



**Research Plan for the  
Demand Response Auction Mechanism  
(DRAM) I, II, & III Pilots**

**2015 – 2017**

**CALIFORNIA PUBLIC UTILITIES COMMISSION  
ENERGY DIVISION  
APRIL, 2017**



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# I INTRODUCTION

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The Energy Division of the California Public Utilities Commission (CPUC) presents this draft research proposal to evaluate the Demand Response Auction Mechanism (DRAM) pilots I and II.<sup>1</sup> The Commission authorized staff to conduct an independent analysis of the 2015 and 2016 pilot auctions and subsequent deliveries emphasizing six key criteria in D.16-09-056. This decision authorized Energy Division to access demand response research funds approved by the Commission in D.12-04-045 and D.16-09-029, if necessary.

The project has the following two research goals:

- Goal 1: Research the 2015 and 2016 Demand Response Auction Mechanism pilots, “DRAM I,” and “DRAM II” respectively, and the solicitation phase of the 2017 DRAM (“DRAM III”) guided by D.16-09-056 and Party input.
- Goal 2: Provide findings and recommendations based on the analysis on whether the DRAM should proceed as a permanent program and to guide the Commission in considering next steps.

The project has several objectives within these goals:

- Objective 1: Assess the DRAM pilots based on the Commission’s adopted criteria for determining its success.
- Objective 2: Explore additional questions based on input from Parties to R.13-09-011.
- Objective 3: Provide data and factual analysis as the basis of findings and to guide recommendations.
- Objective 4: Undertake a balanced analysis based on input from the range of market, utility and regulatory actors.

This draft research plan is based on guidance provided in D.16-09-056 and party comments on Administrative Law Judge (ALJ) Kelly Hymes *Ruling Requesting Responses to Additional Questions in Regard to the 2018 and Beyond Demand Response Programs*, issued on May 20, 2016.

## I.1 PROJECT TEAM SUMMARY

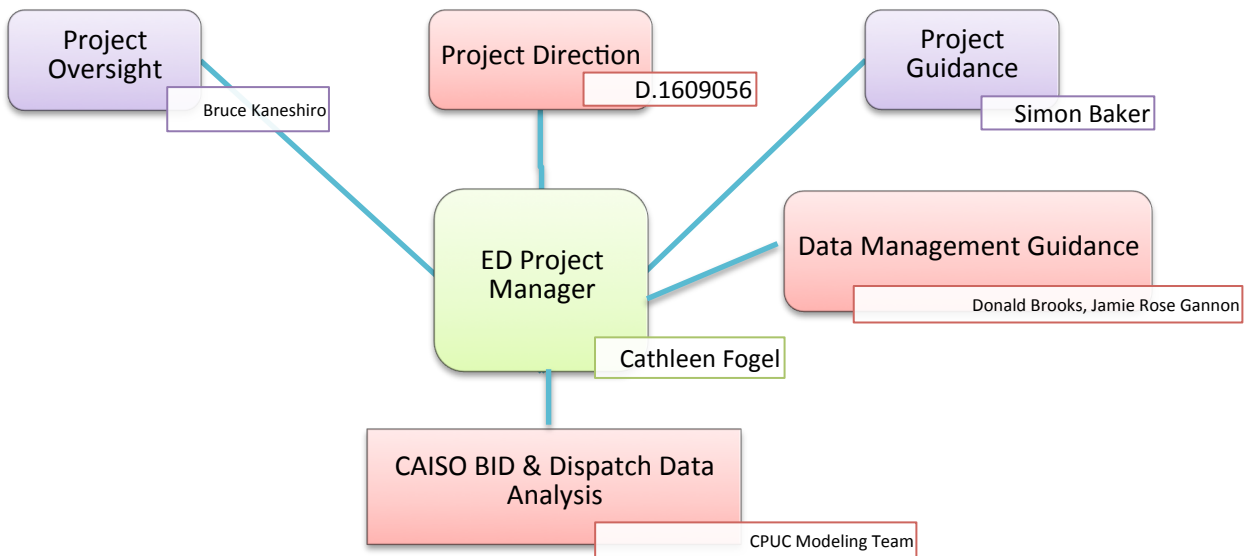
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<sup>1</sup> DRAM I covers the utilities’ 2015 auction and 2016 delivery period as approved in Resolution E-4728 (July 23, 2015) with non-substantive corrections in Resolution E-4737 (August 4, 2015). DRAM II covers the utilities’ 2016 auction and 2017 delivery period as approved in Resolution E-4754 (January 28, 2016), with further guidance provided in Resolutions E-4802 and E-4803 (September 29, 2016).

Energy Division has assembled a small team to perform this research. Cathleen Fogel, Ph.D., will lead the study, with advisory input from Bruce Kaneshiro, Supervisor of the Demand Response section of the Energy Division, and Simon Baker, Program Manager of the Demand Response, Customer Generation & Retail Rates Branch of Energy Division. Donald Brooks and David Miller, of the Division’s Modeling Section, will provide assistance with management and analysis of data from the California Independent System Operator (CAISO). Jamie Rose Gannon, of the Division’s Resource Adequacy Section, will provide guidance on matters pertaining to Commission and Investor Owned Utility (IOU) Resource Adequacy rules and practices.

## 1.2 PROJECT MANAGEMENT

To simplify project management and keep the project on schedule, all work will be led by Cathleen Fogel, who will serve as the project manager and work under the direct supervision of Bruce Kaneshiro, who will provide oversight. Cathleen is an experienced energy efficiency project manager with broad research experience in a number of areas, and has successfully managed several Commission research projects. Cathleen will be the primary point of contact for this project and will undertake or manage all tasks identified in the scope of work.



The Project Manager will convene a “Data Coordination Group” open to utilities, Sellers, Scheduling Coordinators and non-financially interested parties to R.13-09-011. The Group will meet as needed to discuss data needs and coordinate on issues like data format, sequencing, missing data, etc. CAISO staffs will be invited for relevant discussion topics. The Project Manager will also convene calls with types of market participants on data issues as needed (i.e., with DRPs; SCs, IOUs).

In addition, the Project Manager will determine, with input from Commission Management, the appropriate timing for one or more informal public workshops and/or conference calls to discuss progress of the study with all parties, as convened by Energy Division staff. Staff will provide ten days advance notification of such information workshops to the Service List for R.13-09-011. In addition, staffs will hold meetings with entities providing confidential data as needed.

### I.3 KEY TERMINOLOGY & DEFINITION OF TERMS

The following terminologies apply to the scope of the project:	
Terms	Acronyms
Aggregators	Agg
Demand Response Providers	DRP
Demonstrated Capacity	DC
Scheduling Coordinators	SC
Scheduling Infrastructure & Business Rules	SIBR
Customer Interface for Resource Adequacy	CIRA
Settlement Quality Meter Data	SQMD
Demand Response System	DRS
Customer Market Results Interface	CMRI
Independent Evaluator	IE
Resource Adequacy Availability Incentive Mechanism	RAAIM
Standard Capacity Product	SCP
Net Benefits Test	NBT
Must-Offer-Obligations	MOO
Flexible Capacity	FC
Local Capacity Requirements	LCR

We also define several terms used in either the adopted criteria or the metrics, below.<sup>2</sup>

“New” –

- *Customer* – A customer who is not enrolled in an IOU DR program or a DRP CAISO DR resource at the time: a) their CISR-DRP is processed; and/or, b) when the DRP registers the CAISO as a DR resource;
- *Demand Response Provider* – a DRP who has never participated as an aggregator in IOU DR programs;

“Competitive” –

- *Auction Bids*— Bids that are dispersed in a narrow range and are not above the long-term avoided cost of generation as updated according to R.14-10-003.<sup>3</sup>

<sup>2</sup> See Appendix I for a summary of definitions provided by parties to R.13-09-011.

- *Wholesale market offer prices*— wholesale DRAM DR market bids that are awarded and compare favorably to IOU DR Program bids in the CAISO wholesale market;

“Viable” –

- *Companies*— companies that bid into the DRAM pilots that were able to deliver the capacity for which they were awarded contracts;

“Reliable” –

- *Resource* – A resource that was consistently available to the CAISO market as demonstrated by energy bids during MOO hours; and, when scheduled by CAISO’s day-ahead market (DAM), the resource delivered most or all of the energy it was expected to.

## 1.4 SCOPE AND LIMITATIONS

The research goals and objectives of this project will be achieved within the following scope and limitations:

- Due to the limited time frame, Division staff will make every effort to access full CAISO data for DRAM deliveries in 2017 in time for completion of the study for internal review (by April 2018) and preparation and release of findings and recommendations (by June 1, 2018)<sup>4</sup>, as data availability within this time frame permits.
- Certain data and findings from the study are expected to be submitted with a request for confidential treatment due to the market sensitivity of bid and market clearing price information and/or consumer specific private nature of the data, and will be maintained in confidence by Commission staff. This may include certain aggregated findings.

## 1.5 TREATMENT OF CONFIDENTIAL DATA

We present in Section 3.1 below an initial assessment of whether or not presentation of data on a particular metric runs the risk of revealing confidential customer or bid data, even if aggregated. Ensuring that the final public report provides as much information as possible without revealing confidential data that may provide advantage to market players will be challenging. Towards this end Energy Division staff will adhere to applicable Commission Decisions, Resolutions and Public Utilities Codes.

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<sup>3</sup> The long term avoided cost of generation is the basis of the DR cost-effectiveness protocols adopted in D.15-11-042. See D.16-06-007 for information on cost-effectiveness methods across integrated distributed energy resources (IDER), including methods and frequency of updates of the long-run avoided cost of generation, to be applied across IDER demand-side resource proceedings.

<sup>4</sup> D.16-09-056 at 99.

We recognize Commission direction provided in Resolution E-4728, which reads:

“Within a reasonable period of time, or such time prescribed by the CPUC, Seller shall provide to the CPUC information requested by the CPUC relating to Seller’s obligations and performance pursuant to this Agreement and the 2016 DRAM Pilot to which this Agreement relates. In responding to any information request from the CPUC, the Seller may designate information for confidential treatment consistent with CAISO and/or Commission rule, tariff, or decision. Any such confidential information provided by Seller to the CPUC shall be held in confidence by the CPUC and excluded from public inspection or disclosure, unless inspection or disclosure is otherwise required by law.”<sup>5</sup>

In addition, Public Utilities Code Section 314,<sup>6</sup> subdivision (a) provides in part, that Commission staff “may, at any time, inspect the accounts, books, papers, and documents of any public utility. Subdivision b of Section 314 allows Commission staff to inspect the “documents of any business that is a[n] affiliate . . . with respect to any transaction between the . . . electrical . . . corporation and the . . . affiliate . . . on any matter that might adversely affect the interests of the [utility’s] ratepayers.” Section 583, subdivision (b) provides “[n]o information furnished to the commission by a public utility, . . . or affiliate of a public utility, . . . except those matters specifically required to be open to public inspection by this part, shall be open to public inspection or made public except on order of the commission, or by the commission or a commissioner in the course of a hearing or proceeding.”

Commission Decision 06-06-066 and its progeny, as well as Commission General Order 66-C, discusses the implementation details of Section 583. Parties are directed to examine Decision 16-08-024, *Decision Updating Commission Processes Relating to Potentially Confidential Documents* at page 19 and thereafter prior to submitting confidential materials to the Commission and/or its staff.

The Project Management team will only present to Commission staff, and non-financially interested parties that are members of the relevant Peer Review Groups (PRGs), any data or findings that could compromise DRAM participant confidentiality, even in an aggregated form, in any way. Such data and findings will be redacted from publically released copies of the report as supervised by Energy Division Management. Staffs will ensure that personal customer data is anonymized to the requisite level of aggregation as adopted in D.14-05-016.<sup>7</sup>

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<sup>5</sup> Resolution E-4728 at 37. This language is also included in the DRAM I and II pro forma contract approved by the CPUC, at section 3.3(a). Final DRAM I pro forma contracts are contained in IOU Advice Letters: PG&E AL 4618-E-A; SCE AL 3208-E-A; and SDG&E AL 2729-E-A. Final DRAM II pro forma contracts are contained in IOU Advice Letters: PG&E AL 4719-E-A ; SCE AL 3292-E-A, and SDG&E AL 2796-E-A.

<sup>6</sup> All further statutory references shall be to the Public Utilities Code unless specified otherwise.

<sup>7</sup> See in particular, D.14-05-016, Findings of Fact 28 – 34.

In addition, staffs will anonymize responses to survey and interview questions in order to keep the identities of respondents confidential.

## 2. BACKGROUND

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The Order Instituting Rulemaking to Enhance the Role of Demand Response in Meeting the State's Resource Planning Needs and Operational Requirements (R.13-09-011) and a Subsequent Scoping Memo (April 2, 2014) determined that a competitive procurement mechanism for demand response (DR) capacity would be developed, piloted and implemented. D.16-09-056 reiterated the objectives for the DRAM of ensuring competitively priced, cost-effective and reliable demand response resources for California and engaging new third parties and customers.<sup>8,9</sup>

The Commission approved the IOU's DRAM I auction design, protocols and standard pro forma contract, bid evaluation criteria and non-binding cost estimates in July 2015.<sup>10</sup> The IOUs' power purchase agreements from the DRAM I auction were approved by staff disposition in early Spring, 2016.<sup>11</sup> The Commission approved the IOUs DRAM II pilot design in January 2016.<sup>12</sup> In September 2016, San Diego Gas and Electric's (SDG&E) and Pacific Gas & Electric's (PG&E) initial procurement for DRAM II were approved by Commission resolution and Southern California Edison's (SCE's) DRAM II procurement was approved by staff disposition.<sup>13</sup> The additional DRAM II procurement for SDG&E and PG&E was approved by staff disposition in late October 2016.<sup>14</sup> Resolution E-4817 approved the IOUs DRAM III pilot in early January 2017.<sup>15</sup>

In DRAM I, the IOUs procured 40.5 MW for delivery in 2016. In DRAM II, the IOUs procured 124.6 MW for delivery in 2017.<sup>16</sup>

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<sup>8</sup> OIR to R.13-09-011 at 18.

<sup>9</sup> D.16-09-056, "Decision Adopting Guidance for Future Demand Response Portfolios and Modifying Decision 14-12-024," at 62 and 64.

<sup>10</sup> Resolutions E-4728, adopted on July 23, 2015.

<sup>11</sup> February 8, 2016 (SCE AL3340-E; PG&E AL 4772-E) and March 10, 2016 (SDG&E AL 2843-E).

<sup>12</sup> Resolution E-4754.

<sup>13</sup> Resolutions E-4802 and E-4803 approved San Diego Gas and Electric's (SDG&E) and Pacific Gas & Electric's (PG&E) initial procurement for DRAM II respectively and Southern California Edison's DRAM II procurement was approved by disposition letter.

<sup>14</sup> SDG&E AL 3004-E (October 28, 2016) and PG&E AL 4946-E (November 14, 2016).

<sup>15</sup> DRAM III pilot entails a competitive auction in Q1 2017 and deliveries in 2018-2019.

<sup>16</sup> DRAM II procurement occurred in two tranches for SDG&E and PG&E as ordered in Resolutions E-4802 (SDG&E) and E-4803 (PG&E), see SDG&E AL 3004-E and PG&E AL 4946-E.



In D.16-09-056 the Commission adopted six specific criteria for determining the success of the DRAM. It stated that these shall serve as the objectives that the DRAM must meet in order to expand its role in the resource adequacy market.<sup>17</sup> It further authorized Energy Division staff to conduct an independent analysis of the results of the DRAM I and II pilot auctions and the subsequent deliveries emphasizing the criteria. These are:

1. Were new, viable third-party providers engaged?
2. Were new customers engaged?
3. Were bid prices competitive?
4. Were offer prices competitive in the wholesale markets?
5. Did demand response providers aggregate the capacity they contracted, or replace it with demand response from another source in a timely manner?
6. Were resources reliable when dispatched, i.e., did customers perform appropriately?

D.16-09-056 further indicated that:

- Energy Division is required to hold a workshop no later than March 2, 2017 to present a draft study plan and take party comment.<sup>18</sup> Nine parties also provided written comment on the draft Plan by March 13, 2017.<sup>19</sup>
- No later than April 1, 2017, the Energy Division will provide a public report on its final list of metrics and evaluation plan, based on the workshop and party comments.
- Energy Division will perform its analysis emphasizing the criteria and present its findings and recommendations on whether to proceed from a pilot to permanent implementation of the mechanism to the Commission through a resolution. A draft will be issued by the Energy Division no later than June 1, 2018.<sup>20</sup> This timing will allow the Energy Division to review the results of all three auctions, delivery statistics from 2016 and 2017, and preliminary delivery statistics from the summer of 2018.<sup>21</sup>
- If the Commission approves the resolution, Energy Division will hold a workshop within 30 days of the approval. The purpose of the workshop will be to confirm the steps to

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<sup>17</sup> D.16-09-056, "Decision Adopting Guidance for Future Demand Response Portfolios and Modifying Decision 14-12-024," adopted on September 29, 2016, p. 66.

<sup>18</sup> D.16-09-056 indicated a deadline of January 31, 2017, but Energy Division later requested and was approved to delay the deadline until March 2, 2017.

<sup>19</sup> Parties providing comments on March 13, 2017 were: CLECA, the Joint DR Parties, OhmConnect, TURN, ORA, CAISO, PG&E, SDG&E, SCE.

<sup>20</sup> D.16-09-056, Ordering Paragraph 10 at pg 99.

<sup>21</sup> D.16-09-056 page 66.

implement the DRAM post pilot.<sup>22</sup> The workshop will discuss the advice letter process for approving implementation of the future auction mechanism and seek to ensure the implementation process complies with D.16-09-056. The IOUs will then have 60 days after the workshop to file a tier one advice letter requesting Commission approval of the implementation of the DRAM as described in D.16-09-056.<sup>23</sup> The first auction shall be held in the spring of 2019 for 2020 and beyond delivery.<sup>24</sup>

- Finally, D.16-09-056 outlines eight provisions for a future DRAM and directs the utilities to adhere to these in their tier one advice letter filing.<sup>25</sup> It states that following Commission approval to transition from pilot status, the DRAM shall continue to be administered by the IOUs and shall be the main procurement mechanism for resource adequacy capacity from all third-party demand response providers. It clarifies that DR programs implemented by the IOUs shall not participate in the DRAM and shall be capped at 2017 annual budgets until the mid-cycle program review in 2020.<sup>26</sup>

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<sup>22</sup> D.16-09-056, Ordering Paragraph 10 at pg 99.

<sup>23</sup> D.16-09-056, Ordering Paragraph 13 at pg 100.

<sup>24</sup> D.16-09-056 page 67.

<sup>25</sup> These eight parameters are: (1) The utilities shall offer annual auctions and must offer contracts to all complying bids up to the simple average August capacity bidding price; (2) The utilities are not obligated to procure over 400 MW each for PG&E or SCE, or 200 MW for SDG&E; (3) The utilities are not obligated to accept bids priced above the long term avoided cost of generation at the time of the auction; (4) The utilities are not obligated to award contracts to bids in which non-August capacity prices are outliers; (5) The utilities shall allow a range of contract lengths for the winning bidders from one to five years; (6) The penalty structure shall be equivalent to those provided in the resource adequacy contracts; (7) The utilities are authorized to record contract and administration expenses from the administration of the DRAM in the relevant Energy Resource Recovery Account; (8) The utilities shall ensure adherence to the prohibition of certain resources used in demand response. D.16-09-056 at 100. The same decision directed calculation of the simple average August capacity bid price by: (1) excluding the top 10 percent of August bids offered then (2) totaling all remaining August bid prices and (3) dividing by the number of bids in (2). It further directed the utilities to use the long term avoided cost of generation used in the most recent avoided cost calculator update, pursuant to D.16-06-007. D.16-09-056 at 73-74.

<sup>26</sup> D.16-09-056, Ordering Paragraph 9 at pg 98 and Ordering Paragraph 12 at pg. 99.

## 3. RESEARCH SCOPE

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### 3.1 RESEARCH GOALS, OBJECTIVES AND METRICS

This project has four objectives under its two goals. The goals and objectives are defined as follows:

**Goal 1:** Research the DRAM Pilots guided by D.16-09-056 and Party input.

- Objective 1: Assess the DRAM pilots based on the Commission's adopted criteria for determining its success.
- Objective 2: Explore additional questions based on input from Parties to R.13-09-011.
- Objective 4: Undertake a balanced analysis based on input from the range of market, utility and regulatory actors.

**Goal 2:** Provide findings and recommendations based on the analysis on whether the DRAM should proceed as a permanent program and to guide the Commission in considering next steps.

- Objective 3: Provide data and factual analysis as the basis of findings and to guide recommendations.

The Commission adopted the following six criteria for determining the success of the DRAM pilots, and directed Energy Division to review them by customer class:<sup>27</sup>

1. Were new, viable third-party providers engaged?
2. Were new customers engaged?
3. Were bid prices competitive?
4. Were offer prices competitive in the wholesale markets?
5. Did demand response providers aggregate the capacity they contracted, or replace it with demand response from another source in a timely manner?
6. Were resources reliable when dispatched, i.e., did customers perform appropriately?

The final Plan metrics, as edited based on party comments, are below:

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<sup>27</sup> D.16-09-056 at 66.