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California Energy Commission

STAFF GUIDELINES

DRAFT
Publicly Owned Utility Integrated Resource Plan Submission and Review Guidelines

California Energy Commission

Edmund G. Brown Jr., Governor

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California Energy Commission

David Vidaver
Garry O'Neill-Mariscal
Melissa Jones
Paul Deaver
Robert Kennedy
Primary Authors

Garry O'Neill-Mariscal
Project Manager

Marc Pryor
Acting Office Manager
SUPPLY ANALYSIS OFFICE

Sylvia Bender
Deputy Director
ENERGY ASSESSMENTS DIVISION

Robert P. Oglesby
Executive Director

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The *Draft Publicly Owned Utility Integrated Resource Plan Submission and Review Guidelines* was prepared with contributions from the following staff:

Bryan Early

Courtney Smith

Emily Lemei

Galen Lemei

Harinder Kaur

Jana Romero

Jann Mitchell

Kourtney Vaccaro

Martha Brook

Matt Coldwell

Michael Nyberg

Michael Sokol

Noel Crisostomo

Richard Jensen

Tim Olson

ABSTRACT

The *Publicly Owned Utility Integrated Resource Plan Submission and Review Guidelines* specify the requirements for submitting information, data, and reports needed to support the California Energy Commission's review of integrated resource plans submitted by the specified publicly owned electric utilities in accordance with Senate Bill 350 (De León, Chapter 547, Statutes of 2015).

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CHAPTER 1: Introduction

The California Energy Commission developed these guidelines to implement and administer portions of Public Utilities Code (PUC) Section 9622, relating to publicly owned utility (POU) integrated resource plans (IRPs) as codified by the Clean Energy and Pollution Reduction Act of 2015 (SB 350).[1] PUC Section 9621 applies to local publicly owned utilities with an average electrical demand exceeding 700 gigawatt hours, as determined on a three-year average commencing January 1, 2013 (hereinafter "Filing POUs" or "POU"). The guidelines specify the requirements for the submission of POU IRPs and information and data needed to support the Energy Commission's review of IRPs. They also specify the Energy Commission's process for reviewing IRPs and recommending corrections for deficiencies.

Under PUC Section 9622 (c), the Energy Commission's development and adoption of these guidelines is exempt from the Administrative Procedure Act (Government Code Section 11340, et. al.), but it is required to follow a specified public process, including public notice and opportunity for public comment.

A. Background

On October 7, 2015, Governor Edmund G. Brown, Jr. signed SB 350 into law. Among other things, SB 350 increased the Renewables Portfolio Standard (RPS) procurement target from 33 percent to 50 percent of retail sales by 2030 and requires the doubling of energy efficiency savings in retail end uses by 2030.

SB 350 requires specified POUs to adopt IRPs consistent with PUC Section 9621. Many utilities already develop long-term planning documents intended to inform utility owners, ratepayers, investors, and board members of the planning strategy for achieving high-level policy goals.

PUC Section 9622 requires the Energy Commission to review POU IRPs to determine if they are consistent with PUC Section 9621. PUC Section 9622 also requires the Energy Commission to provide recommendations to correct deficiencies within the IRP if the IRP is inconsistent with the requirements of PUC Section 9621. PUC Section 9622 authorizes the Energy Commission to adopt guidelines to govern the submission of information, data, and reports needed to support Energy Commission review of POU IRPs.

SB 350 also directs the Energy Commission to establish energy efficiency targets that achieve a statewide cumulative doubling of energy efficiency savings in electricity and

1 Senate Bill 350, De León, Chapter 547, Statutes of 2015

natural gas final end uses by 2030, to the extent doing so is cost-effective and feasible and does not adversely impact public health and safety. In establishing these targets, SB 350 requires the Energy Commission to conduct a public process that engages with stakeholders. This public process is being carried out separately as part of the *2017 Integrated Energy Policy Report* (2017 IEPR) proceeding under Docket 17-IEPR-06.

SB 350 added PUC Section 9621 (b) (1) requiring that POU IRPs be developed to achieve greenhouse gas (GHG) emissions reduction targets established by the California Air Resources Board (CARB), in coordination with the California Public Utilities Commission (CPUC) and the Energy Commission, for the electricity sector and each local publicly owned electric utility that reflect the electricity sector's percentage in achieving the economywide GHG emissions reductions of 40 percent from 1990 levels by 2030. The GHG targets will be considered by the CARB in late 2017.

CHAPTER 2:
Integrated Resource Plan Filing Contents

POU IRPs must be consistent with the requirements of PUC Section 9621. In addition to the IRP, the "IRP Filing" submitted to the Energy Commission must include four Standardized Tables and "Supporting Information" needed to support the Energy Commission's review of IRPs for consistency with PUC Section 9621.

A. Planning Horizon

To meet the requirements of PUC Section 9621, each IRP Filing must include data and supporting information throughout a planning horizon appropriate for analyzing the implications and targets prescribed by PUC Section 9621. The minimum planning horizon that achieves this objective begins no later than January 1 of the year that the POU's governing board adopts the plan and ends no earlier than December 31, 2030. Although not required, POUs are encouraged to undertake and present analysis in IRP Filings that addresses the post-2030 period.

B. Scenarios and Sensitivity Analysis

An IRP Filing must include at least one scenario analyzed over the planning horizon that meets the requirements of PUC Section 9621. POUs are encouraged to evaluate other scenarios and sensitivity analyses to evaluate the feasibility and cost-effectiveness (and rate impacts) of alternative resource options. Although not required, POUs are encouraged to submit analyses of alternatives, as they may provide information beneficial to ratepayers, other utilities, and policy makers.

C. Standardized Tables

POUs must submit the following four Standardized Tables to the Energy Commission as part of the IRP Filing. The Energy Commission encourages POUs to submit data for multiple scenarios, though POUs are only required to submit data for the required scenario. Annual data must be reported in the Standardized Tables through the Planning Horizon.

- Capacity Resource Accounting Table (CRAT): Annual peak capacity demand in each year and the contribution of each energy resource (capacity) in the POU's portfolio to meet that demand.
- Energy Balance Table (EBT): Annual total energy demand and annual estimates for energy supply from various resources.
- RPS Procurement Table (RPT): A detailed summary of a POU resource plan to meet the RPS requirements.

- GHG Emissions Accounting Table (GEAT): Annual GHG emissions associated with each resource in the POU's portfolio to demonstrate compliance with the GHG emissions reduction targets established by CARB.

D. Supporting Information

Supporting Information for an IRP Filing refers to (1) analyses, studies, data, and work papers, or other material (on which inputs, assumptions, or conclusions are based) that the POU used or relied upon in creating the IRP (such as, but not limited to, market conditions current at the time of the analyses, energy infrastructure, state policies and laws, and needs of the Filing POU) but are not included in the IRP itself; and (2) additional information required by these guidelines. Supporting Information supplements the data submitted in the Standardized Tables and must be submitted to the Energy Commission as part of the IRP Filing. Supporting Information can be developed specifically for the IRP Filing or can be an existing document submitted or incorporated by reference as described in Chapter 3.

The Energy Commission recommends that, as appropriate, supporting analyses are updated within the 24 months prior to adoption of IRPs. POUs should indicate where prior analysis remains relevant and retains value to avoid duplication of effort in filing updated IRPs.

E. Demand Forecast

Complying with PUC Section 9621 will require Filing POUs to use or develop a demand forecast. The Energy Commission recommends using the *California Energy Demand Forecast* developed annually as part of the *Integrated Energy Policy Report* (IEPR).

1. Reporting Requirements

The Filing POUs must report annual forecasted peak demand (megawatt [MW]) in the CRAT and annual forecasted retail sales, other loads, and net energy for load in the EBT. The demand forecast is a necessary input to determining the resource procurement needs of the POU. The method for developing the POU's demand forecast is needed by the Energy Commission to support the review of the IRP.

2. Demand Forecast Methodology and Assumptions

The IRP Filing must describe the demand forecasting methodology and assumptions used. If the POU uses a demand forecast developed by Energy Commission or another public source, the IRP Filing must include that forecast as part of Supporting Information.

If the POU develops the demand forecast, the IRP Filing must include the assumptions for expected growth in electricity demand given assumed economic conditions, demographic changes, climate change impacts, and demand-side resources. For

example, economic and demographic assumptions can include future estimates of unemployment, population growth, number of households, housing starts, global oil prices and global growth, gross state product, electric rates, and tax policies. To the extent economic conditions and demographic assumptions are used in Filing POU demand forecasts and are primary drivers of demand growth, these must be provided to the Energy Commission as Supporting Information.

The Energy Commission encourages the Filing POUs to include other forecasts in their IRP Filing, such as forecasts based on different outlooks for economic and demographic assumptions, for example, a high-growth case and a low-growth case.

3. Demand Forecast – Other Regions

If the POU undertakes system modeling as part of the IRP development, the IRP Filing must include the demand forecast assumptions for regions outside the POU jurisdiction.

F. Resource Procurement Plan

The IRP Filing must report the mix of resources used by the POU in the IRP. This information must be reported on the CRAT, EBT, and GEAT, and RPS procurement must also be reported on the RPT. In addition, to the extent the information is not included in the IRP Filing, inputs, assumptions, and methodologies must be provided as Supporting Information.

1. Diversified Procurement Portfolio

The IRP Filing must provide data sufficient to demonstrate a diversified procurement portfolio consisting of both short-term and long-term electricity, electricity-related, and demand response products. This can be met by providing the Standardized Tables and other filing requirements included in the guidelines, as discussed in the following sections.

2. RPS Planning Requirements

PUC Section 9621 requires POUs to adopt an IRP that ensures the POU procures at least 50 percent eligible renewable energy resources by 2030, consistent with PUC Article 16 (commencing with Section 399.11).

POUs must report the following data in the EBT and RPT and submit relevant Supporting Information as part of the IRP Filing to allow the Energy Commission to assess whether the Filing POU's IRP includes procurement of renewable resources sufficient to meet the RPS planning requirements.

a. Forecasted RPS Procurement Targets

POUs must define the minimum procurement needed to meet the procurement requirements for each compliance period pursuant to PUC Section 399.30(c)(2). These numeric targets define the minimum procurement the Filing POU will need to meet each compliance period's procurement target. There are four compliance periods covering

2017 through 2030. Calculation of the forecasted compliance period target is based on annual retail sales (as reported in the EBT) and the POU's established RPS annual soft targets. The forecasted RPS procurement targets may be adjusted to reflect specific RPS provisions, such as voluntary green pricing programs or qualifying hydroelectric generation.

b. Renewable Procurement

POUs must provide a forecast of current procurement the POU assumes available to meet the RPS planning requirement. This may include:

- Historical Carryover from pre-2011 procurement.
- Excess Procurement from previous compliance periods.
- Utility-owned and contracted resources (as identified in the EBT).

POUs must provide a forecast of additional procurement in each compliance period. This may include:

- Utility-owned resources or contracts for energy (as identified in the EBT).
- Purchase of tradable Renewable Energy Credits.

c. RPS Procurement Plan

PUC Section 399.30 (a) (2) requires that POUs incorporate their RPS procurement plan into the IRP Filing. The substance of the POU RPS procurement plan and the frequency for updates are at the sole discretion of the POU.

The POU must include its current, adopted RPS procurement plan as Supporting Information in its IRP Filing.

d. Recommended Information

The Energy Commission encourages Filing POUs to provide additional information that would be useful for the Energy Commission's review of the IRP Filing including a description of:

- Any exemptions or optional compliance measures that may affect the POU's forecasted procurement requirements.
- POU's plan to meet the portfolio balance requirement and long-term contracting requirements.
- Any identified issues that have the potential to prevent the POU from procuring sufficient renewable resources.

3. Energy Efficiency and Demand Response Resources

PUC Section 9621 requires IRPs to address procurement for energy efficiency and demand response resources pursuant to PUC Section 9615. In addition, and to the extent that POUs rely on energy efficiency and demand response programs, IRP Filings must include the impacts of these programs. The IRP Filings may refer to, or rely on, filings to the Energy Commission under PUC Section 9505(b), or studies commissioned to estimate future potential savings. Where these filings or studies do not provide savings estimates through 2030, the method by which the estimates are extrapolated to 2030 should be explained in the IRP Filing.

a. Recommendations for Energy Efficiency and Demand Response Analysis

SB 350 requires the Energy Commission to establish annual targets for statewide energy efficiency savings and demand reduction that will achieve a cumulative doubling of statewide energy efficiency savings in electricity and natural gas final end uses of retail customers by January 1, 2030. These statewide targets must be based on a doubling of the mid-case estimate of additional achievable energy efficiency (AAEE) savings, as contained in the *California Energy Demand Updated Forecast, 2015-2025*, extended to 2030.

The Energy Commission encourages POUs to include in the IRP Filing programs and measures that will contribute toward the SB 350 goal of doubling statewide energy efficiency savings. In addition, the Energy Commission encourages POUs to identify the relationship between (a) AAEE savings assumed in the IRP Filing, (b) the target established by the POU under PUC Section 9505, and (c) estimates of market, economic, and technically achievable energy efficiency savings from the study or studies POUs used to establish their targets under PUC Section 9505. Discussion of POU demand response programs would also be beneficial.

The Energy Commission also encourages POUs to include in the IRP Filing the expected quantitative impacts of planned price-sensitive demand response measures that are proposed or being considered for future implementation (for example, time-of-use rates).

b. Calculating and Reporting Energy Efficiency Impacts

To the extent POUs include energy efficiency in their IRP Filing, the POU must report, on the Standardized Tables, the quantitative effects of energy efficiency programs on energy demand and peak capacity needs, including “committed energy efficiency” and AAEE as well as demand response and interruptible load programs assumed in each scenario. The IRP Filing must include these items in the standardized tables. For purposes of the Standardized Tables:

1. Committed energy efficiency includes utility and public agency programs building codes and appliance standards, and legislation and ordinances having final authorization, firm funding, and a design that can be readily translated into

characteristics capable of being evaluated and used to estimate future impacts. The effects of committed energy efficiency should be included, as a separate line item, in the reported retail sales to end-use customers discussed in Section A.1.

2. AAEE includes energy efficiency savings not yet considered committed but deemed likely to occur, including impacts from future updates of building codes and appliance standards and utility efficiency programs expected to be implemented. The effects of AAEE on peak demand must be reported in the CRAT. Annual energy savings attributed to AAEE must be reported in the EBT.

c. Calculating and Reporting Demand Response Impacts

To the extent POUs include demand response in their IRP Filing, the POU must report, on the Standardized Tables and in Supporting Information, as applicable the effect of demand response and interruptible load programs in the CRAT as a line item for the peak capacity value (in total) of event-triggered demand response programs.

4. Energy Storage

PUC Section 9621 requires IRPs to address procurement for energy storage requirements pursuant to PUC Chapter 7.7 (commencing with PUC Section 2835).

a. Recommendations for Energy Storage Analysis

The Energy Commission provides the following recommendations for addressing procurement for energy storage in IRP Filings. To the extent possible, describe the following:

1. The possible role that storage can play to address over-generation concerns and meet evening ramps while reducing the need for generation from specific gas-fired generation or market sources. Consider including:
    a. A narrative assessment of the suitability of multihour storage as a resource to resolve overgeneration from the utility's portfolio given the seasonal profile and frequency of overgeneration, or to meet evening ramping needs.
    b. The amount of multihour storage (MW/MWh range) that might cost-effectively mitigate overgeneration and/or contribute to meeting evening ramping needs.
2. Any quantitative analyses undertaken by the POU or referenced in the IRP Filing that evaluates the cost-effectiveness of multihour storage compared to other resources that meet evening ramping needs.

5. Transportation Electrification

PUC Section 9621 requires IRPs to address procurement for transportation electrification.

a. Recommendations for Transportation Electrification Analysis.

The transportation sector accounts for nearly 40 percent of statewide GHG emissions. Transportation electrification is an important strategy for meeting the state's long-term GHG emission reduction goals. In addressing procurement for transportation electrification, POUs are encouraged to include the following information, to the extent possible, in the IRP Filing:

1. Charging profiles (for example, monthly, daily, or hour load profiles) assumed for light-duty plug-in electric vehicle (LD PEV) forecasted through 2030 and assumed tariff(s) designed to influence that profile.
2. Current amount, type (e.g. Level 1, Level 2, DC fast charge), and location (for example, single-family dwelling, multi family dwelling, workplace, public) of charging infrastructure in the POU service territory, and any investment plans to expand charging infrastructure.
3. Other transportation electrification deemed significant, including, but not limited to, medium- and heavy-duty vehicle electrification, public transit, rail, port, and other goods movement electrification, and the associated GHG emissions impacts.
4. How investments are prioritized to promote electrification in the different transportation sectors.
5. Utility costs associated with serving transportation electrification (for example, distribution line and service extension upgrades, distribution system impacts, mitigative, or protection measures).
6. How transportation electrification investments are aligned with statewide goals and policies (for example, Executive Orders B-16-2012 and B-32-15 and the subsequent *2016 Zero Emission Vehicle Action Plan*, *2016 Mobile Source Strategy*, *California Sustainable Freight Plan*, and *California Vehicle-Grid Integration Roadmap.*
7. Plans to coordinate with adjacent or similarly situated utilities to meet broader community or regional infrastructure needs and ensure harmonious inter-territory operations of electric transportation technologies.
8. Current or planned programs to promote transportation electrification in disadvantaged communities.
9. Customer education and outreach efforts being implemented to inform customers about programs, tariffs, and other opportunities to advance transportation electrification. These may include efforts to coordinate with facilities that host a large number of mobile emissions sources within its service territory (for example, parking facilities, ports, airports, or distribution centers).

10. Coordination of transportation electrification investments and incentives with other distributed energy resource programs or planning.
11. Timeline and plan for collecting and sharing the data and information described in this section, if a Filing POU is unable to provide at this time.

The Energy Commission encourages continued dialogue on how it can partner and support POU efforts to incorporate transportation electrification analysis in IRPs.

b. Calculating and Reporting Transportation Electrification Impacts

To the extent POUs include transportation electrification in their IRP Filings, the following must be reported on the Standardized Tables and in Supporting Information, as applicable.

1. Accounting of increased electrical load from transportation electrification through 2030, as reported on the CRAT and EBT.
2. Accounting of net GHG emissions impact of transportation electrification based on increased electrical load and decreased transportation emissions through 2030.

The Energy Commission staff, in coordination with CARB staff, developed a calculator that may be helpful to POUs in calculating the transportation sector GHG emissions reductions and electrical load associated with LD PEV deployment. POUs may use the calculator tool or explain the accounting, if different input assumptions or methodologies are used. This calculator is further described in Appendix C.

G. System and Local Reliability

PUC Section 9621 requires POUs to adopt an IRP that ensures that the POU meets the goal of ensuring system and local reliability. To support the Energy Commission's review, the IRP Filing must provide the following information.

1. Reliability Criteria

In the CRAT, the Filing POU must include projections of annual peak capacity needs and the contribution of both demand and supply-side resources. Demand side resources include AAEE, demand response, and interruptible load programs. Supply-side resources include generation, electricity storage resources (both utility-owned and under long-term contract), and short-term and spot market purchases.

In addition to the data reported in the CRAT, the IRP Filing is required to report how the planning reserve margin was determined. The IRP Filing must also include any other planning reserves and reliability criteria that apply to the utility service area. The POU must use the minimum planning reserve and reliability criteria approved by the Board of

Trustees of the Western Systems Coordinating Council or the Western Electricity Coordinating Council, which is in effect when the analysis is performed.

2. Local Reliability Area

The IRP Filing must identify any local transmission constrained areas in the POU service territory, where loads can be reliably served only if there is sufficient local dispatchable generation capacity that provides operating reserves and associated energy under high-load conditions. POUs in the California Independent System Operator (California ISO) footprint that meet the local reliability needs must provide in the IRP Filing estimates of the requirements and the resources that may be used to meet the needs -such as utility-owned generation, long-term contracts for generation and storage, and short-term resource adequacy planned contracts for capacity with resources under local resource adequacy contracts.

POUs in other California balancing authority areas must include in the IRP Filing existing or emerging local capacity needs arising from transmission constraints and how they are expected to be met. POUs are encouraged to discuss or refer to transmission solutions to emerging local capacity shortfalls or to reduce local capacity needs in the section of the IRP Filing devoted to satisfying the requirements set forth in PUC Section 9621.

3. Flexible Capacity

Substantial amounts of both customer-side-of-the-meter (or behind-the-meter) and central-station solar generation capacity are being developed throughout the state to meet the RPS. The IRP Filing must demonstrate that the POUs resource portfolio contains sufficient flexible, dispatchable resources to address any potential over-generation and meet ramping needs associated with solar generation.

IRP Filings must include information regarding estimates of potential over generation and the disposal (curtailment and market sale) of surplus energy during mid-day hours. In addition, the IRP Filing must present details of demand and supply conditions (representative daily load profiles and “supply-resource stacks”) for periods when over-generation occurs and when early evening ramping needs are greatest.

H. Greenhouse Gas Emissions

PUC Section 9621 requires POUs to adopt an IRP to ensure the utility meets the GHG emissions reduction target established by CARB by 2030. POUs report in the GEAT estimated emissions intensities (in metric tons of carbon dioxide equivalent [CO2e] per/megawatt hour [mt CO2e/MWh] for each supply resource reported in the EBT. The IRP Filing must include Supporting Information (such as a narrative discussion) to support assumptions on net emissions impacts from existing and planned programs expected to reduce net GHG emissions.

I. Retail Rates

PUC Section 9621 requires POUs to adopt an IRP to ensure the POU achieves the goals of fulfilling its obligation to serve its customers at just and reasonable rates and minimizing impacts on ratepayer bills. The IRP Filing must include, as Supporting Information, a report or study on rate impacts under the IRP scenario. Filing POUs are also encouraged to identify elements of the IRP or scenarios that result in large ratepayer impacts.

J. Transmission and Distribution Systems

PUC Section 9621 requires POUs to adopt an IRP to ensure that the POU achieves the goal of strengthening the diversity, sustainability, resilience of the bulk transmission, distribution systems, and local communities.

1. Bulk Transmission System

The IRP Filing must include a discussion of any bulk transmission system reliability concerns, and measures to mitigate them over the planning horizon, including the following, as applicable:

a. Upgrades to transmissions system needed to integrate central station renewable resources.

b. Transmission systems upgrades for strengthening and improving the reliability of the bulk transmission system, including proposed on-line dates for the upgrades.

2. Distribution System

The IRP Filing must include a discussion of any distribution system reliability concerns and measures to mitigate them over the planning horizon, including the following, as applicable:

a. Upgrades or enhancements to the distribution system, including those intended to reliably integrate distributed generation.

b. Upgrades to communications and information technology intended to integrate demand-side energy management.

K. Localized Air Pollutants and Disadvantaged Communities

PUC Section 9621 requires the POUs to adopt IRPs to ensure the POU achieves the goal of minimizing localized air pollutants and other GHG emissions, with early priority on disadvantaged communities identified pursuant to Section 39711 of the Health and Safety Code (HSC). HSC Section 39711 requires the California Environmental Protection

Agency (CalEPA) to identify disadvantaged communities based on geographic, socioeconomic, public health, and environmental hazard criteria.[2]

CalEPA identifies disadvantaged communities using the California Communities Environmental Health Screening Tool, available on its website.[3]

1. Reporting Requirements

IRP Filings must include a discussion of current programs and policies in place to address local air pollution, new and existing emissions reductions programs focused on disadvantaged communities, and efforts to identify disadvantaged communities in the POU service territory, if applicable.

2. Other Recommended Topics

The Energy Commission encourages POUs to report in IRP Filings how programs and means to achieve state energy policy can assist and prioritize disadvantaged communities. For example, the Energy Commission recommends POUs report in the IRP Filing any POU program or measure designed to encourage the deployment of distributed energy resources in disadvantaged communities, including any programs for which income-related eligibility requirements have been or will be established.

The Energy Commission also encourages POUs to implement relevant recommendations included the Energy Commission's 2016 report *Low-Income Barriers Study, Part A: Overcoming Barriers to Energy Efficiency and Renewables for Low-Income Customers and Small Business Contracting Opportunities in Disadvantaged Communities* (Barriers Study).[4] The Barriers Study includes 12 recommendations aimed at increasing Low-Income Customers' access to energy efficiency and renewable energy and the benefits they enable. Specific recommendations affecting POUs include the following:

- The governing boards of POUs might consider developing community solar offerings for low-income customers within their territories.
- The governing boards of POUs might consider developing or expanding pilot programs that provide solar for low-income customers and disadvantaged communities.

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2 Section 39711 of the Health and Safety Code requires the California Environmental Protection Agency identify disadvantaged communities based on geographic, socioeconomic, public health, and environmental hazard criteria.

3 https://www.calepa.ca.gov/files/2017/04/SB-535-Designation-Final.pdf.

4 Scavo, Jordan, Suzanne Korosec, Esteban Guerrero, Bill Pennington, and Pamela Doughman. 2016. *Low-Income Barriers Study, Part A: Overcoming Barriers to Energy Efficiency and Renewables for Low-income customers and Small Business Contracting Opportunities in Disadvantaged Communities.* California Energy Commission. Publication Number: CEC-300-2016-009-CMF.

To support implementation of the other Barriers Study recommendations and other goals included in SB 350, the Energy Commission encourages POUs to include the following additional information related to low-income customers and disadvantaged communities in IRP Filings:

- Indicators used by the POU for tracking impacts and benefits of its programs on low-income customers and/or disadvantaged communities.
- Specific strategies for maximizing the contribution of energy efficiency savings in disadvantaged communities.
- Labor, workforce, and training programs designed to provide benefits to low-income customers, including those that live in disadvantaged communities.
- Financing mechanisms offered by the POU to improve access and participation of low-income customers in clean energy programs.
- Efforts by the POU to increase contracting opportunities for small businesses in low-income and disadvantaged communities.

Chapter 3:
Integrated Resource Plan Filing and Review Procedures

On or before January 1, 2019, the governing board of a Filing POU is required to adopt an IRP and a process for updating the plan at least every five years. The Filing POU is solely responsible for its planning processes and procurement decisions including development of an optimum resource mix that meets the requirements of PUC Section 9621.

The following rules govern the submission of IRP Filings to the Energy Commission and Energy Commission review of IRPs pursuant to PUC Section 9622.

A. Integrated Resource Plan Submission

POU IRPs, Supporting Information, and the four Standardized Tables must be submitted to the Energy Commission for review for consistency with PUC Section 9621 according to the following.

1. Schedule

The initial IRP adopted by the POU on or before January 1, 2019, must be submitted by the POU or authorized representative to the Energy Commission by April 30, 2019. The IRP Filing must include the IRP, Supporting Information, and the four Standardized Tables.

Updated IRPs Filings must be submitted based on the date of POU governing board adoption as follows:

- An IRP adopted in the months of June through December must be submitted to the Energy Commission by April 30 the following year.
- An IRP adopted in January or February must be submitted to the Energy Commission by April 30 the same year.
- An IRP adopted in March, April, or May must be submitted to the Energy Commission within 90 calendar days after POU governing board adoption.

2. Requesting Time Extensions

POUs that require additional time to submit the IRP Filing may request an extension by submitting a written request to the Executive Director, as described in California Code of Regulations (CCR), Title 20, Article 2, and Section 1342(c)(1).

3. Electronic Filing

Filing POUs must submit IRP Filings using the Energy Commission's electronic filing and docket process in current use at the following link.

https://efiling.energy.ca.gov/

4. Providing Supporting Information

Supporting Information described in Chapter 2 must be submitted directly to the Energy Commission through the electronic filing and docket process as an attachment or may be included by reference. If referenced material is not publicly available, it must be provided to Energy Commission staff upon request. References can be in the form identification of Energy Commission or other government agency proceeding where the material resides.

5. Requesting Confidentiality

POUs may request confidential designation for parts of an IRP Filing, according to the instructions in Appendix D. Yellow fill or yellow highlighting should be used to indicate all information and cells within the IRP, Standardized Tables, and Supporting Information for which the Filing POU is requesting confidentiality.

6. Preparation and Submission of IRP Filing

Filing POUs may choose to have a representative entity, such as an association or contractor, prepare and submit the IRP Filings on their behalf. The POU governing board must adopt the IRP before it is filed with the Energy Commission. Information in the IRP Filing must be filed in a manner that allows staff to do a utility-specific review.

B. Review of IRP Filing

PUC Section 9622 requires the Energy Commission to review POU IRPs for consistency with the requirements of PUC Section 9621. The Energy Commission will use a two-step process.

1. Step 1: Check for Completeness

Within 30 calendar days of receiving a POU IRP Filing, Energy Commission staff will review the IRP Filing to ensure it includes the IRP, the four Standardized Tables, and required Supporting Information.

A POU will be notified by Energy Commission staff if the IRP Filing is incomplete with a request for more information as described in Section (B)(3) of Chapter 3.

2. Step 2: Review for Consistency with IRP Requirements

Within 120 calendar days of receiving a POU IRP Filing, Energy Commission staff will review IRP Filings to determine whether the IRP is consistent with the requirements of PUC Section 9621.

The Energy Commission will post the IRP Filing on its website and accept public comment on IRPs and IRP Filings for 30 days following electronic filing. Public comments related to the completeness and consistency of IRPs pursuant PUC 9621 may be considered by the Energy Commission in reviewing the IRP Filing for consistency with the requirements of PUC Section 9621.

3. Request for Information

At any time during its review, Energy Commission staff may request additional information from POUs as needed to support Energy Commission review of IRP Filings. The Energy Commission requests that POUs submit the additional information through the electronic filing system as described in Section (A)(3) of Chapter 3 within 30 calendar days.

4. Deficient IRPs

The Energy Commission will find an IRP deficient if it is inconsistent with the requirements of PUC Section 9621.

If Energy Commission staff determines the IRP is deficient, staff will provide recommendations to correct the deficiencies. Staff's recommendations will be part of the initial and final determinations.

5. Determination

The Energy Commission will issue a determination based on findings of the review.

a. Preliminary Determination

Energy Commission staff will make a Preliminary Determination of "consistent" or "deficient." If deficient, staff will make recommendations to correct deficiencies as described Section B.4. The POU may, at its election, submit a written response to staff's deficiency determination, within 30 calendar days of receiving the determination. Staff may consider and rely on the response, in full or in part, in recommending a final determination to the Energy Commission.

b. Final Determination

Energy Commission will consider adopting a Final Determination of "consistent" or "deficient" within 120 calendar days after staff's Preliminary Determination at a regularly scheduled Business Meeting. If the final determination is that the IRP is deficient, the Energy Commission will also adopt recommendations to correct the deficiencies, as described Section B.4.

6. Noncompliance with Energy Commission Guidelines

POUs will be notified of IRP Filings found non-compliant with the Guidelines for the following reasons:

a. The POU fails to submit a complete IRP Filing to the Energy Commission by the schedule set forth in the Guidelines
b. The IRP Filing is incomplete.
c. The POU does not submit an updated IRP Filing within five years of adopting an IRP.

7. Process for Updating an Integrated Resource Plan

On or before January 1, 2019, POUs are required to adopt a process for updating the IRP at least once every five years. This process must include a schedule for adopting updated IRPs. Updated IRPs must meet all of the requirements of PUC Section 9621. Updated IRP Filings must meet the requirements of these guidelines. The updated IRP Filing can refer to previous IRP Filings if the information is still relevant and was relied on in the updated IRP. If applicable, the updated IRP Filing should include a discussion on why some information has not significantly changed and information from previous IRP Filings is still relevant.

Chapter 4:
General Provisions

This Section provides information on the authority, interpretation, and effective date of the POU IRP Guidelines, as well as the process for making substantive changes to the guidelines and applicable deadlines and submission dates.

A. Effective Date

Unless specified otherwise by the Energy Commission, the POU IRP Guidelines shall take effect upon adoption by the Energy Commission at a publicly noticed Business Meeting.

B. Substantive Changes to the Guidelines

The Energy Commission may make substantive changes to the POU IRP Guidelines pursuant to PUC Section 9622(c). Substantive changes will be considered at an Energy Commission Business Meeting with no less than 10 days public notice.

C. Deadlines and Submission Dates

Submissions will meet the specified deadlines in the guidelines if they are submitted electronically using the electronic filing system and time stamped by the online system or email at or by 11:59 p.m. Pacific Time Zone on the due date. Submissions that are not properly submitted using the online system will not be deemed submitted on time. If the due date falls on a weekend or state holiday, the due date becomes the next business day.

D. Use and Disclosure of Information and Records

The Energy Commission or its authorized agents may use any information or records submitted to the Energy Commission or obtained as part of any request for information under the POU IRP Guidelines to determine compliance with PUC Section 9621 and the POU IRP Guidelines or prepare reports. The information and records include, but are not limited to IRPs and any documentation submitted in support of said IRPs; documents submitted responding to request for information; any other documentation submitted upon request of the Energy Commission; publicly available information and documents; information submitted to other state, federal, or local agencies; and any other documents provided to or obtained by the Energy Commission.

Information and records submitted under the POU IRP Guidelines may be disclosed to the public under the California Public Records Act (Government Code Section 6250, et seq.).

If, as part of any IRP Filing, required report, or request for information, the Energy Commission requires the POU to provide copies of records that the POU believes contain

proprietary information entitled to protection under the California Public Records Act or other law, the POU may request that such records be designated confidential under the Energy Commission's regulations for confidential designation, Title 20, California Code of Regulations, Section 2505. See Administration Section D: Confidentiality for more information.

ACRONYMS

Acronym	Term
2017 IEPR	*2017 Integrated Energy Policy Report*
AAEE	Additional achievable energy efficiency
Barriers Study	Low-Income Barriers Study, Part A: Overcoming Barriers to Energy Efficiency and Renewables for Low-Income Customers and Small Business Contracting Opportunities in Disadvantaged Communities
CARB	California Air Resources Board
CalEPA	California Environmental Protection Agency
California ISO	California Independent System Operator
CO_2	Carbon dioxide
CO_2e	Carbon dioxide equivalent
CPUC	California Public Utilities Commission
CRAT	Capacity Resource Accounting Table
EBT	Energy Balance Table
GEAT	GHG Emissions Accounting Table
GHG	Greenhouse gas
HSC	Health and Safety Code
IEPR	*Integrated Energy Policy Report*
IRP	Integrated resource plan
LD PEV	Light-duty plug-in electric vehicle
mt	Metric ton
MW	Megawatt
MWh	Megawatt-hour
POU	Publicly owned utility
PRC	Public Resources Code
PUC	Public Utilities Code
RPS	Renewables Portfolio Standard
RPT	RPS Procurement Table
SB 350	Senate Bill 350 (De León, Chapter 547, Statutes of 2015)

APPENDIX A: DEFINITIONS

Additional Achievable Energy Efficiency: Energy efficiency savings not yet considered committed but deemed likely to occur, including impacts from future updates of building codes and appliance standards and utility efficiency programs expected to be implemented.

Assumption: A statement made about the future for a given load forecast, or demand side or supply side energy resource, that should be used for procurement and transmission modeling purposes.

Committed Energy Efficiency: Energy efficiency savings estimated to occur from utility and public agency programs, codes, standards, legislation, and ordinances having final authorization, firm funding, and a design that can be readily translated into evaluable characteristics.

Demand Forecast: A forecast of electricity demand served by the electric grid, measured by both peak demand and energy consumption. Some factors that determine load forecast include economics, demographics, behind-the-meter resources and retail rates.

Filing POU: A local publicly owned utility with an annual electrical demand exceeding 700 gigawatt-hours, as determined by a three-year average commencing January 1, 2013.

Integrated Resource Plan (IRP): A plan adopted by the governing board of a POU pursuant to PUC Section 9621.

IRP Filing: An IRP adopted by the Filing POU's governing board that is electronically submitted to the Energy Commission, along with the Standardized Tables and supporting information, by the Filing POU or authorized representative.

Managed Forecast: A demand forecast that accounts for the impact of load modifying programs that are expected to come online but that are not embedded into the baseline load forecast. An example of a "managed forecast" is a forecasted load that has been adjusted to account for energy efficiency programs that are not yet funded but are expected to be implemented over the course of the planning horizon, which is frequently referred to as Additional Achievable Energy Efficiency (AAEE.

Renewable Energy Certificates (RECs): Tradable, non-tangible energy commodities in the United States that represent proof that 1 MWh of electricity was generated from an eligible renewable energy resource and was fed into the shred system of power lines that transport energy.

Retail Sales: Electricity consumption after accounting for behind-the-meter onsite generation including storage charge and discharge. It indicates the net energy delivered through the meter to the end-use customer.

Scenario: A set of assumptions about future conditions used in power system modeling performed to support generation or transmission planning.

Sensitivity: A sensitivity analysis is a technique that determines how scenario analysis changes when an individual assumption is varied with all other scenario assumptions unchanged.

Supporting Information: is analyses, studies, data, and workpapers, used to develop or support assumptions in IRPs that represent current market conditions, energy infrastructure, state policies and laws, and the Filing POU's needs.

APPENDIX B: IRP CHECKLIST

Minimum Scenario Requirements	
	Planning horizon 2019 through 2030 inclusive.
	A scenario that meets all requirements of PUC Section 9621.
IRP Filing	
	IRP document and resolution adopted by the POU governing board
	Process for updating the IRP within five years of adoption
	Supporting information
	Standardized tables
Required as part of the IRP or in Supporting Information	
	Demand forecast methodology and assumptions
	RPS procurement plan (if applicable)
	Discussion of energy storage, energy efficiency, and transportation electrification
	Discussion of reliability criteria, as required in Chapter 2, Section H
	Discussion of assumptions used to estimate GHG emissions as required in Chapter 2, Section H
	Discussion of retail rates as required in Chapter 2, Section J
	Discussion of transmission and distribution plans as required in Chapter 2, Section K
	Discussion of localized air pollution and disadvantaged communities as required in Chapter 2, Section L

APPENDIX C: LIGHT-DUTY ELECTRIC VEHICLE CALCULATOR

Staff has provided the Filing POUs with a spreadsheet-based tool for estimating the incremental electricity consumption and generation; net GHG, particulate matter 10-micron (PM_{10})[1] and nitrogen oxide (NOx) emission reductions associated with the deployment of light-duty plug-in electric vehicles (PEV).

The tool was developed in collaboration with CARB and uses data from various sources to estimate energy and emissions over time associated with displacing a new gasoline-powered light-duty vehicle with a PEV in any year from 2017 to 2030. This tool captures nominal vehicle population decline after its first sale, and travel decline as the vehicle ages. Concurrently improving gasoline and PHEV fuel economy and declining carbon intensity gasoline and power generation use in future years are also quantified yielding more accurate estimates. Additional data is used to project the annual electricity consumption over time of a representative ("composite") PEVs deployed in a given year. The number of PEVs assumed by the utility to be deployed in each year thus determines (a) total GHG emissions savings on the transportation side in each year over the planning horizon, and (b) annual electricity consumption by the fleet of PEVs. Utility-provided information on the GHG emissions associated with generating electricity to meet this incremental load subsequently allows the utility to estimate net GHG emissions reductions in each year due to PEV deployment.

The tool has standard input assumptions embedded within to estimate the GHG emissions savings and electricity consumption associated with PEV deployments. Should a utility desire to use different input assumptions, the revised assumptions and the source of the data used to revise them should be enumerated in the IRP or supporting information.

Note that the utilities are not required to make specific assumptions about the number of PEVs deployed in any year. However, utilities do need to choose the future statewide PEV deployment scenario goal. Utilities are required to use a specific value for the GHG emission intensity of the (incremental) electricity generated or procured by the utility to meet PEV electricity demand.

The following inputs are used to project the energy and emissions on the transportation side in year *t* from displacing a gasoline powered vehicle from the road in year *x:*

PEV Historic populations: are determined by the California registered vehicle populations.

Data Source: California Department of Motor Vehicles (DMV), registered vehicle counts that the Energy Commission determined.

User can override: No

PEV Future Statewide Population: Utilities' choose the future statewide PEV population scenario by examining historical (Step 1&2) progress and policy goals (such as, Business-as-Usual, Governor's Executive Order 1.5 million PEVs, or other scenario values).

Data Source: Utilities choice

User can override: Yes

PEV Future Utility-Territory Population: Historic PEV statewide populations are broken out into each utility's service territory by registered vehicle zip codes. Some utility zip codes overlap so the populations are approximate. Utilities are encouraged to validate the estimated PEV population from their internal sources. Utilities can use an alternative value (step 4).

Data Source: DMV PEV registrations by zip code and utilities service territory by zip codes.

User can override: Yes, user can raise or lower the overall percent of PEVs used in their service territory.

Power Plant Emission Rates (PM_{10}, NOx): (Step 3) Utilities are urged to use their expected blended emission rates estimated to recharge PEVs or leave the fields blank and use default *CARB Vision* values.

Data Source: Utilities/Ca Vision with some Ca GREET 2.0.

User can override: Yes.

Upstream Criteria Pollution Emission Rates: (Step 3) Estimated criteria pollution emissions prior to power plant emissions, presently we plan to ignore these – pending more updated values. The analysis uses Ca GREET 2.0 upstream emissions.

Data Source: Ca GREET 2.0.

User can override: Yes.

Upstream CO_{2e} Emission Rates: (Step 5) Estimated CO_{2e} emissions prior to power plant emissions, presently we plan to ignore these – pending more updated values. The analysis uses GREET 2.0 upstream emissions.

Data Source: Ca GREET 2.0.

User can override: Yes.

PEV consumption by customer generation: Utilities can place an assumed consumer generation percent of the total PEV demand in their territory.

Data Source: Utilities.

Power Generation Line losses: Utilities can place an assumed Transmission and Distribution Loss. Generally 7.5 percent is assumed.

Data Source: Utilities.

Annual Generation Carbon Intensity (Tons CO_{2e}/MWh): Utilities provide their projected carbon intensity anticipated for PEV recharging. This value can be varied for each year.

Future Fleet Composition: The PEVs deployed in year t is a composite of three vehicle types: plug-in hybrid, short-range and long-range battery electric. The weights vary by year of deployment, with long-range battery electric vehicles assumed to make up a larger share of the fleet over time. Using historic sales as a guide, utilities can choose the future percent of sales for each composite technology type.

Data Source: Joint staff (Energy Commission, CARB) projection based on (2010–2016) sales.

User can override: The utility can enter a different set of weights for the vehicle types.

Gasoline Vehicle Fuel Economy:

Energy Commission (Lower MPG Projection) using 2010-2015 DMV new vehicle registrations and EPA fuel economy test results, staff estimated gasoline cars sales-weighted-average fuel economy. Future fuel economy values are projected from consumers' mpg purchases made over the last five years. Consumer behavior is projected to reach 42 mpg by 2025, which does not meet the 52 mpg EPA goal.

CARB (Higher MPG Projection) chooses the future regulatory goal as the target, and assumes consumers' purchases meet the goal. The mpgs were based on EMFAC2014 reflecting adopted standards and regulations adopted by 2014, which include Advanced Clean Car. The Advanced Clean Car (ACC) program requires significant fuel efficiency improvements through model year 2025. This fuel economy is projected to meet the 52 mpg goal by 2025.

User can override: No, but can choose between the CARB or Energy Commission options.

Electric Vehicle Energy Efficiency:

Energy Commission Assumes DMV registrations and EPA fuel economy tests are used to determine the sales- weighted-average energy efficiency. The Energy Commission assumes PEV owners occasionally use their heaters and air conditioners over the year, resulting in 15 percent higher energy use than official testing protocol results which are done without their use.

CARB Assumes ECARS has automaker data up through 2015 and CARB staff knows of models entering market 2016 /17, PEV efficiency is improving, even as the technology moves onto larger platforms. The 2025 assumption is from EPA/CARB TAR projections linear interpolation between 2017 and 2025.

Data Source: Energy Commission DMV and EPA MPGs/CARB EMFAC2011.

User can override: No, but users can choose between the CARB or Energy Commission assumptions.

Vehicle Decay: (Vehicle survivability) captures the overtime population loss of a model-year due to accidents, or vehicles transferred out of state. CARB data was used from gasoline vehicles, due to the lack of survivability statistics for PEVs.

Data Source: CARB EMFAC2011.

User can override: No.

Vehicle Mileage & Decay: Vehicle annual miles travel (VMT) is highly variable due to fuel prices, consumer wealth, location, vehicle class, and vehicle age. Over time vehicles are found to be driven less as they age. PEVs were optimistically assumed to have the same VMT decay as conventional gasoline vehicles due to the lack of historical PEV data.

The table shows the first years assumed miles driven, each year thereafter VMTs are similarly decayed.

Assumptions	PHEV and BEVs (High Driving Range)	BEV (Low Driving Range)
Energy Commission	15,300	9,944
CARB	20,900	13,590

Data Source: Energy Commission 2007-2009 Bureau of Automotive Repair, Smog Check Program roughly 4 to 6 million vehicles per year sampled adjusted to the 2015 calendar year. CARB Based on EMFAC2014, Gasoline LDA (passenger car) in calendar year 2010.

User can override: No, but can choose between Energy Commission or CARB assumptions.

APPENDIX D: CONFIDENTIALITY

How to Request Confidentiality

The Energy Commission's Executive Director has the responsibility for determining what information submitted with an application for confidentiality will be deemed confidential. Parties who seek such a designation for data must submit a separate, written request that identifies the specific information to be kept confidential why the information should be protected from release, the length of time such protection is sought, and whether the information can be released in aggregated form.

Certain categories of data provided to the Energy Commission, when submitted with a request for confidentiality, will be automatically designated as confidential and do not require an application. The types of data that are eligible and the process for obtaining this confidential designation are specified in California Code of Regulations (CCR), Title 20, Section 2505(a) (5). The Energy Commission has its own regulations distinct from those governing the CPUC. The CPUC's determinations on confidentiality are not applicable to data submitted to the Energy Commission.

Parties should be aware that some confidential data may be disclosed after aggregation according to CCR, Title 20, 2507(d) or (e). Both historical and forecast energy sales data may be disclosed if reported at the following levels:

- For individual POUs, data may be aggregated at the statewide level by major customer sector.
- For the sum of all POUs, data may be aggregated at the service area, planning area, or statewide levels by major customer sector.
- For the total sales of the sum of all electric retailers, data may be aggregated at the county level by major generator, utility, and ESP groups as these groups are defined by the U.S. Census Bureau in their North American Industry Classification System DWR tables.

Data that are not included in these categories, but that the filer believes are entitled to confidential treatment, should be submitted when due along with an application for confidential designation. The Executive Director will review the information and make a determination about its confidential status. Please carefully read and follow the instructions.

Repeated Applications for Confidentiality

Information submitted to the Energy Commission can be deemed confidential without the need for a new application under CCR, Title 20, sections 2505(a)(1)(G) and 2505(a)(4)

if you file a certification under penalty of perjury that the new information is substantially similar to the previously granted confidentiality.

In this case, your current application will serve as your certification and the designation of confidentiality will be under the same terms as the prior designation. The information will remain confidential under the same terms as the prior designation for the same or comparable period of time identified by the applicant in the application.

What a New or Repeated Confidentiality Application Must Have

Applications for confidentiality and the confidential documents must be uploaded directly to Dockets Unit through the e-filing system. Paper copies or CDs do not need to be submitted. Links to the e-filing system are provided on each proceeding's webpage (http://www.energy.ca.gov/sb350/IRPs/index.html) under the link "Submit e-filing." The docket for this proceeding is 17-IEPR-07, project title: Integrated Resource Planning. Registration is necessary the first time documents are uploaded. Once registration is complete, submit a confidential filing by clicking on Quick Actions from the dashboard and select submit confidential e-filing from the dropdown tab. The application needs to be uploaded first followed by the confidential materials. The application will then be acted upon by the Executive Director in consultation with the Chief Counsel of the Energy Commission.

A signed "penalty of perjury certification" must be included in the application. Suggested standard language is as follows:

I certify under penalty of perjury that the information contained in this application for confidential designation is true, correct, and complete to the best of my knowledge. I also certify that I am authorized to make the application and certification on behalf of (insert the name of your utility here).

For electronic filings containing a signature, including for submissions into electronic data bases requiring a signature as attestation of information, the signature may be in electronic form and represented as a scanned signature graphic, or "Original Signed By", "/S/", or similar notation followed by a typewritten name.

A complete application for confidentiality contains the following information:

- Identification of the information being submitted, including docket number, title, date, and size (for example, pages, sheets, megabytes).
- Description of the data or information for which confidentiality is being requested (for example, particular electricity supply contract categories for particular years).
- On Excel forms submitted with prospectively confidential data, identification of specific cells using yellow fills that are consistent with the confidentiality application.

- A clear description of the period for which confidentiality is being sought for each information category (for example, until December 31, 2017).
- An appropriate justification for each confidential data category request, including applicable provisions of the California Public Records Act (Government Code Section 6250 et seq.) and/or other laws.
- A statement attesting that a) the specific records to be withheld from public disclosure are exempt under provisions of the Government Code, or b) the public interest in nondisclosure of these particular facts clearly outweighs the public interest in disclosure.

What Happens If a New or Repeated Application Is Incomplete

Applications that have been docketed will be reviewed by Energy Commission staff within 30 calendar days of receipt for clarity, completeness, content, and context. If the application is incomplete or ambiguous in one or more respects, or if the data are incomplete or questionable, staff will contact the filer to resolve these uncertainties or obtain needed information.

Applications deemed incomplete may not be docketed by Energy Commission staff and may result in delay in processing until the deficiency can be corrected. The filer will be notified by the Office of the Chief Counsel about deficient attributes in the application. The applicant has 14 calendar days to correct defects in the application and return an amended application to the Energy Commission.

After 14 days, all information associated with a still–incomplete application for confidentiality will be deemed publicly disclosable and will be docketed accordingly.

Determinations and Additional Information for New Applications

The Executive Director signs confidentiality determination letters in response to new applications for confidentiality. The applicant has 14 calendar days to appeal this decision.

An applicant can request confidentiality at any time, but once information is publicly released, confidentiality cannot be granted. The Energy Commission strongly encourages filers to provide data and any confidentiality requests concurrently.

More specific questions about confidentiality may be directed to Michelle Chester at Michelle.Chester@energy.ca.gov or (916) 654-4701 or to Jared Babula at Jared.Babula@energy.ca.gov or (916) 654-3843.

APPENDIX E: DATA AND ASSUMPTIONS

The following tools have been developed to aid in planning decisions and will be made available for optional use by POUs during their planning processes. Additional tools may be developed by Energy Commission staff. Tools and other aids will be posted on the following web page.

http://www.energy.ca.gov/sb350/IRPs/

1. Light-Duty Plug-in Electric Vehicle Calculator

Staff has developed a spreadsheet based-tool to assist the Filing POUs in developing estimates of the net GHG emissions reductions associated with LD PEV deployment. POU-provided estimates of the number and composition of LD PEVs deployed each year over the planning period and the emissions intensity (mt CO_2e/MWh) of incremental electricity generation are used to produce estimates of GHG emissions reductions on the transportation side and emissions increases from the electricity sector. The tool incorporates jointly-developed (by Energy Commission and CARB staff) assumptions regarding gasoline-powered and LD PEV characteristics and operation to ensure that utility estimates of net emissions savings are reasonable and consistent. A detailed description of the tool is presented in Appendix C.

2. Climate Change Adaptation – Cal-Adapt

The Cal-Adapt tool is an interactive web-based climate adaptation planning tool to identify potential climate change impacts. Using data compiled on an ongoing basis from California's scientific and research community, it allows users to see possible effects on temperature change, snowpack, precipitation, fire risk, and sea level rise downscaled to California's geography. The Cal-Adapt tool includes visualization tools and climate data to enable exploration of local risks related to climate change. The Cal-Adapt tool makes climate science readily accessible to those who need to understand local impacts of, and plan for, climate change.

The Energy Commission is rolling out Cal-Adapt 2.0 (publicly available at beta.cal-adapt.org), which offers substantial enhancements to the original version. Enhancements include improved fidelity regarding projected temperature extremes as well as spatial distribution of precipitation, an applications programming interface that supports third-party development of custom tools that leverage data on Cal-Adapt, alignment with the current scenarios and global climate models used by the International Panel on Climate Change, and the capability to visualize and analyze several preloaded shape files (for example, census tracts tagged with CalEnviroScreen scores, watersheds, and counties) or a user-specified shape file.

3. Carbon Allowance Price Projections

Energy Commission staff developed annual GHG allowance price projection scenarios consistent with the scenarios used in the California Energy Demand Forecasts. The methodology used to develop the preliminary 2017 IEPR GHG price projections is based on CARB's August 2, 2016 Proposed Amendments to the California Cap on Greenhouse Gas Emissions and Market-Based Compliance Mechanisms Regulation. The methodology is described in the footnotes on the GHG Price Calculations tab of this spreadsheet.

The spreadsheet is here:
http://docketpublic.energy.ca.gov/PublicDocuments/17-IEPR-03/TN216271_20170227T161611_Preliminary_GHG_Price_Projections__Energy_Assessment_Division.xlsx