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BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

Order Instituting Rulemaking to Continue Implementation and Administration, and Consider Further Development, of California Renewables Portfolio Standard Program.

Rulemaking 18-07-003

ADMINISTRATIVE LAW JUDGE'S RULING REQUESTING COMMENTS ON STAFF PROPOSAL ON EFFECTIVE LOAD CARRYING CAPABILITY, TIME OF DELIVERY FACTORS, AND PROJECT VIABILITY

Summary

This Ruling requests comments on the Energy Division Staff Proposal on three components of the Least-Cost Best-Fit (LCBF) methodology: effective load carrying capability, Time of Delivery (TOD) factors, and project viability.

Responses to the questions on the proposal are due no later than October 5, 2018; replies are due no later than October 15, 2018.

1. Background

The procurement process for compliance with the renewables portfolio standard (RPS) program¹ has included almost from its inception the use by the investor-owned utilities (IOUs) of a LCBF methodology for evaluation of bids. The LCBF methodology is periodically reviewed by the Commission and has been the subject of several statutory revisions.²

¹ The RPS program is codified at Pub. Util. Code § 399.11-399.32.

² The history of LCBF in the RPS program was reviewed in the Energy Division Staff Paper on Least-Cost Best-Fit Reform, at 1-2, which was adopted into this proceeding through Administrative Law Judge Ruling (June 22, 2016, R.15-02-020). The most recent statutory directives related to LCBF are found in Senate Bill (SB) 2 (1X) (Simitian), Stats. 2011, Ch. 1, and SB 350 (De León), Stats. 2015, Ch. 547.

On October 9, 2015, the Energy Division Staff (staff) issued a proposal for a standardized effective load carrying capability (ELCC) methodology for the three large IOUs, Pacific Gas and Electric Company (PG&E), Southern California Edison Company (SCE), and San Diego Gas & Electric Company (SDG&E), titled “Energy Division Staff Paper on Criteria for Effective Load Carrying Capability in Least-Cost Best-Fit Analysis for RPS Procurement” (October 2, 2015) (Staff Paper on ELCC), which was adopted into the record of Rulemaking (R.) 15-02-020. The ruling adopting the Staff Paper on ELCC sought party comments on staff’s proposal as well as a joint proposal for a standardized ELCC methodology from the three large IOUs. On March 9, 2016, staff’s revised ELCC proposal, “Revised Energy Division Staff Paper on Criteria for Effective Load Carrying Capability in Least-Cost Best-Fit Analysis for RPS Procurement” (Revised Staff Paper on ELCC) was admitted into the record of R.15-02-020. The ruling accepting the Revised Staff Paper on ELCC into the record also ordered a schedule for the adoption of an ELCC methodology.

On June 17, 2016, the three large IOUs submitted their joint proposal for a standardized ELCC methodology for RPS procurement, “Joint Response of Pacific Gas and Electric Company, Southern California Edison Company, and San Diego Gas & Electric Company to Administrative Law Judge’s Ruling Accepting Into the Record Revised Energy Division Staff Paper on the Use of Effective Load Carrying Capability for Renewables Portfolio Standard Procurement and Setting Schedule” (Joint IOU Proposal). On May 31, 2017, the IOUs submitted an updated proposal, “Joint Update of Pacific Gas and Electric Company, Southern California Edison Company, and San Diego Gas & Electric Company to Administrative Law Judge’s Ruling Accepting Into the Record Revised Energy Division Staff Paper on the Use of Effective Load Carrying Capability for Renewables Portfolio Standard Procurement and Setting Schedule” (Updated Joint IOU Proposal) that included a robust technical analysis of the ELCC studies that were conducted by the IOUs. On January 18, 2018, Energy Division staff

hosted an ELCC workshop to further develop the standardized ELCC methodology for use in RPS LCBF bid evaluations.

Separately, the implementation of project viability criterion, along with other LCBF factors, was introduced in the “Assigned Commissioner and Assigned Administrative Law Judge’s Ruling Identifying issues and Schedule of Review for 2016 Renewables Portfolio Standard Procurement Plans” (May 17, 2016) (2016 RPS Plans Assigned Commissioner Ruling (ACR)). Specifically, the 2016 RPS Plans ACR directed parties to give comment on the ongoing usefulness of and the legal sufficiency of current project viability screening given additional statutory mandates created by SB 2 (1X).

Lastly, on June 22, 2016, to effectuate a review of the LCBF methodology, the “Energy Division Staff Paper on Least-Cost Best-Fit Reform” (June 6, 2016) (Staff Paper on LCBF Reform) was accepted into the record of R.15-02-020. Parties were directed to submit comments based on the questions issued in the Staff Paper on LCBF Reform, including questions related to TOD factors.

This Ruling continues the Commission work to reform the LCBF methodology used in the RPS procurement by considering three factors of the LCBF methodology: effective load carrying capability, TOD factors, and project viability. The Staff Proposal on these three LCBF methodology factors is attached to this ruling as Attachment A.

2. LCBF Workplan

The Staff Paper on LCBF Reform issued on June 22, 2016, laid out a work plan to facilitate the reform of all LCBF factors in distinct groups over time. This Ruling modifies the work plan so that ELCC, project viability, and TOD factors are considered together in this Ruling. Other components of the LCBF methodology identified in Staff Paper on LCBF Reform are: 1) workforce development, 2) disadvantaged communities, 3) forward price curves, 4) air quality and environment, 5) ancillary services, 6) greenhouse gas, 7) renewable integration adder, 8) resource diversity, 9) optimal portfolio, and 10) deliverability status: capacity versus energy only. These components remain in scope but will be addressed later.

One or more of these remaining factors may be reviewed in conjunction with R.16-02-007 (the Integrated Resources Plan (IRP) proceeding) as part of the development of a Common Resource Valuation Methodology (CRVM). The CRVM is being developed to value resource attributes consistent with IRP modeling across all resource types, including those values informing RPS procurement activities and bid evaluations. To the extent that CRVM development activities involve RPS resources or the RPS LCBF framework, the two proceedings will coordinate and the RPS service list will be noticed.

3. Request for Responses to Questions

Parties are directed to file responses to the questions set forth in Attachment A: Staff Proposal. Comments on the proposal and responses to the questions on the Staff Proposal may be filed and served not later than October 5, 2018. Comments may not exceed 20 pages. Reply comments of not more than 15 pages may be filed and served no later than October 15, 2018.

In order to make it easier for parties to connect the questions to the information in the Staff Proposal, the questions for comment are listed in Section 4 of the Staff Proposal. It is not necessary to reproduce the proposal or question, but responses should be given consistent with the numbered headings and questions on the individual staff proposals.

Comments should be as specific and precise as possible. Legal arguments should be supported with specific citations. Where appropriate and useful, quantitative examples should be provided. For all information provided, parties should explicitly include all assumptions and data sources used, including links. For any supporting calculations or work papers, parties should include Excel workbooks with live, working formulas rather than hard-coded values.

Comments should be complete in themselves and should not incorporate by reference any other materials. Other materials necessary to the response should be attached, or, if the materials are available on a web site, the link to the materials should be given. All comments should use publicly available materials or information. All

comments should specifically identify whether any potential sources of information addressed in the response to the question are confidential and should contain a justification for each claim of confidentiality.

IT IS RULED that:

1. Comments on the Staff Proposal and responses to the questions listed in the Staff Proposal may be filed and served in accordance with the instructions above no later than October 5, 2018. Comments may not exceed 20 pages.

2. Reply comments may be filed and served no later than October 15, 2018. Reply comments may not exceed 15 pages.

Dated September 12, 2018, at San Francisco, California.

/s/ NILGUN ATAMTURK

Nilgun Atamturk
Administrative Law Judge

ATTACHMENT A

STAFF PROPOSAL ON EFFECTIVE LOAD CARRYING CAPABILITY, TIME OF DELIVERY FACTORS, AND PROJECT VIABILITY

This proposal aims to continue the Commission work to reform the Least-Cost Best-Fit (LCBF) methodology used in the RPS procurement by considering three factors of the LCBF methodology: effective load carrying capability, time of delivery factors, and project viability.

1. Effective Load Carrying Capability (ELCC) for RPS Procurement

At the beginning of each Renewables Portfolio Standard (RPS) planning and procurement cycle, the Investor-Owned Utilities (IOUs) submit their respective RPS Procurement Plans (RPS Plans) and bidding protocol to the Commission for approval. Filed with each RPS Plan and bidding protocol is a detailed description of the IOU's LCBF methodology, which is the methodology the IOU uses for ranking and selecting bids from its RPS procurement solicitation(s). In their LCBF valuations, the IOUs currently include the bid's capacity benefits by valuing the Resource Adequacy (RA) benefits expressed in the form of an assigned Net Qualifying Capacity (NQC) of each offer bid.¹ The IOUs have certain discretion in assigning capacity values to their offer bids. For example, San Diego Gas and Electric (SDG&E) and Southern California Edison (SCE) rely on the NQC calculation done for RA program requirements to assess capacity value, whereas Pacific Gas and Electric (PG&E) uses a form of Effective Load Carrying Capability (ELCC) to determine NQC values of each renewable bid. In 2016, Energy Division

¹ Net Qualifying Capacity (NQC) is the amount of a resource's capacity that can be counted for Resource Adequacy (RA) compliance filings. (D.09-06-028 at 45) The RA NQC is calculated utilizing the generating facilities peak capacity contribution factor.

staff proposed that the three IOUs should use a standardized ELCC approach that is specific to RPS procurement within their LCBF methodologies.²

ELCC capacity values express how well a facility is able to meet reliability conditions and reduce expected reliability problems or outage events caused by capacity shortfalls. While the statutory mandate to value RA in LCBF does not explicitly require the use of ELCC values for RPS procurement, there are two primary reasons for switching from an RA NQC value to an ELCC value when evaluating the capacity value of new RPS resources. First, an ELCC approach is a more reliable and accurate measure of the qualifying capacity of renewables. ELCC measures resource capacity contributions over an entire year, not only during peak time as is the case with the current methodology that is used.³ Second, with increasing penetration of renewable resources, it is prudent to align RPS procurement with future system reliability conditions for effective planning and procurement of renewables. ELCC achieves this objective by establishing the capacity value of new renewable resources in relation to the whole electric system.

Consistent with the schedule set out in the *“Administrative Law Judge’s Ruling Accepting into the Record Revised Energy Division Staff Paper on the use of Effective Load Carrying Capability for Renewables Portfolio Standard Procurement and Setting Schedule,”* on January 18, 2018, Energy Division staff hosted a stakeholder workshop as part of the ongoing development of a marginal ELCC methodology to be used in LCBF bid evaluations. Prior to the workshop, Energy Division staff

² *Administrative Law Judge’s Ruling Accepting into the Record Revised Energy Division Staff Paper on the Use of Effective Load Carrying Capability for Renewables Portfolio Standard Procurement and Setting Schedule* (March 9, 2016, R.15-02-020).

³ The current methodology used is the “exceedance methodology,” which measures the NQC based on the 30th percentile of renewable production during a specified peak-time window.

solicited informal pre-workshop comments on the *Updated Joint IOU Proposal*. At the workshop, staff presented on the similarities and differences of relevant ELCC methods, such as those used in RA and Integrated Resource Planning (IRP), as well as those being proposed by the IOUs and Energy Division staff for adoption in the RPS proceeding.

To promote consistency with the IRP modeling requirements set out in D.18-02-018, staff proposes to utilize the same modeling conventions for calculating ELCC values in RPS procurement as is done in calculating values for the IRP. The model type that is to be used for calculating ELCC values for RPS procurement is the Strategic Energy Risk Valuation Model (SERVM) tool.⁴ The SERVM tool is the same probabilistic reliability model that will be used for production cost modeling in the IRP proceeding.⁵ In D.18-02-018, the Commission approved using the SERVM tool to develop a Preferred System Plan for the current IRP cycle, but acknowledges that modeling techniques may be improved in the future and are subject to change. In order to ensure consistency across planning and procurement, in the event that the model used for production cost modeling in the IRP proceeding changes in the future, the model used for calculating ELCC for RPS procurement should change as well.

⁴ Strategic Energy Risk Valuation Model (SERVM) is a probabilistic reliability model that studies reliability conditions of the current electric system and various future scenarios. The model determines the ability of resources (generators, storage, etc.) to meet future reliability risk. See: <http://www.astrape.com/servm/> for more information.

⁵ See D.18-02-018 at 136-140 for a description of how SERVM is being used in the Integrated Resource Planning (IRP) proceeding for production cost modeling and calculating Strategic Energy Risk Valuation Model (ELCC) values.

In response to the parties' pre-workshop comments and comments at the workshop, Staff proposes to use SERVVM to model a marginal ELCC⁶ for RPS procurement. SERVVM is currently being used in the Commission's RA and IRP proceedings to model the reliability of the electric power grid. In particular, the RPS ELCC methodology will include five essential assumptions:

- 1) treatment of behind-the-meter (BTM) Photovoltaic (PV) as a supply side resource,
- 2) a monthly Loss of Load Expectation (LOLE) study,
- 3) three resource classes and five resource class subtypes,
- 4) four geographic locations, and
- 5) installed capacities from the IRP Reference System Plan (currently 7,926 MW of wind and 16,445 MW of solar PV).

The first component of the proposed study specifies the method to account for behind-the-meter (distributed) solar PV resources. The proposed study would treat behind-the-meter solar as a supply-side resource with its own marginal ELCC values for RPS procurement. The second component prescribes a monthly LOLE study used to directly calculate monthly marginal ELCC values. The third component directs the marginal ELCC to include three resource classes (wind, solar PV, and storage) and five resource class sub-types (tracking PV, tracking PV paired with storage, distributed PV, wind, and wind paired with storage). For resources paired with storage, staff proposes analyzing 4-hour duration batteries. The fourth and fifth components of the proposal include breaking out the studies into four separate locations (Northern California, Southern California, the

⁶ A marginal ELCC refers to the effective capacity value of a marginal addition of a given resource class (i.e. wind or solar) to the overall electric system. If the system is saturated with a given resource class, the effective capacity of a marginal addition will be very small.

Northwest, and the Southwest) and utilizing the total installed capacities of 7,926 MW for wind and 16,445 MW for solar PV, as modeling assumptions. Table 1 (below) compares this staff proposal with staff's previous informal proposal as well as the Joint IOUs' proposal.

Table 1: Summary of ELCC Methodologies

	IRP Methodology	Joint-IOU's Updated Proposal	Staff's Informal Proposal Provided Before the Jan. 2018 ELCC Workshop	Staff's Post-Workshop Proposal for RPS
Method to account for BTM resources	supply-side resource with ELCC values (BTM PV only, other resources such as Additional Achievable Energy Efficiency (AAEE) remain load-modifiers)	supply-side resource with ELCC values (BTM PV only, other resources such as AAEE remain load-modifiers)	load-modifying resource with no ELCC values, modeling sales shapes, not consumption shapes	supply-side resource with ELCC values (BTM PV only, other resources such as AAEE remain load-modifiers)
LOLE/ELCC study	monthly	annual	monthly	monthly
Number of resource classes and resource class subtypes	All generators treated as one category in Portfolio ELCC	2 resource classes (wind and solar PV) and 3 resource class subtypes (tracking PV, fixed axis PV, and distributed PV)	2 resource classes (wind and solar PV) and 3 resource class subtypes (tracking PV, fixed axis PV, and distributed PV)	3 resource classes (wind, solar PV and storage) and 5 resource class subtypes (tracking PV, tracking PV paired with storage, distributed PV, wind, and wind paired with storage)
Number of locations	1 (California Independent System Operator balancing area)	4 (Northern CA, Southern CA, Northwest, and Southwest)	4 (Northern CA, Southern CA, Northwest, and Southwest)	4 (Northern CA, Southern CA, Northwest, and Southwest)
Installed capacities	7,926 MW wind and 16,445 MW solar PV	5,807 MW wind and 12,058 MW solar PV	7,926 MW wind and 16,445 MW solar PV	IRP Reference System Plan portfolio (currently 7,926 MW wind and 16,445 MW solar PV)

Staff also proposes that the specific portfolio of resources to be modeled in the updated ELCC study should be the resource portfolio from the IRP's Reference System Plan with a study year of 2022. The 2022 study year is proposed to examine the nearer term effects of RPS procurement. Finally, staff proposes that the results of the IOUs' marginal ELCC study is to be filed in their annual RPS Procurement Plans.

2. Project Viability

In 2009, the Commission directed the use of a project viability calculator (PVC) as one of many LCBF factors used to evaluate and rank bids, but did not adopt a particular PVC.⁷ Through later decisions, the Commission adopted the following two requirements for projects that bids were based on to participate in RPS solicitations: 1) project must complete its phase II interconnection study and 2) it must achieve the "application deemed complete" (bid prerequisites).⁸

In 2011, SB 2(1X) added new statutory language, Public Utilities Code Section 399.13(a)(4)(A)(iii), regarding project viability criteria for LCBF and through the 2016 RPS Plans Assigned Commissioner Ruling (ACR), the Commission sought party comment on whether the bid prerequisites by themselves satisfy the new project viability statutory requirements.⁹ Specifically, the new requirements

⁷ D.09-06-018 (Requiring IOUs to submit project viability methodologies and use Energy Division's Project Viability Calculator ("PVC")); D.11-04-030 & D.12-11-016 (Declining to modify the PVC).

⁸ RPS projects must complete a Phase II interconnection study or equivalent to participate in a solicitation. D.13-11-024 at Ordering Paragraph 10. Additionally, to participate in a solicitation, RPS projects must achieve "application deemed complete" or equivalent permitting status, meaning there is sufficient information to initiate the land use permitting process under California Environmental Quality Act or National Environmental Policy Act. D.14-11-042 at Ordering Paragraph 21.

⁹ *Ruling of the Assigned Commissioner and Assigned Administrative Law Judge's Identifying Issues and Schedule of Review for 2016 Renewables Portfolio Standard Procurement Plans at 20-22* (May 17, 2016, R.15-02-020)

are that an LCBF evaluation must consider: 1) a developer's experience, 2) the feasibility of the technology used to generate electricity, and 3) risk that the facility will not be built, or that construction will be delayed.¹⁰

On June 3, 2016, parties filed comments in response to the *2016 RPS Plans ACR*. The Large-scale Solar Association and Independent Energy Producers Association expressed concern that the two bid prerequisites alone may not satisfy the statutory mandates. However, SCE and Pacific Gas and Electric (PG&E) asserted that the phase II interconnection study and "application deemed complete" requirements sufficiently screen developers and projects thus making the PVC unnecessary. SCE further commented that project viability scores for all bids have increased significantly in recent years; therefore, the results of the PVC provide little insight and the bid prerequisites alone would be sufficient to screen project viability. Separately, Defenders of Wildlife and Sierra Club (Conservation Parties) commented that the PVC could be modified to accurately assess a project's environmental risks by considering additional permitting requirements.

To implement the SB 2(1X) LCBF requirements, staff proposes that the Commission adopt Energy Division's 2011 PVC (PVC 2.0) and direct the IOUs to use it in their LCBF evaluations.¹¹ Staff recommends the use of PVC 2.0 because it already includes evaluation categories of 1) company and development team, 2) technology, and 3) development milestones, thus satisfying the statutory requirement added by SB 2 (1X). In addition to satisfying statutory requirements,

¹⁰ *Id.* at 20.

¹¹ In 2011, Energy Division staff developed a second PVC (PVC 2.0). A copy of PVC 2.0 can be found at:
<https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&ved=0ahUKEwixgfG88pTZAhUBGKwKHdM-DIUQFggpMAA&url=http%3A%2F%2Fcpuc.ca.gov%2FWorkArea%2FDownloadAsset.aspx%3Fid%3D5904&usg=AOvVaw0TuE-cPga1-uGNcRFFdm6H>.

the PVC is still component relevant tool as it can screen project viability for new technologies and developer groups that submit bids for emerging resources in California, such as marine renewables.

3. Time of Delivery (TOD) Factors

Time of Delivery (TOD) factors are a set of multipliers used to adjust contract payments based on set hours of the day (TOD periods) and the expected time-differentiated values of electricity. TOD factors have been addressed in several previous Commission decisions,¹² and a detailed background on TOD factors was provided in the *Staff Paper on LCBF Reform*.¹³

TOD factors are currently used in two different ways. First, IOUs use TOD factors in their LCBF valuations to determine a bid's total contract costs, by adjusting levelized contract prices according to the time and quantity of energy deliveries provided in a bid. Second, IOUs use fixed TOD factors to calculate actual contract payments for procured renewable generation for the term of a contract.¹⁴ TOD factors are not used to value energy benefits¹⁵ in LCBF; they are only used to value contract costs.¹⁶ Further, TOD periods only adjust seasonally

¹² D.04-07-029; D.05-12-042; D.06-05-039; D.11-04-030; D.12-11-016; D.13-11-024; D.14-11-042; D.15-12-025.

¹³ Energy Division Staff Paper on Least-Cost Best-Fit Reform at 8-11, which was adopted into this proceeding through Administrative Law Judge Ruling (June 22, 2016, R.15-02-020).

¹⁴ If a PPA includes time of delivery (TOD) factors, the periods and factors are fixed over the course of the contract.

¹⁵ Energy benefits are based on the unique hourly values of energy for every year in the procurement horizon and energy cost forecasts.

¹⁶ See PG&E, *Reply Comments on Energy Division Staff Paper on Least-Cost Best-Fit Reform for Renewables Portfolio Standard Procurement* at 14 (August 8, 2016, R.15-02-020); SDG&E, *Final 2017 Renewables Portfolio Standard Procurement Plan: Appendix 9* at 3 (January 17, 2018, R.15-02-020); SCE, *Final 2017 Renewables Portfolio Standard Procurement Plan: Appendix H.1* at 4 (January 17, 2018, R.15-02-020).

and consist of multi-hour blocks of time. As an example, SCE has six TOD periods a year: on-peak, off-peak, and super-off-peak for both summer and winter.¹⁷ The IOUs submit their TOD factors and periods to the Commission in their annual RPS procurement plans.

In comments to the *Staff Paper on LCBF Reform*, parties responded to staff's question regarding the ability of TOD factors to value capacity and the role of TOD factors to incentive project design. Comments were wide ranging from expressing concerns to offering alternatives. For instance, several parties expressed concern that if TODs reflect capacity prices, the adoption of an ELCC methodology could cause double counting of capacity.¹⁸ Other parties opined that TOD factors could be used to incentivize optimal project design in order to address negative pricing and curtailment. Additionally, parties expressed concern about a lack of transparency into the development and application of TOD factors.

Specifically, SCE proposed in its reply comments the use of a new set of factors that better align with SCE's forecasted, long-term, time-differentiated system and energy needs.¹⁹ SCE's new set of factors would not directly apply in bid valuations; however, the new factors would communicate periods of high value energy for future years to developers. Bids that conform to the factors

¹⁷ SCE, 2017 *Final Renewables Portfolio Standard Procurement Plan: Appendix G.1* at 150 (January 17, 2018, R.15-02-020).

¹⁸ In its reply comments, PG&E asserted that using an ELCC methodology with TOD factors does not result in double counted capacity benefits, because ELCC applies to the benefit side of the net market value (NMV) equation and TOD factors apply to the cost side. PG&E, *Reply Comments on Energy Division Staff Paper on Least-Cost Best-Fit Reform for Renewables Portfolio Standard Procurement* at 14-15 (August 9, 2016, R.15-02-020).

¹⁹ SCE, *Reply Comments on Energy Division Staff Paper on Least-Cost Best-Fit Reform for Renewables Portfolio Standard Procurement* at 2-5 (August 9, 2016, R.15-02-020).

would have higher net market values (NMFVs), as they would more closely align with SCE's forward energy and capacity price curves which consider the unique value of every hour for every year that a project will produce energy in the LCBF framework.²⁰

Additionally, SDG&E raised concern in its reply comments that ratepayers could be harmed if projects are bid into solicitations with one generation profile then developed or operated with another generation profile.²¹

Staff proposes that the IOUs must use TOD factors in their LCBF methodologies to encourage optimal procurement and system operation. However, the IOUs should have the option of using TOD factors in one of the following ways: for valuing bids, for valuing bids and contract payments, or just for informational purposes as proposed by SCE. If they are used for valuing both bids and contract payments, identical TOD factors and periods must be used.

Staff also proposes that the IOUs must submit public TOD factors work papers as part of their annual RPS procurement plans to promote transparency. The work papers must show how the IOUs' TOD factors and periods were calculated, and all elements of the IOUs' TOD factors and periods calculations must be supported with citations or attachments explaining their inputs, assumptions, and methodology. Work papers must be submitted by all IOUs, whether their TOD factors are used for valuing bids, valuing bids and contract payments, or just for informational purposes.

²⁰ *Id.*; see SCE, 2017 *Final Renewables Portfolio Standard Procurement Plan: Appendix H.1* at 8-10 (January 17, 2018, R.15-02-020)

²¹ SDG&E, *Reply Comments on Energy Division Staff Paper on Least-Cost Best-Fit Reform for Renewables Portfolio Standard Procurement at 2-3* (August 9, 2016, R.15-02-020).

4. Questions for Party Comments

4.1. Effective Load Carrying Capability (ELCC) for RPS Procurement

1. Provide comments on Staff's proposal and explain why you do or do not agree with the proposal.
2. The IRP *Staff Proposal on Production Cost Modeling (September 2017)* and D.18-02-018 direct Energy Division staff to conduct a marginal ELCC study through a production cost modeling process when reviewing Load Serving Entity (LSE) IRP portfolios as part of the Preferred System Plan.²² It is proposed herein that the IOUs perform an updated marginal ELCC study in 2018 for use in future RPS procurement. If the ELCC for RPS procurement proposal is adopted, should the marginal ELCC study used for IRP Preferred System Plan also be used in RPS procurement? If so, in what capacity should the IRP study be used in relation to RPS procurement? Should the ELCC study performed by IRP staff be used as the primary marginal ELCC study in the future? *Provide a justification for your response.*
3. Staff proposes analyzing RPS resources paired with storage, specifically 4-hour duration batteries. Should the ELCC study analyze different battery durations or multiple variations? If so, what duration(s) and/or variations should be studied instead? *Explain reasoning for the proposed alternative(s).*

²² See Attachment E at 4 of the *Administrative Law Judge's Ruling Seeking Comment on Proposed Reference System Plan and Related Commission Policy Actions (September 19, 2017)*. See D.18-02-018 at 140 for the Commission's decision to use the SERVVM model to develop and validate a Preferred System Plan.

4. Staff proposes that the IOUs use the resource portfolio from the IRP Reference System Plan as the base portfolio to be modeled for the updated marginal ELCC study for RPS procurement. Is the base portfolio from the IRP Reference System Plan a reasonable assumption of installed capacities? If not what portfolio should be used? *Provide a justification for your response.*
5. Staff proposes that the IOUs use 2022 as the study year in the updated marginal ELCC study because marginal ELCC values should be calculated for multiple years in the future to account for expected changes in the electric system that may occur over the term of new RPS contracts. Would a different study year be more appropriate (e.g. 2026 or 2030) for the updated ELCC study? *Provide a justification for your response.*
6. At the January 18, 2018 workshop, parties discussed the potential differences between a monthly vs. annual ELCC on RPS bid ranking results. The Commission requests that the IOUs investigate the sensitivity of RPS bids' NMVs to changes in the ELCC study through utilizing two ranking systems: one using only annual marginal ELCC values and one using monthly marginal ELCC values, and provide the results in comments. The IOUs may use representative bid data obtained through a prior solicitation. *In their response, the IOUs should include work papers showing their calculations.*

4.2 Project Viability

1. Please comment on the Staff proposal and explain why you do or do not agree with the proposal.

2. Staff proposes that the IOUs be directed to use PVC 2.0 in tandem with the two Commission required bid prerequisites. Parties should explain why they agree or disagree with staff's proposal. If parties disagree, what alternative framework(s) could satisfy the three LCBF statutory requirements: 1) a developer's experience, 2) the feasibility of the technology used to generate electricity, and 3) the risk that a facility will not be built or construction will be delayed? The proposal should be detailed and explain how it satisfies the statutory requirements.
3. If PVC 2.0 is adopted by the Commission, are there components of PVC 2.0 that should be modified to ensure the project viability requirements are reasonably evaluated? For example, parties might recommend that PVC 2.0 could be modified to screen bids for environmental risks or a history of permitting problems such as delinquent fees or process delays. If so, provide a modified PVC 2.0 Excel spreadsheet, explain proposed revisions, and provide justification.

4.3. Time of Delivery Factors

1. Provide comments on Staff's proposal and explain why you do or do not agree with the proposal.
2. In its August 9, 2016, reply comments to the *Staff Paper on LCBF Reform*, SCE proposed that new aggregate factors should be used instead of TOD factors. The new aggregate factors would not be a component of LCBF to avoid the future use of fixed TOD adjusted contract payments. However, because the new factors are not fixed, SCE can provide additional information to bidders about the value of generation for different blocks of hours over the course of the procurement horizon. With the additional information, bidders could

develop more favorable bids that better align with SCE's forward price curves for energy and capacity benefits that drive its LCBF valuations. Energy Division proposes that these new aggregate factors, if an IOU were to formally propose them, would be assessed as a part of the IOUs' annual RPS procurement plans. *Explain why you support or oppose SCE's proposed use of information-only aggregate factors and the pros and cons of the proposal.*

3. In its August 9, 2016, reply comments to the *Staff Paper on LCBF Reform*, SDG&E expressed concern about potential harm to ratepayers when a constructed project's generation profile does not match the one submitted in its bid. Aside from contract payments tied to fixed TOD factors and reduced payments for excess deliveries, are there other ways to ensure projects are built consistently with their bids? *Explain your response.*

(END OF ATTACHMENT A)