BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

Order Instituting Rulemaking Regarding Policies, Procedures and Rules for Development of Distribution Resources Plans Pursuant to Public Utilities Code Section 769	Rulemaking 14-08-013 (Filed August 14, 2014)

COMMENTS OF THE OFFICE OF RATEPAYER ADVOCATES ON POLICIES, PROCEDURES AND RULES FOR DEVELOPMENT OF DISTRIBUTION RESOURCES PLANS

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I. INTRODUCTION

On August 14, 2014, the California Public Utilities Commission (Commission) issued the *Order Instituting Rulemaking Regarding Policies, Procedures and Rules for Development of Distribution Resources Plans Pursuant to Public Utilities Code Section 769* (OIR or R.14-08-013). The OIR will establish policies, procedures, and rules to guide California investor-owned electric utilities (IOUs) in developing their Distribution Resources Plan Proposal (DRPs).[1] As required by the California Public Utilities Code (PU Code) Section 769, IOUs need to file their DRPs by July 1, 2015. The OIR will also evaluate the IOUs' existing and future electric distribution infrastructure and planning procedures with respect to incorporating Distributed Energy Resources (DERs)[2] into the planning and operation of their electric distribution.[3] Pursuant to the schedule in Ordering Paragraph 4 of the OIR, the Office of Ratepayer Advocates (ORA) respectfully submits these comments.

II. RESPONSES TO QUESTIONS IDENTIFIED IN THE RULEMAKING

1. What specific criteria should the Commission consider to guide the IOUs' development of DRPs, including what characteristics, requirements and specifications are necessary to enable a distribution grid that is at once reliable, safe, resilient, cost-efficient, open to distributed energy resources, and enables the achievement of California's energy and climate goals?

To guide the IOUs' development of the DRPs, the Commission should consider the costs and benefits specifically associated with the implementation of DERs, and should incorporate the interconnection criteria for smart inverter technologies currently under consideration in R.11-09-011.[4]

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[1] OIR at 1.

[2] Section 769 of the PU Code defines "distributed resources" to mean distributed renewable generation resources, energy efficiency, energy storage, electric vehicles, and demand response technologies.

[3] OIR at 2.

[4] Distribution interconnection/Rule 21 proceeding.

- Costs and Benefits Associated with the Implementation of DERs

Specifically, the Commission should consider DER program and implementation costs; the benefits to the IOUs; the benefits to the DER owners; and other societal benefits including reduction in green-house gas (GHG) emissions and other quantifiable economic benefits. The DER program costs for the IOUs should include reduced revenues, metering and system administration and management costs. The DER implementation costs for the customers should include the cost of the DER system and interconnection cost. The benefits to the DER customers include energy reliability and reduced electricity bills. The societal benefits include enhanced renewable energy and reduced green-house gas emissions.

To minimize the DER implementation costs and maximize the DER benefits, three criteria should be included in the DRPs. First, the DERs included in the DRPs should serve the local load in order to minimize the IOUs' load generation requirements. Second, the locations of the DERs should be such that they minimize the IOUs' and customers' interconnection and transmission and/or distribution network upgrade costs. Third, the DERs should help promote renewable energy and minimize GHG emissions.

- Incorporation of Interconnection Criteria

The Commission's distribution interconnection Rule 21 proceeding (R.11-09-011) to facilitate DER interconnection is ongoing. The interconnection criteria for smart inverter technologies being considered in R.11-09-011 should also be considered in this OIR. R.11-09-011 is considering new tariffs related to system protection problems for the distribution network that the interconnection of DERs could introduce, such as current and voltage frequencies, low and high voltage ride through, dynamic voltage – variation operation, ramp rates, fixed power factor, soft start reconnection, and anti-islanding protection, and other related issues. These same interconnection criteria should be incorporated in this OIR.

2. What specific elements must a DRP include to demonstrate compliance with the statutory requirements for the plan adopted in AB 327?

Pursuant to the requirements of Section 8 of AB 327, codified as PU Code Section 769,[5] the DRPs should include, at a minimum, discussion of the methodology, assumptions, and definitions used; and quantitative and qualitative analyses and discussion of results.[6]

- Discussion of Methodology, Assumptions, and Definitions

To comply with the requirements of AB 327, each DRP should include a discussion of the IOU's proposed methodology, assumptions and definitions used in their DRP. Ideally, the OIR would establish a uniform set of definitions, assumptions, and methodologies to be used by the IOUs in their DRPs. For instance, the statutory requirements of AB 327 do not define an "optimal location" for the deployment of DER or what calculation methodology and values should be used to identify those "optimal locations." Likewise, the statute requires "evaluation of locational benefits and costs" of DER and proposes a number of parameters to be used for the evaluation of those benefits and costs in PU Code Section 769(b)(1). Finally, the statute calls for the deployment of "cost-effective distributed resources," but fails to specify how this cost-effectiveness will be measured. There are a number of ways to do this measurement; for example the California Standard Practice Manual for Economic Analysis of Demand-Side Programs and Projects identifies four cost-effectiveness tests.[7] In order for the rankings of "cost-effective distributed resources" to be uniform for all the IOUs, the stakeholders should discuss and the Commission should decide on how the existing cost-effectiveness tests should be incorporated into the DRP.

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[5] https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201320140AB327

[6] Per the OIR, ORA attempts to limit response to this question to 1 page. However, ORA recommends that the specific elements in a DRP comply with the statutory requirements for the plan adopted in AB 327 be further explored in workshops.

[7] http://www.cpuc.ca.gov/NR/rdonlyres/004ABF9D-027C-4BE1-9AE1-CE56ADF8DADC/0/CPUC_STANDARD_PRACTICE_MANUAL.pdf at 8.

- Quantitative and Qualitative Analyses and Discussion of the Results

Ideally, the discussion of results in the DRPs or the workpapers submitted along with the DRPs would provide the data on "optimal locations" for the deployment of DER and the "cost-effectiveness" of DER on a granular level and provide the ability to roll-up the granular data to an aggregated basis (such as at a system, local, and/or sub-local areas). If granular and aggregated data were both incorporated, the Commission would have the ability to analyze the proposed DER projects on an individual basis and in the broader context of IOUs' portfolio of DER projects.

The qualitative analysis and discussion of the results in the short-term should be prioritized, per PU Code Section 769(b)(2-3), as the Commission already has a number of DER programs in place. The coordination of existing Commission-approved programs in a holistic and "cost-effective" way could yield net benefits to ratepayers within a relatively short time-frame. Once the coordination of an existing Commission-approved program is completed, the focus should then shift to more medium and long-term goals as discussed in PU Code Section 769(b)(1, 4 and 5).

Moreover, the DRP should identify and rank locations where DG can be connected to the grid (by circuit) and note if the interconnection would (1) benefit that circuit, and (2) have the least cost. The DRP should also identify limitations to size of interconnection that could be accommodated by a circuit.

3. What specific criteria should be considered in the development of a calculation methodology for optimal locations of DERs?

The calculation methodology for optimal locations of DERs should favor the locations that provide the optimal local load; incur the minimum interconnection and distribution upgrade costs; and cause the least or no disruptions to the utility

distribution system and services.[8] In order to maintain the safety and reliability of the distribution system when facilitating the interconnection of the DERs, applicable reliability criteria and safety codes should be considered. Lastly, in order to be economic, costs associated with the development of the DERs and interconnecting the DERs to the distributing system should also be considered.

Specifically, the calculation methodology should consider the following criteria:

- the optimum load to be provided by the DER,
- the required interconnection and distribution system upgrade costs, if any,
- the voltage profile of the distribution system after the DER interconnection,
- the power (real and reactive) flow situation of the distribution system after the DER interconnection,
- the short circuit current characteristics of the distribution system after the DER interconnection, and
- the costs associated with the development of the DERs and interconnecting the DERs to the distributing system.

4. What specific values should be considered in the development of a locational value of DER calculus? What is optimal means of compensating DERs for this value?

Generally, value should be given to those DER interconnections that maximize ratepayer benefits while minimize ratepayer costs. ORA supports the "right place, right time, right size, right certainty" criteria endorsed by the CPUC in 2003 in Decision (D.) 03-02-068.[9] There will be circumstances where DER interconnection will benefit

[8] The CAISO is currently proposing a new annual assessment methodology for determining and allocating resource adequacy deliverability for distributed generation resources. http://www.caiso.com/informed/Pages/StakeholderProcesses/DeliverabilityforDistributedGeneration.aspx

The Commission should be aware of the CAISO's Deliverability for Distributed Generation Stakeholder Process when evaluating the optimal locations for DERs.

[9] In D.03-02-068, the Commission adopted a set of criteria that DG must meet to provide distribution system benefits and allow the utility to defer upgrades or additions to distribution facilities. D.03-02-068 was issued on February 27, 2003 under OIR into DG (R.99-10-025).

the grid as well as circumstances where it may tax it. Therefore, the locational value of DER calculus should be quantified by the following criteria:

- Avoided generation, capacity and energy costs. DERs should be given higher locational values if they provide local load and avoid the IOUs' generation, capacity and energy costs.

- Offset transmission upgrades. DERs should also be given higher value if they help offset transmission upgrades and bulk generation investment. DER interconnection should avoid specific transmission upgrade costs to support demand growth in an area or location. The DER value should reflect the relative contribution of the DER in avoiding/deferring transmission upgrades.

- Avoid triggering network upgrades. The placement of DERs may necessitate distribution upgrades. A higher value should be given to those DERs that do not trigger distribution upgrades or interconnection costs. But the DRPs should include likely upgrade costs, if any, as a worst case scenario.

- Effective promotion of renewable energy and reduction in GHG emissions. The central goal of DER implementation is to promote renewable energy development and reduction in GHG emissions. Therefore, a DER should be valued according to the relative amount of renewable energy capacity and reduction in GHG emissions the DER provides.

- DERs should allow for growth. A high priority should also be given to those locations where DER will benefit the grid, while allowing growth of DER through new technology. Technology is changing fast; room for other technologies to interconnect at any one location must remain open so as not to lock the grid with only one technology. Stranded cost may be avoided by maintaining a grid that is not locked in by a singular technology that became obsolete. Also, over a longer timeframe, the cost of storage and other DER components may decline enough such that electricity can be supplied locally, at lower overall cost to ratepayers. Not having one type of DER technology dominate the grid at any one location will allow grid flexibility to incorporate new technologies and contribute to the achievement of the state renewable energy policies.

5. What specific considerations and methods should be considered to support the integration of DERs into IOU distribution planning and operations?

To support the integration of DERs into the IOUs' distribution planning and operations, the Commission should consider the ability of the DER:

- to provide energy to the needed local load and to reduce the IOUs' generation and its associated operational costs,
- to reduce or offset the CAISO identified transmission upgrades and bulk generation investment needed to support load growth,
- to enhance renewable energy development in the state,
- to reduce GHG emissions in the state, and
- to reduce the IOUs' overall system operating and maintenance costs.

6. What specific distribution planning and operations methods should be considered to support the provision of distribution reliability services by DERs?

Reliability levels generally reflect the geographic characteristics, customers served, history of the utility, age of the equipment, the operation and maintenance practices, and safety culture of the utility. Unless an upgrade is needed to facilitate integration of DERs or prevent degradation in service and reliability of the utility's distribution network, utilities should not perform costly distribution upgrades.

7. What types of benefits should be considered when quantifying the value of DER integration in distribution system planning and operations?

When quantifying the value of DER integration in distribution system planning and operations, the types of benefits that should be considered included: deferred upgrades, deferred generation required, increased reliability, and increased power quality. ORA reserves the right to further comment on these issues later in this proceeding.

8. What criteria and inputs should be considered in the development of scenarios and/or guidelines to test the specific DER integration strategies proposed in the DRPs?

The Commission should consider the following criteria and inputs:

- Baseline parameters of the distribution system, including the existing capabilities of the distribution system in interconnecting DERs and accommodating the performance attributes of the DERs. This will help evaluate and measure the system impacts of the DER interconnection into the existing legacy distribution systems.

- The expected benefits of the DER integration are the reduction in IOUs' load generation, enhancement in renewable energy development, reduction in transmission investments, and the reduction in GHG emissions. Therefore, the development of scenarios and guidelines to test the specific DER integration strategies proposed in the DRPs should achieve these objectives.

- The Commission also should consider inputs such as possible/probable third party development, including smart grid development, micro grid development, smart inverter, demand response, and energy efficiency. Considering these inputs will enable the distribution planners to optimize the DER integration solutions and minimize the cost of the DER integration.

- In order to minimize the cost and maximize the effectiveness of the integration, distribution planning should consider prevailing changes in the electric power industry, including new technologies and business models, and alternatives to the DER integration strategies.

- The Commission should establish a cost/benefit test and a DER integration solution should not be implemented until it passes the established test.

9. What types of data and level of data access should be considered as part of the DRP?

At this time, ORA does not present recommendations on the types of data that should be considered as a part of the IOUs' DRP. ORA notes, however, that data access is an issue for which the Commission has already established strict processes and procedures.[10] The Commission should rely upon its current data access practices and not use this proceeding to establish a new processes and practices for parties to obtain protected and proprietary utility and DER customers' data.

For example, the *More than Smart* paper posits that this proceeding "may also be an opportunity to consider expanding the role of the CPUC's new Energy Data Center."[11] However, the paper does not provide a compelling rationale for addressing the issue or how it is relevant to the type of data and level of data access that should be considered in this OIR. If the purpose is for third parties to gain access to customer energy usage data,

[10] *See*, D.11-07-056, D.12-08-045, D.13-09-025, & D.14-05-016; in R.08-12-009.

[11] OIR, Attachment B (*More Than Smart* paper), p. 9

that issue has been contemplated in statue[12] and thoroughly litigated in recent Commission decisions.[13] Further, to the extent energy usage data is needed for the IOUs to develop their respective DRPs, existing statute and Commission Privacy Rules allows the IOUs to provide access to energy data for various grid and operational needs.[14]

Similar to other operational data and market sensitive information, ORA urges the Commission to employ its existing practices. Nothing in AB 327 demands or warrants a departure from existing data and information security and protection practices. However, if an issue in this proceeding warrants the Commission to address access to DER energy use data, ORA recommends that the Commission allow parties to address the issue through legal briefs rather than through informal workshops in order to address the legal analysis that would be required.

10. Should the DRPs include specific measures or projects that serve to demonstrate how specific types of DER can be integrated into distribution planning and operation? If so, what are some examples that IOUs should consider?

Yes, the DRPs should include specific types of DER to be integrated into the distribution planning and operations. However, the types of DER proposed by the IOUs should be technology neutral and be proven technologies. The IOUs should include proposed pilot projects in their DRPs. These pilot projects would enable the IOUs to gain experience through lessons learned and modify their DRPs accordingly.

11. What considerations should the Commission take into account when defining how the DRPs should be monitored over time?

When defining how the DRPs should be monitored over time, the Commission should consider the avoided cost of energy purchases; avoided transmission and distribution upgrade costs, avoided transmission and distribution line losses, load

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[12] PU Code Section 8380.

[13] *See*, D.11-07-056 (issued 07/29/11); in R.08-12-009. *See*, D.14-05-016 (issued 05/01/14); in R.08-12-009. *Also see,* D.13-09-025 (issued 08/23/13); in A.12-03-002 et al.

[14] PU Code Section 8380(e)(2). *Also see*, D.11-07-056, Attachment D; in R.08-12-009.

reduction, and reduced compliance costs to meet California's environmental law, including GHG reduction. These are major goals and objectives of DER integration and the ability of installed DER to meet these objectives will be indicative of the effectiveness of the DER implementation.

12. What principles should the Commission consider in setting criteria to govern the review and approval of the DRPs?

PU Code Section 769(c) states that the "commission may modify any plan as appropriate to minimize overall system costs and maximize ratepayer benefit from investments in distributed resources." Therefore, the major principle the Commission should consider in setting criteria to govern the review and approval of the DRPs is the "cost-effectiveness" of investments in distributed resources.

ORA recommends the Commission prioritize maximizing the use of existing demand-side programs in order to minimize investments in distribution infrastructure as required in PU Code Section 769(b)(2-3). The coordination of existing Commission-approved programs in a holistic and "cost-effective" way could yield net benefits to ratepayers within a relatively short time-frame. Once the coordination of existing Commission-approved programs is completed, the primary focus should be shifted to more medium and long-term goals as discussed in PU Code Section 769(b)(1, 4 and 5).[15]

13. Should the DRPs include discussion of how ownership of the distribution may evolve as DERs start to provide distribution reliability services? If so, briefly discuss those areas where utility, customer and third party ownership are reasonable?

The DRPs should only include discussion of how the IOUs plan to comply with the Commission's determination of the ownership of the distribution. As a policy matter, the determination of ownership of the distribution should be part of the scope of this proceeding. Further, ORA recommends that the Commission hold workshops and allow stakeholders to discuss and fully explore the reasonableness of ownership models. ORA

[15] http://www.leginfo.ca.gov/pub/13-14/bill/asm/ab_1901-1950/ab_1935_bill_20140219_introduced.html.

notes that the ownership models should increase real net-benefits to all ratepayers, while ensuring that participants are not exposed to unknown or unjustified risks.

14. What specific concerns around safety should be addressed in the DRPs?

Safety with respect to the public, employees and the system should be addressed in the DRPs. The safety of DER owners and the public should also be addressed in the DRPs. The Commission should consider whether the utilities' existing safety practices are sufficient. DER owners and the general public should be aware of safety issues related to DER interconnection and DER operation. At minimum, the Commission should require the IOUs to implement safety best practices. Specifically, to protect the distribution system and the equipment interconnected to the system, acceptable performance requirements should be developed, and corresponding testing and monitoring systems should be installed to ensure that all the distribution components, including the DERs, perform to acceptable safety performance requirements.

15. What, if any, further actions, should the Commission consider to comply with Section 769 and to establish policy and performance guidelines that enable electric utilities to develop and implement DRPs? Attachment 1 to this order is a complete copy of AB 327 as enacted.

To the extent that benefits are defined in particular regions, or on particular substations, the Commission should consider giving a one-time incentive payment to encourage development in these specific circuits. Another option would be providing a monthly benefit. It may also be better to give an incentive based on the discounted life-cycle benefit of the interconnection based on the calculated benefit for having DG in a particular spot.

16. Appendix B to this rulemaking is a white paper that articulates one potential set of criteria that could govern the IOUs DRPs. Please review the attached paper and answer the following questions:

- Integrated Grid Framework: the paper opens by presenting an 'Integrated Grid Framework', what additions or modifications would you suggest be made to this framework?

- Integrated Distribution Planning: what, if any, additions or modifications would you suggest to the Integrated Distribution Planning section of this paper?
- Distribution System Design-Build: what, if any, additions or modifications would you suggest to the Distribution System Design-Build section of this paper?
- Integrated Distribution System Operations: what, if any, additions or modifications would you suggest to the Integrated Distribution System Operations section of this paper?
- Integration of DER into Operations: what , if any, additions or modifications would you suggest to the Integration of DER into Operations section of this paper?
- Integrated Grid Roadmap: what, if any, additions or modifications would you suggest to the Integrated Grid Roadmap section of this paper?

While the white paper mentions four possible end-states of the distribution grid: Grid as Back-up, Current Path, Grid as Network, and Convergence, it mainly discusses the Grid as Open Network or "node friendly" scenario. In addition, the fifth Guiding Principle (P5) leads the Distribution system Design-Build to "evolve grid to an open network."[16] ORA has concerns with this predetermined approach. The distribution planning should examine each of the identified end-states of the grid and use a modular approach to minimize the risk of stranded cost incurrence.

ORA recommends that the Commission hold workshops and allow stakeholders to discuss the potential set of criteria that could govern the IOUs DRPs. ORA reserves the right to further comment on these issues later in this proceeding.

III. PROPOSED SCHEDULE

The OIR's proposed date of September 22, 2014[17] for the replies to the initial responses and comments filed would not afford parties ample time to fully examine all of the issues presented in parties' opening comments and discussed at the workshop on

[16] Appendix B at 14.

[17] OIR at 10.

September 17, 2014.[18] Given the complexity and multitude of issues covered in this OIR, ORA recommends that replies to initial responses be filed on October 8, 2014.

ORA submits the following change to the proposed schedule:

August 14, 2014	Issuance of Order Instituting Rulemaking
September 5, 2014	Interested parties file responses to the questions above, as well as any comments addressing scope, schedule, and other procedural issues
September 17, 2014	Energy Division Workshop
~~September 22, 2014~~ October 8, 2014	Replies to initial responses filed
To be Determined	Pre-Hearing Conference
November 2014	Staff Proposal for Guidance on Distribution Resources Plan Proposal
November 2014	Workshop on Staff Proposal (if requested)
December 2014	Parties comments and replies on Staff Proposal
Late January 2015	Ruling with final Guidance on Distribution Resource Plan Proposals
July 1, 2015	Electric Utilities file DRPs
March 2016	Commission Final Approval of Distribution Resource Plan Proposals Anticipated

IV. CATEGORIZATION OF THE RULEMAKING

ORA agrees with the Commission that as a preliminary matter, this proceeding is a quasi-legislative as defined in Rule 1.3(d),[19] with a caveat that if this proceeding later

[18] OIR at 10-11.

[19] OIR at 11.

involves ratesetting issues as defined in Rule 1.3(e), then it should be recategorized as ratesetting, as described in Rule 7.1(e)(2).

V. CONCLUSION

ORA urges the Commission to adopt ORA's recommendations. ORA looks forward to participating in this important rulemaking to help guide the IOUs in developing their DRPs and to evaluate the IOUs' existing and future electric distribution infrastructure and planning procedures.

Respectfully submitted,

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VERIFICATION

I, James M. Ralph, am counsel of record for the Office of Ratepayer Advocates in proceeding R.14-08-013, and am authorized to make this verification on the organization's behalf. I have read the **COMMENTS OF THE OFFICE OF RATEPAYER ADVOCATES ON POLICIES, PROCEDURES AND RULES FOR DEVELOPMENT OF DISTRIBUTION RESOURCES PLANS** filed on September 5, 2014. I am informed and believe, and on that ground allege, that the matters stated in this document are true. I declare under penalty of perjury that the foregoing are true and correct.

Executed on September 5, 2014 at San Francisco, California.

/s/ JAMES M. RALPH

JAMES M. RALPH