CUE, CforAT and SoCalREN.

Cal Advocates asserts that a primary benefit of an SCT is to enable the Commission to compare costs and benefits of DERs across proceedings with similar objectives. For example, the SCT would be used to evaluate programs and policies that aim to reduce greenhouse gas emissions, improve air quality, and deploy DERs. In proceedings that do not address such programs and goals,

Cal Advocates recommends the Commission apply the SCT on a case-by-case basis so as not to make evaluations unnecessarily complicated or costly.

I-REN, UCAN, SBUA, SoCalREN, and CforAT raised concerns regarding whether the SCT may have impacts on affordability, and recommend using the SCT as an information-only test. The parties concur with the findings in the Staff Report that basing procurement decisions on SCT results alone could lead to increased procurement of demand-side resources in lieu of more cost-effective supply-side clean energy procurement. This could then lead to increased electric rates and make electricity less affordable, particularly for low-income customers. Because of these affordability concerns, they agree with the recommendations in the Staff Report that the Commission use the SCT as an additional tool that provides cost-benefit analyses related to social costs and benefits, but not to utilize the SCT as the primary test when making demand-side resource cost-effectiveness determinations.

All three IOUs also agree that the SCT should be considered as an information-only test and not as the primary test. PG&E argues that, under the SCT, when DER resources are measured with additional societal costs and benefits, the value of certain DER programs can be inflated, while grid-scale supply side resources are procured up to the marginal abatement costs. PG&E asserts that using the SCT to make procurement decisions may lead to over-procurement of demand-side resources and increase electric costs to customers without improving carbon reductions.<sup>30</sup> SCE makes a similar argument, asserting that basing demand-side resource decisions on the SCT would likely result in customers paying more than necessary to reduce carbon emissions

---

<sup>30</sup> PG&E comments at 5-7.

because the SCT uses an estimate of future avoided costs of climate damages rather than the actual cost of achieving clean energy goals.<sup>31</sup> Additionally, all three IOUs raise concerns that using the SCT to guide resource funding and procurement decisions would subject ratepayers to finance more demand-side resource investments, making affordability of electricity challenging for low-income customers.

On the contrary, some intervening parties, including SEIA, Clean Coalition, PCF, Center, and 350 Bay Area, recommend that the Commission adopt the SCT as a primary cost-effectiveness test. While NRDC did not specifically support using the SCT as a primary cost-effectiveness test, NRDC recommends that the Commission adopt the SCT to be applied beyond being informational.<sup>32</sup> These parties generally emphasize the importance of considering societal benefits and costs, such as health impacts and air quality impacts, in demand-side resource decisions, rather than making those decisions based only on the costs ratepayers pay in electric rates. PCF, Center, 350 Bay Area, and SEIA further argue that the SCT allows the Commission to address the full range of societal costs and benefits involved in transitioning to clean energy and to meet the goals specified in Section 701.1, which are to “(minimize) the cost to society” and “(improve) the environment” when making resource planning and investment decisions.<sup>33</sup> SEIA, PCF, Center, and Clean Coalition also emphasize the importance of using the SCT to guide decision-making to mitigate the environmental harms and adverse human health impacts of fossil-based

---

<sup>31</sup> SCE comments at 1-4.

<sup>32</sup> NRDC comments at 6.

<sup>33</sup> 350 Bay Area at 2; PCF/Center comments at 3-4; SEIA comments at 5.

energy production, which have disproportionately impacted low-income and disadvantaged communities.<sup>34</sup>

## **5.2. The Societal Cost Test Should be Adopted as an Information-Only Cost Effectiveness Test**

Upon weighing the foregoing considerations, we adopt the SCT, and the four inputs with the values specified in this decision, as an information-only cost-effectiveness test. The Commission will consider the results of the SCT as additional information when making cost-effectiveness assessments and funding decisions for DER programs. The Commission will retain the TRC as the primary DER cost-effectiveness test.

The SCT, as an information-only test, allows the Commission the flexibility of balancing the societal costs and benefits of DER programs against any potential affordability impacts that could result from funding such programs through electricity rates. The Commission, when using the SCT as an information-only test, has the flexibility to weigh and consider multiple factors when making demand-side resource decisions, including the costs ratepayers pay in electric rates, societal benefits of reduced air pollution, environmental benefits of cleaner energy, and impacts on affordability.

Parties concur with staff on the equity implications described in the Staff Report. As discussed above, while some parties focus on how the SCT may lead to more expensive demand-side resource decisions that increase rates, particularly for the most vulnerable customers, other parties emphasize that using the SCT to guide decision-making can mitigate the environmental harms of fossil-based energy production, which have disproportionately impacted low-income and disadvantaged communities.

---

<sup>34</sup> PCF/Center comments at 6-7; SEIA comments at 7-8; Clean Coalition comments at 9.

As an information-only test, the SCT provides the Commission with analysis on societal costs to consider in decision-making, consistent with the Commission's statutory mandate set forth in Section 701.1(c), and promote, where appropriate, broader social goals, such as those outlined in the DER Action Plan 2.0 and the ESJ Action Plan. For the reasons set forth above, we adopt the SCT as an information-only cost-effectiveness test.

### **5.3. The Commission Should Require the SCT be Considered in All DER Proceedings**

The parties also disagree on whether the SCT should be a consideration in all DER proceedings or only in specifically identified DER proceedings. The Council, SBUA, SoCalREN, IREN, and NRDC recommend that the SCT be required in all DER proceedings.<sup>35</sup> Cal Advocates, PG&E, SCE, and CUE recommend using the SCT only in select DER cases.<sup>36</sup> Cal Advocates argues that requiring the SCT across all DER proceedings could make evaluations more complicated and expensive when it may not be relevant in certain settings.<sup>37</sup>

We find the parties' arguments for limiting the SCT to certain DER cases unpersuasive. While we recognize that requiring the SCT in all DER proceedings may make evaluations more complicated and resource-intensive, parties provided no justification for why the SCT should be limited to certain DER proceedings. The parties identified above proposed that the SCT be applied in DER proceedings when using the SCT is relevant, but they did not propose

---

<sup>35</sup> Council comments at 9; SBUA comments at 3; SoCalREN comments at 3; IREN comments at 3; NRDC comment at 4-6.

<sup>36</sup> PG&E comments at 8-10; Cal Advocates comments at 2; SCE comments at 4; CUE comments at 1;

<sup>37</sup> Cal Advocates comments at 2.

parameters, criteria, or specific sets of limited DER proceedings for which they contend SCT would be relevant or not.

We therefore find that the SCT should be considered in all DER proceedings. Furthermore, the SPM does not currently limit the application of the SCT to certain settings. Requiring the consideration of the SCT across all DER proceedings ensures that societal costs and benefits are considered in all DER proceedings.

#### **6. Adopting Input Values for the Societal Cost Test**

We adopt the following values as inputs in the SCT:

- 1) Two Values for the Social Cost of Carbon:
  - Base SCC = 2020\$/metric ton values in the range of approximately \$53 in 2020 and approximately \$81 in 2045 (50th percentile of possible climate impacts); and
  - High SCC = 2020\$/metric ton values in the range of approximately \$155 in 2020 and approximately \$249 in 2045 (95th percentile of possible climate impacts).
- 2) Social Discount Rate of three-percent.
- 3) Base Value of Methane Leakage (Based on the National Average Natural Gas Leakage Rate of 2.3%).
- 4) A Statewide Air Quality Adder of \$14/MWh.

The values adopted in this decision for the four SCT inputs may be reevaluated during any ACC update cycle as appropriate, with stakeholders being afforded opportunities to provide comments. As DER technology evolves and consumer energy consumption patterns change over time, and as the SCT gets further refined, the appropriate values for these four SCT inputs may also change over time.

Energy Division staff will integrate a setting within the ACC that incorporates the SCT input values adopted in this decision. This setting can be

turned on to generate the avoided cost inputs for the SCT, using the SCT values adopted in this decision as inputs, and can be turned off to model standard ACC values to generate standard ACC results. A draft resolution will be issued to adopt the 2024 ACC following a decision adopting the 2024 ACC Update in this proceeding. The 2024 ACC will include this added SCT setting.

The Staff Report included the results of the testing of the above four inputs of the SCT. With some exceptions, parties generally do not object to the input values staff used to test the four SCT inputs. Below is a detailed discussion of the four SCT inputs and the values we adopt for each input.

### **6.1. Social Cost of Carbon**

The Social Cost of Carbon (SCC) measures the costs of damages, discounted to the present value, caused by one additional ton of carbon dioxide emitted.<sup>38</sup> The IDER Decision specified two values of SCC to be tested, the high impact value and the average value.<sup>39</sup> In compliance with the IDER Decision, Energy Division staff tested the High Social Cost of Carbon (High SCC) and the Base Social Cost of Carbon (Base SCC). For the study, staff derived the values of the SCC from the Obama Administration's Interagency Working Group (IWG) estimates, which were also adopted as interim values by the Biden Administration.<sup>40</sup> The Base SCC, generally considered as the "main" SCC value stream, assumes approximately \$53 (in nominal 2020 dollars) of damages per metric ton of carbon dioxide emitted and is used in the SCT Core scenario. The High SCC reflects the 95<sup>th</sup> percentile of possible climate impacts from IWG's

---

<sup>38</sup> Staff Report at 12.

<sup>39</sup> IDER Decision, Ordering Paragraph 5.

<sup>40</sup> *Ibid.*

modeling, assumes approximately \$144 (in nominal 2020 dollars) of damages per metric ton of carbon dioxide emitted and is used in the High SCC SCT scenario.

SCE recommends using the Base SCC, arguing that this value is consistent with values used by the federal government, California Air Resources Board and the National Academies of Science.<sup>41</sup> PG&E also recommends using the Base SCC, because of the uncertainty with the SCC estimates.<sup>42</sup> Cal Advocates oppose using the High SCC, arguing that the High SCC is inconsistent with federal regulations.<sup>43</sup>

SEIA, SBUA, Clean Coalition, the Council, and 350 Bay Area recommend adopting the High SCC.<sup>44</sup> They point to recent scientific research and studies by institutes such as United States Environmental Protection Agency (EPA), which show that the social costs of carbon are similar to or even greater than the High SCC value.

Alternatively, SoCalGas and SDG&E recommend that the Commission adopt both the Base SCC and High SCC values.<sup>45</sup> They argue that using both the Base and High SCC values in an informational SCT can provide a range of potential societal costs for the Commission to consider. PG&E proposes a similar solution in which it requests that if the Commission was to adopt a High SCC, the Commission should also adopt a Base SCC.<sup>46</sup>

---

<sup>41</sup> SCE comments at 6.

<sup>42</sup> PG&E comments at 10.

<sup>43</sup> Cal Advocates comments at 4.

<sup>44</sup> SEIA comments at 9; SBUA comments at 4-6; Clean Coalition comments at 9-10; the Council comments at 4, and 350 Bay Area comments at 3-4.

<sup>45</sup> PG&E comments at 10-11; SoCalGas/SDG&E at 6-7.

<sup>46</sup> PG&E comments at 10-11; SoCalGas/SDG&E at 6-7.

We find the proposal to adopt both the Base SCC and High SCC values as inputs in the SCT to be reasonable. While California Air Resources Board and federal government agencies have adopted values similar to the Base SCC, recent scientific studies and literature support using higher values of SCC. Using the High SCC value in the SCT, as illustrated in the Staff Report, may lead to increased electric rates and decrease affordability.<sup>47</sup> By requiring the SCT to be conducted with both the Base SCC and High SCC values, the Commission can have a range of policy options to determine the best societal outcome while balancing ratepayer costs and affordability. We therefore find it reasonable to require that the SCT be conducted under two scenarios, one using a Base SCC and one using a High SCC.

## **6.2. Social Discount Rate**

The Social Discount Rate is the discount rate used in the SCT model to discount future social costs to the present.<sup>48</sup> The discount rate affects the value of future costs. A higher discount rate causes future costs to be valued less and a lower discount rate causes future costs to be valued more. The IDER Decision specified testing both the Social Discount Rate of three-percent and the utilities' weighted average cost of capital.<sup>49</sup> In the study, staff used five-percent as the weighted average cost of capital.<sup>50</sup>

350 Bay Area recommends that the Commission adopt a Social Discount Rate of 1.4%, arguing that its proposed rate is accurate because it was used in the

---

<sup>47</sup> Staff Report at 5-6.

<sup>48</sup> Staff Report at 12.

<sup>49</sup> IDER Decision at 7.

<sup>50</sup> Staff Report at 15.

Stern Review on the Economic Effects of Climate Change, 2006.<sup>51</sup> Alternatively, if its proposed rate is not adopted, 350 Bay Area supports a three-percent discount rate over the weighted average cost of capital. NRDC recommends a lower discount rate and asks the Commission to consider testing even lower discount rates to reflect recent economic conditions.<sup>52</sup> SBUA recommends using a two-percent discount rate rather than a three-percent discount rate, arguing that the EPA and recent studies found that a two-percent discount rate is more appropriate.<sup>53</sup> On the other hand, SCE recommends using the weighted average cost of capital, arguing that the weighted average cost of capital better captures the risks of investments and the opportunity cost of funds.<sup>54</sup>

Even though recent studies show that the actual Social Discount Rate may be lower than those tested by staff, we will only adopt one of the tested discount rates because we lack record and therefore do not yet understand the impact of adopting other discount rates, particularly the impact on California ratepayer costs and affordability. Between the three-percent discount rate and the weighted average cost of capital of five-percent that were tested in the study, we adopt the lower Social Discount Rate of three-percent, given that recent studies have shown that the actual Social Discount Rate may be lower than the rates staff tested.

---

<sup>51</sup> 350 Bay Area comments at 4.

<sup>52</sup> NRDC comments at 7.

<sup>53</sup> SBUA comments at 4-7.

<sup>54</sup> SCE comments at 5-6.

### 6.3. Methane Leakage Adder

Methane, a potent greenhouse gas, leaks through the natural gas supply chain, causing significant climate impacts. The methane leakage adder measures the impact of climate damage caused by these methane emissions.<sup>55</sup>

The ACC includes an avoided cost for methane leakage, which is the in-state leakage rate of 0.6% of gas consumption.<sup>56</sup> The Staff Report, however, found that the total lifecycle leakage rate of methane from the natural gas consumed in California is likely closer to the estimated national average leakage rate of 2.3% of consumption, because California imports approximately 95% of its natural gas.<sup>57</sup>

In the study, staff applied the national average leakage rate of 2.3% to IWG's models for the social cost of methane to derive the methane leakage adder.<sup>58</sup> Staff examined two sets of values for the methane leakage adder – the Base methane leakage adder and the High methane leakage adder. The Base methane leakage adder is derived from IWG's main value stream for the projected social cost of methane. The High methane leakage adder uses IWG's high value stream representing 95<sup>th</sup> percentile of damages to calculate the High methane leakage adder.

Clean Coalition, SEIA, and SCE recommend using the national average leakage rate of 2.3% because 95% of the natural gas used in California is imported from out of state.<sup>59</sup> SoCalGas and SDG&E oppose including a social

---

<sup>55</sup> Staff Report at 12.

<sup>56</sup> Staff Report at 15-16.

<sup>57</sup> *Ibid.*

<sup>58</sup> Staff Report at 15-16.

<sup>59</sup> Clean Coalition comments at 9-10; SEIA comments at 11; SCE comments at 6.

cost of methane leakage in the SCT, arguing that methane leakage from the natural gas supply chain does not change or decrease by any measurable amounts even if there was a reduction in natural gas use.<sup>60</sup> Because natural gas transmission and distribution infrastructure needs to remain pressurized to maintain a reasonable level of service, SoCalGas and SDG&E assert that the amount of methane leakage remains the same even with a reduction of natural gas usage.<sup>61</sup>

Because of the lack of research on the appropriate value for the methane leakage adder, and that parties do not favor one value of the methane leakage adder relative to the other, we adopt the Base methane leakage adder as an input in the SCT. The Base methane leakage adder is derived using the national average leakage rate of 2.3%, which aligns with party recommendations, and is reasonable since 95% of the natural gas used in California is imported from out of state.

#### **6.4. Air Quality Adder**

The Air Quality Adder (AQA) measures the impact of gas generation on human health.<sup>62</sup> The IDER decision instructed Energy Division staff to test an interim AQA value of \$6.00/MWh in the study. The interim AQA value was derived based on the EPA CO-Benefits Risk Assessment Health Impacts Screening and Mapping Tool (COBRA). The IDER Decision also authorized staff to use more robust values in the SCT study if these values become available. After the IDER Decision was issued, Energy Division staff, in partnership with UC Irvine and E3, conducted a study in 2020-2021 to analyze the impacts

---

<sup>60</sup> SoCalGas/SDG&E at 7-8.

<sup>61</sup> *Ibid.*

<sup>62</sup> Staff Report at 12.

different DER resources have on air quality. In January 2022, they jointly published the results of the study in the Air Quality Impact Report.

Based on the results of the Air Quality Impact Report, Energy Division staff set an updated AQA value at \$14/MWh and tested this updated AQA value in the SCT study. With an AQA value of \$14/MWh, the SCT estimates that society would incur \$14 in monetized costs of adverse health impact for every megawatt-hour of energy produced by gas generation. Compared to the interim AQA value of \$6/MWh, the updated AQA value of \$14/MWh attributes a higher cost of gas generation's impact on human health. According to staff, the updated AQA is more accurate than the interim AQA, because the updated AQA is derived from the most recent air quality modelling.<sup>63</sup>

Many parties<sup>64</sup> agree or do not object to adopting an AQA as an input in the SCT and to adopting the \$14/MWh value from the Air Quality Impact Report as the AQA. PG&E, however, recommends limiting the use of the AQA to programs that are targeted at mitigating air pollution and not adopting the AQA as a core component of the SCT.<sup>65</sup> PCF and the Center have reservations but are amenable to adopting the AQA as an interim value.<sup>66</sup>

At a value of \$14/MWh, the impact of gas generation on human health is not insignificant and should be evaluated and modelled in the SCT. We are not persuaded by PG&E's argument to limit the use of AQA to certain air pollution programs, as even DER programs not aimed at mitigating air pollution may have

---

<sup>63</sup> Quantifying the Air Quality Impacts of Decarbonization and Distributed Energy Programs in California at 44.

<sup>64</sup> PG&E, Clean Coalition, NRDC, SBUA, IREN, SoCalREN, and SEIA.

<sup>65</sup> PG&E comments at 13-14.

<sup>66</sup> PCF/Center comments at 33-34.

tangential benefits of improving air quality. Furthermore, because the \$14/MWh value is the most up-to-date and accurate estimate available of the monetized cost of human health caused by one megawatt-hour of energy produced by gas generation, we find it reasonable to adopt \$14/MWh as the AQA input in the SCT.

We find that the data results from the Air Quality Impact Study are the most updated and accurate estimates available that specifically measure the impact of climate change mitigation policies on the air quality in California. The Air Quality Impact Study used comprehensive modelling and advanced atmospheric transport modelling techniques to derive these data results. We acknowledge parties' concerns that, because the research study was conducted in 2020-2021, the data used in the Air Quality Impact Report do not necessarily perfectly reflect today's environment, and the modelling may need continual refinements over time to reflect the current regulatory and statutory environment. The data results from the Air Quality Impact Report, however, were derived from the most advanced and comprehensive atmospheric transport modelling techniques available and reflect the most updated and accurate estimates to date. Although not perfect, we find that the data results from the Air Quality Impact Report continue to be reflective of today's environment. We, therefore, find it reasonable to use the results of the Air Quality Impact Study as inputs in the SCT.

While it is ideal to use the most current data and model the current regulatory and statutory environment, it is not always possible and beneficial given the additional costs, time, and resources needed to update the model and run it with the most recent data. We allow Energy Division staff to determine whether it is appropriate to update the model with the most recent data or

continue using the current data results. If and when appropriate, Energy Division staff may propose updating the air quality modelling and the inputs in the model during future biennial updates to the ACC. Parties may also propose updates in future biennial reviews.

Contrary to the contention of SoCalGas and SDG&E, we find there is sufficient record on this issue.<sup>67</sup> The study was conducted by third party consultants in partnership with and under the purview of Energy Division staff. As with other staff studies that the Commission has adopted, parties in this proceeding were given the opportunity to comment on that study, with the majority of parties supporting or otherwise not objecting to using the results and data in the Air Quality Impact Study as inputs into the SCT.

Some parties<sup>68</sup> express desire for the model to generate more local air quality values that are specific to general geographic areas, rather than the statewide average produced in the study. SBUA, Center, and PCF note that air pollution is generally more concentrated in low-income and disadvantaged communities which are often exposed to degraded air quality.<sup>69</sup>

Staff recognizes that the impact of gas generators on air quality varies by region, but we currently lack reliable methods to correlate marginal changes in a local customer's electricity consumption with marginal changes in generation from specific fossil-fueled generators. Thus, as stated in the Staff Report, there are technical limitations that make modelling local impacts of demand-side behavior not feasible.<sup>70</sup> Given that today's modelling techniques are not able to

---

<sup>67</sup> SoCalGas/SDG&E comments at 10.

<sup>68</sup> NRDC, 350 Bay Area, SEIA, PCF, Center, and SBUA.

<sup>69</sup> SBUA comments at 9; PCF/Center comments at 23.

<sup>70</sup> Staff Report at 14-15.

model local air quality impacts, the AQA value of \$14/MWh we adopt in this decision is the statewide estimate of the avoided costs of natural gas generation on human health.

### **6.5. Treatment of Federal Tax and Benefits**

As discussed below, we decline to modify the current treatment of federal tax credits and subsidies under the SPM. Federal tax credits or subsidies will continue to be excluded in the calculation of the SCT.

Under the SPM, federal tax benefits or subsidies are not included as a benefit when calculating the SCT. The SPM states, “tax credits are treated as a transfer payment in the Societal Test, and thus are left out.”<sup>71</sup> In the Staff Report, however, federal tax benefits are included in the calculation of the SCT.

Parties have different opinions as to whether federal tax benefits and subsidies, such as EV tax credits, should be included in the calculation of the SCT. While some parties<sup>72</sup> argue that the SCT should account for federal tax credits, benefits, or subsidies, most parties<sup>73</sup> support the current model under the SPM in which federal tax benefits are excluded from the calculation of the SCT. SoCalGas and SDG&E assert that including federal tax benefits in the SCT creates a paradigm inconsistency which contradicts the intended purpose of the SCT and argue that including federal tax benefits into the SCT inappropriately creates a bias favoring DERs.<sup>74</sup> PG&E and SCE assert if benefits and costs are measured from the perspective of the society, as intended for the SCT, any tax incentive is

---

<sup>71</sup> California Standard Practice Manual: Economic Analysis of Demand-Side Programs and Projects, October 2011, at 19.

<sup>72</sup> SEIA, Clean Coalition, PCF, and Center.

<sup>73</sup> Cal Advocates, SCE, PG&E, SoCalGas, SDG&E, CUE, UCAN, NRDC, and Recurve.

<sup>74</sup> SoCalGas and SDG&E comments at 9.

theoretically a transfer payment between one member of the society to another.<sup>75</sup> Cal Advocates and SCE argue that other cost-effectiveness tests, such as the TRC, are the appropriate cost-effectiveness tests where federal tax benefits should be captured, but not the SCT.<sup>76</sup>

We decline to modify the current treatment of federal tax credits and subsidies under the SPM. Federal tax credits or subsidies will continue to be excluded in the calculation of the SCT. The purpose of the SCT is to perform cost-effectiveness evaluation of DERs under the perspective of the society by weighing societal costs against societal benefits. Under the paradigm of a societal cost-benefit perspective, tax payments or credits are transfers of payments between different members of society that net to zero. Including federal tax benefits in the SCT not only leads to inconsistent modelling and measurement of societal costs and benefits, but also inappropriately favors DERs such that the SCT may determine DERs to be more cost-effective than they are. Federal tax credits may be more appropriately considered as benefits in other cost-effectiveness tests in which measuring and comparing monetary costs and benefits to ratepayers is the explicit purpose of the tests.

## **7. Comments on Proposed Decision**

The proposed decision of ALJ Elaine Lau in this matter was mailed to the parties in accordance with Section 311 of the Public Utilities Code and comments were allowed under Rule 14.3 of the Commission's Rules of Practice and Procedure. Comments were filed on \_\_\_\_\_, and reply comments were filed

---

<sup>75</sup> PG&E comments at 11-12; SCE comments at 7.

<sup>76</sup> SCE comments at 7; Cal Advocates comment at 5.

on \_\_\_\_\_ by \_\_\_\_\_. (ALJ, please be sure to complete the STAR instruction sheets fully).

### **8. Assignment of Proceeding**

Darcie L. Houck is the assigned Commissioner and Elaine Lau is the assigned Administrative Law Judge in this proceeding.

### **Findings of Fact**

1. Societal Costs are the monetized indirect costs that result from the provision of energy service borne by all members of society, including future generations, and include the costs of adverse health impacts, air pollution, climate change, and other environmental damages resulting from the production of energy.
2. The costs and benefits to the environment, including air quality, are encompassed in the quantification of societal costs.
3. The SCT is designed to incorporate the quantified societal costs and benefits of avoided energy generation, including the costs to the environment and air quality, in measuring the cost-effectiveness of DER programs.
4. The SCT is one of the five cost-effectiveness tests identified in the SPM to assess DER programs.
5. The other four cost-effectiveness tests identified in the SPM are the Participant test, RIM test, PAC test, and TRC test.
6. Pursuant to the IDER Decision, the TRC test, which assesses cost-effectiveness from the perspectives of the program administrator and the program participant, is currently the primary cost-effectiveness test to assess DER programs.
7. The IDER Decision authorized Energy Division staff to perform an evaluation of the SCT in the IRP proceeding.

8. The IDER Decision directed Energy Division to test three inputs of the SCT, which are the societal discount rate, the avoided social cost of carbon, and the air quality adder, and authorized the testing of a fourth input, the methane leakage adder.

9. In January 2022, Energy Division staff issued the Staff Report, with the results of its study on the impacts of using an SCT.

10. The Staff Report shows that using central estimates for all four societal cost components in the SCT leads to minimal changes to the supply-side energy resources and minimal changes to the cost-effectiveness of DERs, except to electrification measures.

11. In January 2022, E3 and APEP jointly published the Air Quality Impact Report, which quantifies the impacts of climate change mitigation and air pollution mitigation policies on the health of people living in California using comprehensive modeling of air quality impacts.

12. The SCT provides the Commission with the critical analyses needed to evaluate, measure, and consider societal costs and benefits when assessing the cost-effectiveness of demand-side energy resources.

13. The adoption of an information-only SCT gives the Commission the flexibility to consider and balance multiple factors and achieve broader social goals, such as those outlined in the DER Action Plan 2.0 and the ESJ Action Plan, when appropriate.

14. The record does not support the claim that the evaluation of societal costs and benefits of avoided generation is only relevant to certain DER proceedings.

15. The SCT is relevant in all Commission activities requiring DER cost-effectiveness analysis.

16. The SPM does not limit the application of the SCT to certain settings.

17. Requiring the SCT across all DER proceedings ensures that societal costs and benefits are considered in all DER proceedings.

18. Requiring SCT results to be submitted across all Commission activities where DER cost-effectiveness analysis occurs ensures that societal costs and benefits are considered.

19. The SCC measures the costs of the damages, discounted to present value, caused by one additional ton of carbon dioxide emitted.

20. Energy Division staff, in compliance with the IDER Decision, tested two values of SCC, the High SCC and the Base SCC.

21. The Base SCC value assumes approximately \$53 (in nominal 2020 dollars) of damages per metric ton of carbon dioxide emitted.

22. The High SCC, which reflects the 95th percentile of possible climate impacts from IWG's modeling, assumes approximately \$144 (in nominal 2020 dollars) of damages per metric ton of carbon dioxide emitted.

23. The Base SCC is currently consistent with values that have been used by the federal government, California Air Resources Board and the National Academies of Science.

24. Recent scientific research and studies show that the social costs of carbon may be similar to or even greater than the High SCC value.

25. Using the SCT results of modelling the High SCC value to guide the approval of demand-side resource programs could lead to increased electric rates and decrease affordability.

26. Adopting both the Base SCC and High SCC values as inputs in the SCT provides the Commission with analyses of a range of societal outcomes and costs.

27. Conducting the SCT with both the Base SCC and High SCC values provides the Commission with analyses of a range of societal outcomes and costs as well as policy options to determine the best societal outcome while balancing ratepayer costs and affordability.

28. The Social Discount Rate is the discount rate used in the SCT model to discount future social costs to the present.

29. A higher discount rate causes future costs to be valued less and a lower discount rate causes future costs to be valued more.

30. The IDER Decision specified testing both the Social Discount Rate of three-percent and the utilities' weighted average cost of capital, which was five-percent.

31. Recent studies show that the actual social discount rate may be lower than the social discount rates that staff tested.

32. Between the rates that were tested in the study for the Staff Report, which were three percent and the weighted average cost of capital of five percent, three percent is the lower of the two rates.

33. The Base methane leakage adder is derived from IWG's main value stream for the projected social cost of methane, using the national average leakage rate of 2.3%.

34. Because California imports approximately 95% of its natural gas, the total lifecycle leakage rate of methane from the natural gas consumed in California is likely closer to the estimated national average leakage rate of 2.3% of consumption.

35. There is a lack of research on the appropriate value for the methane leakage adder.

36. The AQA measures the impact of gas generation on human health.

37. The IDER decision ordered Energy Division staff to test an interim AQA value of \$6.00/MWh in the study and authorized staff to use more robust values in the SCT study if these values become available.

38. Based on the results of the Air Quality Impact Report, Energy Division staff set an updated AQA value at \$14/MWh and tested this updated AQA value in the SCT study.

39. With an AQA value of \$14/MWh, the SCT estimates that the society would incur \$14 in monetized costs of adverse health impact for every megawatt-hour of energy produced by gas generation.

40. Compared to the interim AQA value of \$6/MWh, the updated AQA value of \$14/MWh attributes a higher cost of gas generation impacts on human health.

41. The updated AQA is also more accurate than the interim AQA, because the updated AQA is derived from the most recent air quality modelling.

42. At a value of \$14/MWh, the impact of gas generation on human health is not insignificant and should be evaluated and modelled in the SCT.

43. The AQA value of \$14/MWh is the statewide estimate of the avoided costs of natural gas generation on human health.

44. The data results from the Air Quality Impact Report were derived from the most advanced and comprehensive atmospheric transport modeling techniques available and reflect the most updated and accurate estimates of the impacts of climate change mitigation policies on the air quality in California.

45. The data results from the Air Quality Impact Report are reflective of today's environment.

46. The updated AQA value of \$14/MWh is the most up-to-date and accurate estimate available.

47. Under the SPM, federal tax benefits or subsidies are treated as transfer payments from one member within the society to another and are not included as a benefit when calculating the SCT.

48. Under the paradigm of a societal cost-benefit perspective, tax payments or credits are transfers of payments between different members of society that net to zero.

49. Including federal tax benefits in the SCT not only leads to inconsistent modelling and measurement of societal costs and benefits, but also inappropriately favors DERs such that the SCT may determine DERs to be more cost-effective than they are.

50. Section 701.1(c) states that, “in calculating the cost-effectiveness of energy resources, including conservation and load management options, the commission shall include, in addition to other ratepayer protection objectives, a value for any costs and benefits to the environment, including air quality.”

51. Section 701.1(c) mandates the Commission to consider the costs and benefits to the environment, including air quality, when assessing the cost-effectiveness of energy resources.

### **Conclusions of Law**

1. The Commission should adopt the SCT with the following four inputs:

(a) Two Values for the Social Cost of Carbon (SCC):

Base SCC = per metric ton values (in nominal 2020 dollars) in the range of approximately \$53 in 2020 and approximately \$81 in 2045

High SCC = per metric ton values (in nominal 2020 dollars) in the range of approximately \$155 in 2020 and approximately \$249 in 2045 (95th percentile of possible climate impacts)

(b) Social Discount Rate of three-percent

(c) Base Value of Methane Leakage (Based on the National Average Natural Gas Leakage Rate of 2.3%)

(d) A Statewide Air Quality Adder of \$14 per megawatt-hour

2. The SCT, described and being considered for adoption in this decision, complies with the statutory mandates in Section 701.1(c) for the Commission to include environmental values, including air quality values, in resource cost-effectiveness evaluation.

3. The Commission should adopt the SCT as an information-only cost-effectiveness test.

4. The Commission should not use the results of the SCT as the primary determinant in making cost-effectiveness assessments and funding decisions for DER programs.

5. The Commission should retain the TRC as the primary DER cost-effectiveness test in making cost-effectiveness assessments and funding decisions for demand-side resource programs.

6. As an information-only cost-effectiveness test, the Commission should review and consider the results of the SCT to assess the cost-effectiveness of DER programs.

7. The investor-owned utilities or program administrators should be required to submit SCT results in all Commission activities requiring cost-effectiveness analysis of DERs, except where expressly prohibited by statute or Commission decision.

8. It is appropriate to maintain the current treatment of federal tax credits and subsidies under the SPM, in which federal tax credits or subsidies are not included in the calculation of the SCT.

9. It is reasonable to use the results of the Air Quality Impact Report to derive inputs in the SCT.
10. The proceeding should remain open.

## O R D E R

### IT IS ORDERED that:

1. The Societal Cost Test is adopted as an additional information-only cost-effectiveness Distributed Energy Resource test.
2. The following values are adopted as inputs in the Societal Cost Test (SCT):
  - (a) Social Discount Rate of three-percent.
  - (b) A Statewide Air Quality Adder of \$14 per megawatt-hour.
  - (c) Two Values for the Social Cost of Carbon (SCC):
    - i. Base SCC = per metric ton values (in nominal 2020 dollars) in the range of approximately \$53 in 2020 and approximately \$81 in 2045;
    - ii. High SCC = per metric ton values (in nominal 2020 dollars) in the range of approximately \$155 in 2020 and approximately \$249 in 2045 (95th percentile of possible climate impacts); and
  - (d) Base Value of Methane Leakage (Based on the National Average Natural Gas Leakage Rate of 2.3%).

The values adopted in this decision as inputs for the SCT may be re-evaluated during any Avoided Cost Calculator update cycle as appropriate.

3. In the draft resolution adopting the 2024 updates to the Avoided Cost Calculator, Energy Division will integrate an optional setting within the Avoided Cost Calculator that replaces standard values with the Societal Cost Test values.
4. Beginning 60 days after the resolution adopting the 2024 Avoided Cost Calculator, the investor-owned utilities or program administrators shall be required to submit Societal Cost Test results in all Commission activities

requiring cost-effectiveness analysis of Distributed Energy Resource proceedings, except where expressly prohibited by statute or Commission decision.

5. Beginning 60 days after the resolution adopting the 2024 Avoided Cost Calculator, all Commission activities, including filings and submissions requiring cost-effectiveness analysis of Distributed Energy Resources, except where expressly prohibited by statute or Commission decision, shall also review and consider the results of the Societal Cost Test

6. Rulemaking 22-11-013 remains open.

This order is effective today.

Dated \_\_\_\_\_, 2024, at San Francisco, California