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In the matter of:) Docket No. 17-IEPR-01
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Preparation of the)
2017 Integrated Energy Policy Report)
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2017 Integrated Energy Policy Report Scoping Order

The California Energy Commission’s Integrated Energy Policy Report Lead Commissioner, Robert B. Weisenmiller, establishes the scope and general schedule for the *2017 Integrated Energy Policy Report (2017 IEPR)*. Text of the *2017 IEPR* Scoping Order follows.

Background

Senate Bill 1389 (Bowen and Sher, Chapter 568, Statutes of 2002) requires the Energy Commission to “conduct assessments and forecasts of all aspects of energy industry supply, production, transportation, delivery and distribution, demand, and prices.” These assessments and forecasts are used to develop recommendations for energy policies that conserve state resources, protect the environment, provide reliable energy, enhance the state’s economy, and protect public health and safety. The Energy Commission includes these energy policy recommendations in its biennial Integrated Energy Policy Report that is issued in odd-numbered years.

Pursuant to Public Resources Code Section 25300(d), “The Legislature further finds and declares that timely reporting, assessment, forecasting, and data collection activities are essential to serve the information and policy development needs of the Governor, the Legislature, public agencies, market participants, and the public.”

Scope of the *2017 Integrated Energy Policy Report*

California is an international leader in advancing solutions to climate change and forward-looking energy policies. On September 8, 2016, Governor Brown furthered the state’s commitment to reduce greenhouse gas by signing Senate Bill 32 (Pavley, Chapter 249, Statutes of 2016). The statute sets a statewide goal to reduce California’s greenhouse gas emissions 40 percent below 1990 levels by 2030. A companion bill, Assembly Bill 197 (Garcia, Chapter 250, Statutes of 2016), assures that the state’s implementation of its climate change policies is transparent and equitable, with the benefits reaching disadvantaged communities.

SB 32 codifies the 2030 greenhouse gas reduction goal in Governor Brown’s Executive Order B-30-15 and builds on the California Global Warming Solutions Act of 2006 (AB 32, Núñez, Chapter 488, Statutes of 2006), the landmark legislation to reduce statewide greenhouse gas emissions to 1990 levels by 2020. California is well on its way to meeting the 2020 target, but the 40 percent reduction by 2030 is much more ambitious.

In his 2015 inaugural address, Governor Brown called on California to meet the following goals by 2030:

- Increase from one-third to 50 percent electricity derived from renewable sources
- Reduce today's petroleum use in cars and trucks by up to 50 percent
- Double the efficiency of existing buildings and make heating fuels cleaner

Further, he stated that, "We must also reduce the relentless release of methane, black carbon and other potent pollutants across industries. And we must manage farm and rangelands, forests and wetlands so they can store carbon."

The Clean Energy and Pollution Reduction Act of 2015 (Senate Bill 350, DeLeón, Chapter 547, Statutes of 2015) (SB 350) subsequently enacted provisions to achieve two of the Governor's goals for reducing carbon emissions: increasing renewable electricity procurement to 50 percent by 2030, and doubling projected future energy efficiency savings for both electricity and natural gas by 2030 as long as such savings are cost-effective, feasible, and reliable.

In providing the analysis required in statute, the *2017 IEPR* will focus on the implementation of SB 350. This will include discussion of integrated resource plan development to reduce greenhouse gas emissions by efforts for doubling projected future energy efficiency savings by 2030, developing renewable resources to serve half of California electricity needs by 2030, and advancing zero- and near-zero vehicles and infrastructure in the transportation sector. The *2017 IEPR* will also develop a new energy demand forecast with more advanced analytical tools to better reflect California's evolving energy system. Following up on the work of past years, the *2017 IEPR* will review the implementation status of previously adopted reliability mitigation action plans to ensure energy reliability in Southern California given the moratorium on gas injections at the Aliso Canyon natural gas storage facility as well as the closure of the San Onofre Nuclear Generating Station coupled with the retirement of natural gas electricity generation facilities in the region. The following provides more detailed discussion of the topics that will be considered in the *2017 IEPR*.

1. Implement SB 350

The *2017 IEPR* will report on California's progress in developing integrated resource plans for the electricity sector, a comprehensive approach to identify efficiency and cost effective resource portfolios for achieving the 2030 greenhouse gas reduction goal. SB 350 requires investor-owned utilities, other electricity retail sellers, and larger publicly owned utilities to develop integrated resource plans that incorporate both supply- and demand-side resources to meet greenhouse gas emission reduction goals, maintain reliability, and control costs. The integrated resource plans will include utility-specific actions to double projected future energy efficiency savings and serve 50 percent of retail sales with renewable resources. Further, SB 350 requires electrical corporations to accelerate programs and investments in widespread transportation electrification. It also sets into motion the voluntary transformation of the California Independent System Operator (California ISO) into a regional organization to help integrate renewable generation and reduce greenhouse gas emissions in California and neighboring states at lower cost.

The integrated resource plans will be the primary tool for assessing greenhouse gas reduction measures in the electricity sector needed to achieve this sector's share of the state's greenhouse gas emission reduction goal. SB 350 also requires the

California Air Resources Board (ARB) to establish, in coordination with the California Public Utilities Commission (CPUC) and the Energy Commission, emission targets for the electricity sector and load-serving entities that help achieve the statewide 2030 greenhouse gas reduction goal.

The *2017 IEPR* will also follow-up on the study the Energy Commission completed in December 2016 on the barriers to and opportunities for low-income and disadvantaged communities to increase access to energy efficiency and renewable energy investments and programs by either examining the implementation status of the adopted recommendations and/or conducting additional analyses on some of the outstanding issues.

SB 350 requires the Energy Commission to establish targets for doubling electricity and natural gas final end-use savings by 2030; targets will include evaluating where additional savings can be achieved through, but not limited to, building and appliance standards, utility efficiency programs, and local government initiatives. The *2017 IEPR* will also follow-up on the analysis conducted in the *2015 IEPR* to improve the energy performance of existing buildings in response to Assembly Bill 758 (Skinner, Chapter 470, Statutes of 2009). The Energy Commission adopted the *Existing Buildings Energy Efficiency Action Plan* in September 2015 and the first update to it, the *2016 Existing Buildings Energy Efficiency Action Plan Update (2016 Action Plan Update)*, in December 2016. The Energy Commission prepared the *2016 Action Plan Update* in response to SB 350 and in support of the Governor's 2030 energy efficiency goal.

The *2017 IEPR* will also explore electricity system operational issues as the state further reduces its greenhouse gas emissions by integrating increasing amounts of variable renewable resources and electrifying the transportation sector. Various tools that could potentially be used to help maintain system reliability include: demand response; time-of-use retail rates; storage, including vehicle-to-grid; curtailment of over-generation; and enhanced ramping capability from conventional and renewable generation (the ability to rapidly increase or reduce generation depending on system needs). Further, an expanded Western Energy Imbalance Market for dispatch adjustments and a more regional market for day-ahead commitment and transmission planning, including expanding access to the Federal Columbia River Power System, could greatly enhance the flexibility needed to integrate increasing amounts of variable renewable resources. The state's portfolio of mitigation measures for integrating renewables could also include using excess renewable energy to power desalinization plants or for power-to-gas. Finally, the Energy Commission will explore the adequacy of price signals to encourage investment in alternatives to natural gas-fired ramping capabilities to help integrate renewables.

As part of the review of the ramping capability of conventional generation, the Energy Commission will examine forward contracting of flexible resources including an evaluation of how much flexible capacity is available under multi-year contract, estimation of the reserve margin, and identification of any actions needed to better ensure reliability. Given evolving environmental regulations and increasing renewable generation, the Energy Commission anticipates that older, less efficient power plants will continue to be retired and that the Commission will need to identify and plan for any upcoming retirements. Similarly, the Energy Commission will

identify any local regions of the grid that may require preservation of existing generation or other electrical service needed to maintain overall system reliability.

2. Develop Electricity Demand Forecast

As part of the IEPR process, the Energy Commission prepares 10-year forecasts of electricity consumption and peak electricity demand for California and for individual utility planning areas and forecast zones within the state. A goal for the forecast is to add greater emphasis on detailed, localized, and sector-specific analysis of energy demand trends. More granular analysis is needed to support the state's policy goals, including setting, assessing, and advancing energy efficiency and renewable energy goals. With the passage of SB 350 and Assembly Bill 802 (Williams, Chapter 590, Statutes of 2015), the electricity demand forecast will include scenarios designed to provide insight into the potential impacts of significant increases in efficiency efforts and behind-the-meter photovoltaics consistent with these bills. The Energy Commission will also begin to provide long-term hourly forecasts in addition to traditional forecasts at the annual level. The hourly forecasts will incorporate and explore the effects of time-of-use rates and demand response, increased levels of electric vehicle charging and photovoltaic adoption, and the hourly impacts of energy efficiency. The hourly model will also serve as a tool to examine the potential for changes in the hour in which peak demand occurs as a result of these demand modifiers. The Energy Commission will continue to work with the California ISO and CPUC to understand the impacts on future electricity use from peak demand being pushed later in the day. The electricity demand forecast will also incorporate load impacts from changes in the magnitude of transportation electrification.¹

3. Address Climate Adaptation and Resiliency

The *2017 IEPR* will continue work in the 2015 and 2016 IEPRs to implement Governor Brown's call to expand state adaptation activities through Executive Order B-30-15, with the goal of making the consideration of climate change a routine part of planning. To increase the resiliency of California's electricity and natural gas systems, in the *2017 IEPR* the Energy Commission will continue to explore, in collaboration with CPUC and other energy entities, best practices for incorporating climate change and adaptation into the investor-owned utilities' (IOUs) and publicly owned utilities' (POUs) planning processes. This will include an examination of how Energy Commission supported research findings on climate adaptation can be better transferred to IOUs, POUUs, and local agencies. In the *2016 IEPR Update*, the Energy Commission worked with the CPUC to develop climate scenarios for use in energy planning. In the *2017 IEPR*, the Energy Commission will build on this work and collaborate with the CPUC and other energy entities to operationalize the climate scenarios into energy planning. For example, the *2017 IEPR* will identify climate parameters such as temperature extremes at specific locations and timeframes that can be drawn from the climate scenarios for energy planning purposes.

¹ The Energy Commission supports the advancement of a range of alternative transportation technologies and fuels the help meet the state's climate and energy goals. The Energy Commission will report on the research, development, demonstration, and deployment activities funded under the Alternative and Renewable Fuel and Vehicle Technology program as required by Assembly Bill 109 (Núñez, Chapter 313, Statutes of 2008).

4. Develop Recommendations on Renewable Gas

Senate Bill 1383 (Lara, Chapter 395, Statutes of 2016) requires that by January 1, 2018, the ARB “approve and begin implementing a comprehensive short-lived climate pollutant strategy developed pursuant to Section 39730 to achieve a reduction in the statewide emissions of methane by 40 percent, hydrofluorocarbon gases by 40 percent, and anthropogenic black carbon by 50 percent below 2013 levels by 2030.” SB 1383 also includes a requirement that the Energy Commission, in consultation with ARB and CPUC, “develop recommendations for the development and use of renewable gas, including biomethane and biogas as a part of its 2017 Integrated Energy Policy Report.” (Section 39730.8 of the Public Health and Safety Code.) The statute states that:

“In developing the recommendations, the [Energy Commission] shall identify cost-effective strategies that are consistent with existing state policies and climate change goals by considering priority end uses of renewable gas, including biomethane and biogas, and their interactions with state policies, including biomethane and all of the following:

- (1) The Renewables Portfolio Standard program (Article 16 (commencing with Section 399.11) of Chapter 2.3 of Part 1 of Division 1 of the Public Utilities Code).
- (2) The Low-Carbon Fuel Standard regulations (Subarticle 7 (commencing with Section 95480) of Title 17 of the California Code of Regulations).
- (3) Waste diversion goals established pursuant to Division 30 (commencing with Section 40000) of the Public Resources Code.
- (4) The market-based compliance mechanism developed pursuant to Part 5 (commencing with Section 38570) of Division 25.5.
- (5) The strategy [to reduce short-lived climate pollutants.”

The Energy Commission will conduct a public workshop in consultation with the CPUC and ARB and engage a broad range of stakeholders to explore these issues and develop recommendations.

5. Update on Energy Reliability Issues in Southern California

The *2017 IEPR* will also discuss ongoing efforts to maintain resource adequacy and reliability in Southern California given the closure of the San Onofre Nuclear Generating Station and the State Water Resources Control Board’s policy to phase-out the use of once-through cooling in power plants that is resulting in the closure of natural gas-fired electricity generators. One issue is the need for replacement generating facilities to assure that local reliability requirements are satisfied. A second issue is the availability of fast ramping energy resources in the region to help integrate variable generation and meet other reliability needs. This assessment will review the implementation status of the action plans adopted to address San Onofre issues and determine whether any modifications would be appropriate.

The *2017 IEPR* will also follow up on the action plans reported in the *2016 IEPR Update* to maintain reliable energy services in accord with the moratorium on gas injections into the Aliso Canyon natural gas storage facility. The analysis will focus on the implementation status of the near-term actions needed to maintain reliability

and will include efforts to monitor, model, and analyze the interaction of California's electricity and natural gas systems for grid reliability. This assessment will determine whether any modifications would be appropriate. A longer-term approach is being reviewed by the CPUC and the California Council of Science and Technology consistent with natural gas safety study provisions in SB 826 (Leno, Chapter 23, Statutes of 2016) and SB 840 (Budget, Chapter 341, Statutes of 2016).

6. Assess the Integration of Distributed Energy Resources

The state is under a significant shift from the classic grid configuration of a high concentration of larger central power plants to a new mixture of energy generation resources that includes a high amount of Distributed Energy Resources (DER). As a result of this shift, the systems and technology required to manage this grid will take new and improved grid monitoring, reporting, and management systems.

In 2016, the CPUC completed *California's Distributed Energy Resources Action Plan* and developed working groups to help implement the transition to this new grid system. The Energy Commission is assisting the CPUC in their working group activities through research efforts under the Electric Program Investment Charge (EPIC) Research and Development Program and by leading a three agency working group (Energy Commission, CPUC, and the California ISO) to develop a *Roadmap for the Commercialization of Microgrids in California*. Microgrids are considered one of the preferred methods to help integrate DER on the grid and at the same time provide grid operators more control of DER resources.

In 2014, the three agency working group completed the *California Vehicle-Grid Integration (VGI) Roadmap: Enabling vehicle-based grid services* to help enable electric vehicles to provide grid services while meeting consumer driving needs. As part of implementing this roadmap, the Energy Commission's Alternative and Renewable Fuel Vehicle and Technology Program (ARFVTP) is jointly providing funding with the Department of Defense to assess the ability of a fleet of electric vehicles to participate in the California ISO Ancillary Services market. Located at the Los Angeles Air Force Base, the project is the largest VGI demonstration in the world and project results will be presented in public workshops in 2017. Further, this same interagency working group held workshops in 2016 to discuss vehicle, infrastructure, and grid communication standards that are needed to enable grid support capabilities. The *2017 IEPR* will explore how incorporating communications standards can accelerate electric vehicle participation as DERs within utility and grid operator programs that return value to drivers, can improve the reliability of charging infrastructure networks, and enhance the state's capabilities in load forecasting and market monitoring.

The CPUC has also initiated public rulemaking processes for energy storage, demand response, smart inverters, electric vehicle integration, and time-of-use rate development. Interagency road maps have also been developed for demand response and storage. The *2017 IEPR* will review the status of these action plans and determine whether any modifications would be appropriate. The *2017 IEPR* will identify any key actions that are needed to support successful integration of DER, particularly in the area of the Energy Commission's research development and demonstration efforts.

7. Strategic Transmission Investment Plan

Senate Bill 1565 (Bowen, Chapter 692, Statutes of 2004) requires the Energy Commission, in consultation with stakeholders, to adopt a strategic plan (commonly referred to as the Strategic Transmission Investment Plan [STIP]) for the state's electric transmission grid as part of the IEPR. The purpose of the STIP is to identify and recommend actions required to implement investments needed to ensure electricity reliability, relieve transmission congestion, and meet future growth in electric demand and electric generation. As outlined in the *Renewable Energy Transmission Initiative 2.0 (RETI 2.0)* report,² greater reliance on renewable energy may require additional transmission or restructuring of the transmission system to achieve clean energy goals and reduce greenhouse gas emissions by 40 percent from 1990 levels by 2030. The 2017 IEPR will include an update of the STIP that builds on the RETI 2.0 process including further development of landscape scale analytical tools and approaches and a discussion of applications of these tools and approaches to support the state's clean energy and greenhouse gas reduction goals. The 2017 IEPR will also include discussion of advanced technologies for new and existing transmission.

In conclusion, the Energy Commission will report on the issues required in statute with an emphasis on the implementation of SB 350 and the other topics listed above.³

2017 Integrated Energy Policy Report Schedule

The Lead Commissioner directs Energy Commission staff to use the following general schedule. As workshop topics and dates are finalized, the Energy Commission will post notices on its website and notify stakeholders at least 10 days in advance of each workshop date. The schedule will be posted and regularly updated at http://www.energy.ca.gov/2017_energy_policy/.

Task/Event	Date(s)
Final Scoping Order released	March 2017
Public workshops on specific topics	January 2017 – December 2017
Release draft 2017 IEPR	October 2017
IEPR workshop on draft report	October 2017
Release final 2017 IEPR	January 2018
Adopt 2017 IEPR	February 2018

² <http://www.energy.ca.gov/reti/reti2/documents/index.html>.

³ On February 13, 2017, the Alliance for Nuclear Responsibility (A4NR) submitted comments on the Draft 2017 Scoping Order requesting that the Energy Commission, "schedule an IEPR workshop" for Pacific Gas & Electric (PG&E) to explain the status of their compliance with CPUC Decision 14-08-032, 6.3.1.14.4 Conditions Related to the Rate of Spent Fuel Storage Into Dry Casks, and for Southern California Edison (SCE) to explain the status of fuel removal and decommissioning at the San Onofre Nuclear Generating Station. On February 16, 2017, PG&E submitted a letter to the Energy Commission stating, "PG&E asks that the [Energy Commission] deny A4NR's request for a workshop on this topic." (Comments on the draft scoping order are available at http://www.energy.ca.gov/2017_energy_policy/documents/2017_scoping_order_comments.php.) In response to these comments, the Energy Commission will submit a data request to PG&E and SCE on the issues raised by A4NR and include the responses in the general IEPR docket.

Participation in the Integrated Energy Policy Report Proceeding

Policy recommendations contained in the *2017 IEPR* will be based on the record developed during the proceeding, including data and technical analyses by the staff and stakeholders. Analysis and information developed in other proceedings at the Energy Commission and by other agencies will be incorporated as appropriate. Participants should use the IEPR docket number 17-IEPR-01 and associated dockets when submitting information for the Lead Commissioner's consideration which are as follows:

- 17-IEPR-01 - General/Scope
- 17-IEPR-02 - Electricity Resource / Supply Plans
- 17-IEPR-03 - Electricity and Natural Gas Demand Forecast
- 17-IEPR-04 - Natural Gas Outlook
- 17-IEPR-05 - Transportation Energy Demand Forecast
- 17-IEPR-06 - Doubling Energy Efficiency Savings
- 17-IEPR-07 - Integrated Resource Planning
- 17-IEPR-08 - Barriers Study Implementation
- 17-IEPR-09 - Climate Adaptation and Resiliency
- 17-IEPR-10 - Renewable Gas
- 17-IEPR-11 - Southern California Energy Reliability
- 17-IEPR-12 - Distributed Energy Resources
- 17-IEPR-13 - Strategic Transmission Investment Plan
- 17-IEPR-14 - Existing Power Plant Reliability Issues

The Lead Commissioner encourages the active participation of all interested and affected participants because public input is essential to ensure a complete and thorough record. As in previous proceedings, the Lead Commissioner recognizes that close coordination with federal, state, local, and other agencies is critical to identifying and addressing energy infrastructure and related environmental challenges. The Lead Commissioner directs staff to continue working with these agencies to ensure their participation in this proceeding.

The Energy Commission's Public Adviser's Office provides the public assistance in participating in Energy Commission activities. If you would like information on how to participate in this proceeding, please contact the Public Adviser, Alana Mathews, at (916) 654-4489 or toll free at (800) 822-6228, by FAX at (916) 654-4493, or by e-mail at PublicAdviser@energy.ca.gov.

The service list for the *2017 IEPR* and associated key topic proceedings is handled electronically. Notices and documents for these proceedings are posted to the Energy Commission website at www.energy.ca.gov/2017_energypolicy/. When new information is posted, an e-mail will be sent to those on the energy policy e-mail list server. Parties interested in receiving these notices should sign up for the list server through the Energy Commission's website at www.energy.ca.gov/listservers/index.html.

Technical questions should be directed to Heather Raitt, Assistant Director for Policy Development, at (916) 654-4735 or by e-mail at Heather.Raitt@energy.ca.gov. News media inquiries should be directed to the Media and Publications Office at (916) 654-4989 or by e-mail at mediaoffice@energy.ca.gov.

Date: March 6, 2017

Original Signed By

ROBERT B. WEISENMILLER
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2017 Integrated Energy Policy Report

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