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Proposed Changes to California Code of Regulations
Title 20, Division 2, Chapter 3
California Energy Commission
Docket Number 18-OIR-01
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Purpose of Changes: Energy Forecasting and Assessments

The California Energy Commission (CEC) is mandated by statute to “conduct assessments and forecasts of all aspects of energy industry supply, production, transportation, delivery and distribution, demand, and prices.” (Pub. Resources Code § 25301, subd. (a).) These forecasting and assessment activities are developed as part of the Integrated Energy Policy Report (IEPR) that is mandated every two years. (Pub. Resources Code § 25302.) As part of the IEPR process, the CEC adopts a detailed demand forecast that is used by other energy agencies to identify resource additions needed to ensure reliability, while still meeting California’s environmental protection goals. (Pub. Resources Code § 25302, subd. (f).) In addition, the demand forecast is used “for analyzing the success of and developing policy recommendations for public interest energy strategies.” (Pub. Resources Code § 25305.) As part of this comprehensive energy assessment, the CEC conducts a natural gas demand forecast, a transportation energy demand forecast, and an electricity demand forecast, and also performs various energy market assessments which evaluate energy supply constraints and system performance. (Public Resources Code Sections 25301 (a), Sections 25303 (a)(2) (a)(5) (a)(7), Sections 25304 (a) (c) (d) (f) and (g).)

This work, in total, forms the analytical core of the IEPR and serves two fundamental purposes: 1) to identify actions needed to ensure the reliable operation of the state’s electricity, natural gas, and transportation energy supply systems; and 2) to assess progress in and develop recommendations for meeting state energy goals.

The CEC is providing the following draft regulation language and changes to ensure that it has access to sufficient information for those analytical efforts.

Authority for Additions and Changes:

The scope of proposed changes is California Code of Regulations Title 20, Division 2, Chapters 3 and 7. Pursuant to Pub. Resources Code § 25216.5 (d), one of the central purposes of the CEC is to “[s]erve as a central repository within the state government for the collection, storage, retrieval, and dissemination of data and information on all forms of

energy supply, demand, conservation, public safety, research, and related subjects.” This is further codified in Pub. Resources Code §25320 which directs the CEC to “manage a data collection system for obtaining information necessary to develop the policy reports and analyses required by Sections 25301 to 25307, inclusive, the energy shortage contingency planning efforts in Chapter 8 (commencing with Section 25700), and to support other duties of the commission.” This directs the CEC to collect and warehouse information covering all aspects of energy use that gives “full consideration to the potential burdens these data requests impose on the resources of the stakeholders whose information is being requested” (Pub. Resources Code §25320(a)(2)(C)).

The CEC began collecting energy information in 1976, with its data collection efforts evolving over time. Within Chapter 3, Article 1 has become what is now known as the Quarterly Fuel and Energy Report (QFER) and focuses on the collection of historic electricity and natural gas data that allows the CEC to characterize the current energy supply and consumption landscape. Article 2 of Chapter 3 is directed at the forecast and assessment of energy loads, with data collection that serves the forward-looking nature of forecasting work. While much of this data feeds directly into the electric and natural gas demand forecasts, these data sets have also provided a basis for analytical work to support items such as Tracking Progress, Thermal Efficiency, the Natural Gas Outlook, and many more.

Additionally, the CEC has petroleum data collection authority under the Petroleum Industry Information Reporting Act (PIIRA) codified at Pub. Resources Code § 25350-25366. Enacted in 1980, PIIRA states “that a complete and thorough understanding of the operations of the petroleum industry is required by state government at all times to enable it to respond to possible shortages, oversupplies, or other disruptions and to assess whether all consumers, including emergency service agencies, state and local government agencies, and agricultural and business consumers of petroleum products have adequate and economic supplies of fuel.” These requirements are codified in Article 3 of Chapter 3 and have provided fundamental analysis information to reports such as the Transportation Fuel Supply Outlook Report (2017), Petroleum Market Advisory Committee Final Report (2017), and numerous gasoline price reports (2000, 2019).

Current Data Collection Doesn't Track New Trends:

California’s energy policy focuses on reducing the carbon intensity of energy sources used within the State to achieve the goal laid out by Executive Order S-3-05 in lowering

California's gas emissions to 80 percent below 1990 levels by 2050. In the process of achieving the goal, changes in energy usage have occurred at every level of California's economy. With these changes, old data submission requirements are often ill-equipped to capture the new energy sources, nor are they able to monitor the new patterns of energy demand from widely adopted emissions reduction technologies. To continue California's progress in decarbonizing its energy usage in transportation, industry, and at home, new data sources are necessary to ensure California and the CEC make informed recommendations in its pursuit to "ensure that a reliable supply of energy is provided consistent with protection of public health and safety, promotion of the general welfare, maintenance of a sound economy, conservation of resources, and preservation of environmental quality" (Public Resources Code § 25300 (b)).

Therefore, the CEC is proposing the following changes to Title 20 in order to collect the following information:

Electric Vehicle System Equipment (EVSE) charging data:

The Public Resources Code requires the CEC every two years to report an "assessment of trends in transportation fuels, technologies, and infrastructure supply and demand and the outlook for wholesale and retail prices for petroleum, petroleum products, and alternative transportation fuels under current market structures and expected market conditions." (Public Resources Code Section § 25304, (a).) The CEC must also evaluate "the sufficiency of transportation fuel supplies, technologies, and infrastructure to meet projected transportation demand growth." (Public Resources Code Section § 25304, (c).) In the area of electrified personal vehicle transportation, growth is occurring exceedingly quickly. Yet not all of these vehicles are distributed evenly across the state. In fact, many of these vehicles are clustered into particular counties for various reasons related to socioeconomics and vehicle attributes. If this clustering becomes too great, it could begin to overburden particular locations of the grid. Additionally, it is known that increases in the number of these vehicles on the road will drastically alter the demand profile for electricity in California, not only in overall load but also altering the time that charging and loads occur. To properly match that new load to the electricity generation sources needed to achieve California's goals in greenhouse gas reduction, detailed charging event information is needed so that CEC electricity demand forecasters can estimate this load into the future; electricity supply modelers can then align that new load to current generation sources and recommend new generation to meet any foreseen shortfalls.

In addition, requirements set forth by Public Resources Code Section § 25229 (b) charge the CEC to “expand on the commission’s electric vehicle infrastructure projections to consider all necessary charging infrastructure, including, but not limited to, the chargers, make-ready electrical equipment, and supporting hardware and software, all vehicle categories, road, highway, and off-road electrification, port and airport electrification, and other programs to accelerate the adoption of electric vehicles....” To expand the industry-accepted analysis of infrastructure deployment using the EViPro model¹, and to properly analyze demand characteristics of these vehicles entering the state fleet, only detailed charging session information can meet both requirements.

Hydrogen, bio-diesel, and renewable diesel production data:

CEC staff have additionally identified hydrogen fuel, biodiesel, and renewable diesel as alternative fuels that have a growing significance in the fuels market. Current data gathering on production and consumption of these fuels is on an ad-hoc request basis. This type of self-reported data lacks uniformity in terms of period, breadth, and depth. This lack of standard forces the CEC to commit to burdensome data processing methods and analysis techniques that create estimates of fuel consumed for transportation purposes. Reliance on estimates leave alternative transportation fuel assessments and forecasts open to criticisms such as lack-of-transparency, inconsistency, and lack-of-compatibility with existing assessments and forecasts of established fuels and markets. Therefore, the CEC has identified the need for monthly fuel production data and feedstock input data not only to reduce error within its modeling and analytical work (required via PRC § 25304), but also to understand key transportation fuel production needs to properly carry out its duties under Public Resources Code § 25700 – 25705, which requires the CEC to collect information for the purpose of evaluating responses to energy emergencies. This need is additionally important as the CEC is the Governor’s Office of Emergency Services lead agency in monitoring California fuel supply in all emergency events, as the production system has become increasingly interdependent with multiple fuel sources.

For example, in the case of crude oil refining, hydrogen has become a key component in the making of California specific fuel blends. Yet, in many cases, large scale production of this material is conducted outside the refinery gates and is not captured by CEC refinery reporting requirements. This lack of reporting then leaves the CEC with insufficient detail

¹ <https://www.energy.ca.gov/programs-and-topics/programs/electric-vehicle-charging-infrastructure-assessment-ab-2127>

about the operational requirements and flexibility of these facilities when their primary feedstocks are threatened, which in turn could create a domino effect on dependent facilities. As a result, the CEC's ability to develop recommendations for actions to achieve state energy policies and properly evaluate the needed response to an energy emergency is hampered by its lack of information regarding these ties to ancillary services (e.g. June 17, 2016, IEPR Commissioner Workshop on Transportation Fuel Supply Reliability Due to Reduced Natural Gas Availability in Summer 2016).

Property Assessed Clean Energy (PACE) data:

The PACE program is a California Alternative Energy and Advanced Transportation Financing Authority (CAEATFA) sponsored approach for financing energy efficiency retrofits² for residential and non-residential properties. Under this program, PACE financing is made available in PACE districts where local governments have authorized contractual assessments associated with a property to finance energy efficiency programs. Based on these assessments, property owners can borrow up to ten percent of the value of the property to finance energy efficiency projects.

PACE program data provides CEC staff with information that allows us to estimate energy efficiency savings using analytical methods similar to CalTRACK.³ ⁴ Staff needs to combine PACE program site-level project information with site electricity and gas monthly or hourly billing data also collected by the CEC. Year after year, trends can be inferred from historical data based on annual data submissions and provide staff with a "before and after" estimate how PACE has changed energy consumption at the particular locations and, more importantly, determine aggregated savings by geographic units such as zip code, census tract, city, county and finally the entire state. This will enable the CEC to revise or modify energy efficiency targets related to PACE to ensure meeting the State's goal of doubling energy efficiency savings by 40 percent below 1990 levels by 2030 and to 80 percent below 1990 levels by 2050 (de León, Chapter 547, 2015).

Additional analysis involves mapping these aggregate savings to customer demographic segments of interest including low income segments. Staff plan on using economic and

² PACE programs finance energy, water, renewable generation and EV charging station projects and is not restricted to energy efficiency retrofits.

³ <http://docs.caltrack.org/en/latest/methods.html>

⁴ <https://www1.eere.energy.gov/wip/pdfs/53827-8.pdf#page=26>

demographic data, as well as tools such as the CalEnviroScreen,⁵ to track energy efficiency investments in low-income and disadvantaged communities. Collecting this information is required to perform analysis mandated in Public Resources Code §25310.

Natural gas storage system data:

The CEC has broad authority to evaluate supply uncertainties and the sufficiency of natural gas supplies and infrastructure to ensure electric system reliability. (Pub. Resources Code § 25303, subds. (a)(3) & (4).) Recent shortages of natural gas needed to maintain reliable operation of the electric grid have highlighted the problem of inadequate information for assessing the function of the natural gas system.

California produces little of its own natural gas and relies heavily on imports. In recent years, the state's natural gas system and the electricity system have become increasingly interdependent. The state's natural gas system is designed for seasonal swings in residential and commercial demand – characterized by high demand in winter and low demand in summer. However, in recent years, swings in demand are seen on a daily and hourly basis, as natural gas plants are called upon to accommodate the variable generation patterns of an electricity system more dependent upon intermittent renewable resources. To address this issue, the CEC has begun hydraulic modeling efforts to simulate various scenarios for the purpose of foreseeing and planning for these possible problems. To ensure the CEC has the necessary information to enable it to address these issues, the CEC is proposing regulations that will require that storage owners and/or operators in California provide natural gas storage inventory data that CEC staff can use for analysis of total system operations.

⁵ <https://oehha.ca.gov/calenviroscreen>