



# **Distributed Energy Resources (DER) Action Plan**

## **Pre-Workshop Informal Party Comments**

[Due October 11, 2016]

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## Introduction

At Commission President Michael Picker's request, the [DER Action Plan](#) was developed by Energy Division to provide a coherent vision for the CPUC's activities on distributed resources and facilitate the coordination of numerous proceedings that affect DER deployment. The intent is for the DER Action Plan to be a "living document" that will continue to be refined over time. **A workshop has been scheduled on Tuesday, October 18, from 10:00 AM to 1:00 PM at Milton Marks Auditorium to discuss the draft DER Action Plan with stakeholders.**

Interested parties and stakeholders were invited to submit their pre-workshop comments by close of business (COB) on Tuesday, October 11 and their post-workshop comments by COB on Monday, October 31 at this [on-line portal](#). **This document is a compilation of all pre-workshop comment received.** Following the workshop and with subsequent additional refinements, President Picker is looking for endorsement of the DER Action Plan at an upcoming Commission meeting.

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### **DER Action Plan Informal Comments Submitted by Baker Street Publishing, San Francisco | October 10, 2016 – 15:00 | Online portal ID: 6442450965.**

A sustainable business and regulatory model for electricity will have the following four characteristics:

- 1) Energy services businesses (e.g., generation, storage) will be separated from transport services businesses (e.g., distribution and transmission.) Electricity transport tends to be a natural monopoly. Modern energy production is no longer a natural monopoly.
- 2) Operating decisions by producers and consumers are coordinated with spot prices. Spot prices will depend on time and location.
- 3) Investment decisions by producers and consumers are coordinated by forward transactions, e.g., long-term contracts and subscriptions. Long-term contracts have always been used by producers to coordinate investment decisions and manage risk. Subscriptions for electricity customers are in the experimental phase. See GFO-15-311, Residential Automated Transactive Energy System.
- 4) All parties act autonomously. There is a tension between central control and market coordination. Technology is enabling us to move decision making power away from the center and toward individual producers and consumers. This is good because central controllers can only minimize costs. They cannot maximize social benefit. Only individual producers and consumers know the benefits of energy use. The CPUC Discussion Draft of September 29, 2016 states, "A primary focus is on DER strategies that are controllable by grid operators and/or targetable to geographic areas." This focus can only delay our efforts to develop rate design strategies that maximize social benefit by coordinating producer and consumer decisions. Focus on coordination using innovative rate designs will speed the day when control is in the hands of producers and consumers. The challenge for the CPUC is to design a business model and rate structures that will unleash

the power of technology and spur innovation. Recent leaps in computing and communication technology are enabling distributed decision-making systems that were unthinkable just a few years ago.

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**DER Action Plan Informal Comments Submitted by CAISO | October 11, 2010 – 15:35 | Online portal ID: 6442450970.**

The California Independent System Operator Corporation (“CAISO”) appreciates the opportunity to provide pre-workshop comments on the Commission’s draft Distributed Energy Resources Action Plan. The CAISO looks forward to attending the October 18, 2016 workshop, and offers the following high-level comments on the draft.

The CAISO’s comments focus on Table 3—Wholesale DER Market Integration and Interconnection—in the section “Vision, Continuing, and Action Elements.”

- First, the CAISO suggests that Vision Element (A) should be amended to encompass a broader potential scope. Vision Element (A) currently contemplates that DERs will participate “in wholesale grid operations.” The CAISO suggests that the Commission contemplate a vision where DERs participate in local markets as well.
- Second, the CAISO suggests two additional Vision Elements in Table 3. Additional Vision Element (F) would be an established and effective short-term forecasting methodology of DER impacts at the transmission-distribution interfaces.
- Additional Vision Element (G) would be rules and procedures for how distribution utilities allocate limited distribution system capacity to DERs that participate in the wholesale market when there are constraints in the distribution system. The CAISO recommends the Commission consider adding corresponding Action Elements to these proposed new Vision Elements.
- Finally, the CAISO notes that the use of “By 2016,” “By 2017,” etc. in the various Action Elements is ambiguous in that it is unclear whether the Action Elements are to be completed before the year listed or at the conclusion of the year listed. The CAISO respectfully requests that the Commission clarify the meaning of these dates.

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**DER Action Plan Informal Comments Submitted by California Solar Energy Industries Association (CalSEIA) | October 11, 2016 – 15:39 | Online portal ID: 6442450971.**

October 11, 2016

President Michael Picker  
California Public Utilities Commission  
505 Van Ness Ave.  
San Francisco, CA 94102

Dear Pres. Picker,

The California Solar Energy Industries Association (CALSEIA) submits these informal comments in response to the draft Distributed Energy Resources Action Plan. CALSEIA is highly supportive of this timely effort to improve efficiency in policy development.

DER adoption in the form of customer-sited solar has grown dramatically, and we still need far more distributed solar in order to reach the state's greenhouse gas emission reduction targets. A supportive and fair policy backdrop is necessary for a market with thin margins and increasingly cautious customers.

In addition to creating good programs and policies, a well-planned, multi-year action plan can help increase regulatory certainty for all parties. Because customer-sited DERs require customers to take greater roles in the state's electricity system, potential future changes to programs and tariffs is a fundamental problem. Customers are understandably reluctant to invest money or make long-term commitments when there is too much risk that rules will change and undermine their attempts to do the right thing. Increased regulatory certainty should be a theme throughout the Action Plan and its implementation.

With the increase in distributed solar there is also a great need for energy storage, load management technologies, and grid services performed by smart inverters. These needs are urgent. California is showing the world how to rapidly grow distributed solar. We need to continue that leadership while also demonstrating how to maintain grid stability and market continuity.

### **New Tariff Development**

The draft DER Action Plan contains elements supporting the development of tariffs that enable DER adoption. These elements should be strengthened and put on a faster timeline. CALSEIA appreciates that the first Vision Element in the entire document states that there should be a continuum of rate options. Action Element 1.2 states that the Commission should "develop methodology for setting TOU periods" by 2017. It should be clarified that this includes TOU rate options that are designed for customers with energy storage systems.

Customer-sited energy storage is an excellent technical solution to the need for load shifting. Currently, however, storage systems are not cost-effective for customers without large rebates. We need to bridge that gap in a few short years. If we start now to develop tariffs that are specifically designed for storage customers, they will become available in the next two years and storage providers can then gradually introduce them into the marketplace in the following years. It will not transform the market overnight, so we must start now.

In addition to TOU rate structure, we need tariffs for grid support services. Both energy storage and smart inverters can provide services that have traditionally been performed by utility-sited assets. There are currently half a million inverters throughout the state, and that number will double in the coming years. Most inverters installed recently have advanced functions that can be activated if there is an economic case for doing so. That is a tremendous asset that we must harness. Voltage support and other grid services should be accurately compensated as soon as possible to put these existing assets to use for grid management.

Action Element 1.7 states that the Commission should "establish a forum for considering innovative rates and tariffs" by 2018. That forum should exist now, and should aim to make grid support tariffs available by

2018. This should also be highlighted in Section 2 of the Action Plan. Continuing Element 2 of that section covers the Integrated Distributed Energy Resources proceeding and includes the development of competitive solicitations but does not include development of tariffs. It is logical that the Commission envisions increased use of competitive solicitations for sourcing DERs, but relying predominantly on a top-down procurement approach would be far less effective than giving clear price signals those customers can react to.

The current market for DERs is driven almost entirely by tariffs that enable more than a thousand DER companies to work with customers to design on-site energy solutions. It is not realistic to expect all of those providers to win bids ahead of time for a certain amount of DER installation, and then find the right number of customers in the right places on the right timeline to satisfy the bids. Recent competitive solicitations seem to have gone well, but the actual construction of projects remains to be seen and the auction process would likely break down if it were scaled to the size of the market.

#### Recommended Edits

##### *Rates and Tariffs – Vision Elements*

#### F. Customers are able to have sufficient certainty in rate design to make long-term decisions

##### *Rates and Tariffs – Action Elements*

1.7. By 2018, begin making innovative rates and tariffs available to customers.

##### *Distribution Planning, Infrastructure, Interconnection, and Procurement – Continuing Elements*

#### 2.d. Grid support tariffs

### **Interconnection Timelines**

One of the greatest frustrations of the developers of solar systems for commercial and agricultural customers and developers of storage systems of all sizes is the uncertainty around how long it will take to interconnect a project. There are many examples of customers learning after a system is installed that it will be nine months before it can be turned on. Even if delays are anticipated before a system is installed, customers are reluctant to move forward if there is too much uncertainty over the timeline. Continuing Element 3 in Section 2 states that a Rule 21 proceeding needs to strive to provide “cost certainty and improve data collection.” An additional objective of reducing interconnection timelines should be added. Also, this item should be corrected to state that these changes will be considered in a successor to R.11-09-011, since that proceeding is closed.

#### Recommended Edits

##### *Distribution Planning, Infrastructure, Interconnection, and Procurement – Continuing Elements*

3. ~~Rule 21 Interconnection (R.11-09-011) proceeding~~ on Rule 21 and Rule 2, including evaluating the effectiveness of interconnection reforms and pilots to provide cost certainty, improve data collection, and reduce interconnection timelines.

##### *Distribution Planning, Infrastructure, Interconnection, and Procurement – Action Elements*

2.6. By ~~2018~~ 2017, the Commission will consider the use of Integration Capacity Analysis to streamline utility interconnection processes to accelerate DER deployment.

### **Data Access**

DER providers must have access to the data needed to develop solutions to address grid challenges. While data access is getting some consideration in the DRP proceeding, there is still a need to systematically identify the full set of data categories that would facilitate non-wires solutions to grid needs. The Commission needs to determine who will have access to what data, and in what form.

Improvements are also needed in the availability of customer usage data to DER providers with the customer's consent. The Commission created an excellent foundation with the Green Button program, but problems in implementation must be addressed. There are situations where utilities have refused to provide data to third parties with no basis in customer privacy concerns. When a customer actively wants a DER provider to design a solution that is appropriate for them, it should not be difficult to obtain the data to do so.

#### Recommended Edits

*Distribution Planning, Infrastructure, Interconnection, and Procurement – Action Elements*

2.10. By 2017, the Commission will consider actions to streamline access to data.

### **Reliance on Behind the Meter Resources**

The Commission should remove artificial barriers that may limit full utilization of behind the meter DERs. Behind the meter DERs should not be excluded from opportunities afforded to other resources. For example, the emergency storage procurement to address Aliso Canyon specifically excluded behind the meter storage. Additionally, the ability of behind the meter storage to provide and be compensated for capacity is limited by the host customer's load rather than the technical capacity of the battery to provide power. This problem is compounded for storage paired with NEM generation to the degree a given demand response event may be called at the same time that a solar system is producing (thus driving net load to zero or negative). Resources should be evaluated and compensated based on their ability to provide a service, not on some arbitrary boundary like on which side of a customer meter they are located on.

#### Recommended Edits

*Distribution Planning, Infrastructure, Interconnection, and Procurement – Action Elements*

2.10. By 2017, the Commission will consider actions to streamline access to data.

### **Reliance on Behind the Meter Resources**

The Commission should remove artificial barriers that may limit full utilization of behind the meter DERs. Behind the meter DERs should not be excluded from opportunities afforded to other resources. For example, the emergency storage procurement to address Aliso Canyon specifically excluded behind the meter storage. Additionally, the ability of behind the meter storage to provide and be compensated for capacity is limited by the host customer's load rather than the technical capacity of the battery to provide power. This problem is compounded for storage paired with NEM generation to the degree a given demand response event

may be called at the same time that a solar system is producing (thus driving net load to zero or negative). Resources should be evaluated and compensated based on their ability to provide a service, not on some arbitrary boundary like on which side of a customer meter they are located on.

#### Recommended Edits

##### *Distribution Planning, Infrastructure, Interconnection, and Procurement – Action Elements*

2.10. By 2017, consider rules for ensuring that customer-sited DERs can be designed and reliably deployed for grid management needs.

#### **Transmission Benefits**

DERs should be effectively considered as an alternative to transmission projects. Transmission costs have risen sharply in recent years, and customer-sited solutions can greatly reduce the need for transmission upgrades. The CPUC should work with the CAISO to reform transmission planning processes to allow DERs to be considered alongside more traditional wires-based solutions.

#### Recommended Edits

##### *Distribution Planning, Infrastructure, Interconnection, and Procurement – Vision Elements*

2.A. DERs meet distribution and transmission grid needs through a transparent, seamless planning and sourcing process, resulting in increased DER deployment and grid reliability with decreased cost.

Thank you again for your leadership in developing this Action Plan. CALSEIA looks forward to working with you on the refinement and implementation of the plan.

Sincerely,

/s/ Brad Heavner

Brad Heavner  
Policy Director

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#### **DER Action Plan Informal Comments Submitted by Clean Coalition | October 11, 2016 – 17:16 | Online portal ID: 6222450980.**

The Clean Coalition commends the Commission's development of California's Distributed Energy Resources Action Plan: Aligning Vision and Action. We believe this effort, the associated workshop, and future refinements are critically important to achieving California's goals, as outlined in the Draft Action Plan. In preparation for the workshop, we recommend allocating time to discuss several items central to the Draft Action Plan, including:

1. How the Action Plan and the proposed Steering Committee will provide guidance to the scoping and coordination of DER topics across different proceedings and venues;
2. The opportunity for stakeholder input regarding future revisions to the Action Plan;

3. How the Action Plan will guide interaction between the IRP and DER-focused proceedings—ensuring that overall procurement planning incorporates DER; and
4. How the Action Plan will guide ongoing deliberations concerning future utility business models.

Further, the Clean Coalition proposes several refinements to the Action Plan. First, the Commission tasked the IDER proceeding with developing a range of DER sourcing mechanisms; however, this role is not fully reflected in the Action Plan. As Commissioner Florio stated in his opening remarks to the IDER Workshop on March 28, 2016: “We envisioned that sourcing framework would be made up of programs, tariffs, and solicitations, at least: a portfolio of sourcing mechanisms that would increase the penetration of distributed energy resources while providing public benefit.”

- a. To reflect this guidance, continuing Element 2(2) should include other sourcing mechanisms in addition to the Competitive Solicitations Framework.
- b. Second, Vision Element 1(D) identifies only capacity benefits of DER, noticeably omitting consideration of any other benefits in rate development.
- c. Third, under Continuing Element 2(3), we note that the referenced interconnection proceeding (R.11-09-011) is closed and a successor proceeding will be required. Regarding overall timing, the Action Plan should:
  - 1) Indicate whether draft deadlines refer to the beginning or conclusion of each Action Element;
  - 2) List the anticipated duration of each Action Element, and
  - 3) Explore opportunities to expedite several items. The Clean Coalition is specifically concerned with the timing of the following Action Elements:
    - 2.6. By 2018, the Commission will consider the use of Integration Capacity Analysis to streamline utility interconnection processes to accelerate DER deployment.
    - 2.7. By 2018, consider developing guidelines to clarify the circumstances in which utility or affiliate ownership of DERs is appropriate.
    - 2.8. By 2020, fully operationalize advanced smart inverter functionalities to enhance the integration of DERs into the grid.
    - 2.9. By 2020, consider the role of Distributed Energy Resource Management Systems to enhance grid management and maximize the value of DER deployment.
    - 3.3. By 2018 assess regulatory options to streamline Commission jurisdictional interconnection rules (Rule 21) and FERC interconnection rules such as Wholesale Distribution Open Access Tariff for behind-the-meter DERs. Finally, regarding the extensive compilation of DER Sourcing Mechanisms in Appendix A, the Clean Coalition respectfully urges the Commission to incorporate a specific focus on coordinating these mechanisms—including a review of gaps where DER potential may be artificially constrained or underutilized. Examples include the limits on eligibility for net surplus energy compensation at wholesale rates within the NEM tariff; limits on the quantities of authorized procurement and related

market offers under ReMAT and other Feed-in Tariff programs; currently limited product categories for DR and the role of the DR Potential Study; and the optimization of DER dispatch between CAISO and distribution-level operations.

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**DER Action Plan Informal Comments Submitted by Coalition of California Utility Employees | October 11, 2016 – 14:41 | Online portal ID: 6222450968.**

1. AB 2868 was recently passed by the Legislature and signed by the Governor. It requires that the three largest IOUs propose 500 MW of programs and investments in distributed energy storage for which the IOUs manage the charging and discharging, and collect the costs from all customers. Up to 25% of the storage capacity may be behind the customer meter. This new law confirms clear legislative direction that the IOUs must be authorized to invest in and remain an integral part of deploying DERs. Consequently, several parts of the Action Plan should be updated and revised to read as follows:
  - a. Item 2.B. should be changed from: 2.B. Investor-owned utilities (IOUs) are motivated to accelerate deployment of DER regardless of the impact on distribution capacity investment opportunities to: 2.B. Investor-owned utilities (IOUs) invest in deployment of DER as required by AB 2868.
  - b. Item 2.C. should be changed from: 2.C. DER sourcing mechanisms are restructured to ensure that they are technology-neutral and competitively procured, where appropriate. Utility or affiliate ownership of DERs is also considered where it may be necessary to achieve market transformation or other public policy goals to: 2.C. DER sourcing mechanisms are restructured to ensure that they are technology-neutral and competitively procured, where appropriate. Utility or affiliate ownership of DERs is also considered where it may be necessary to achieve market transformation, other public policy goals or required by AB 2868.
  - c. Item 2.7 should be changed from: 2.7. By 2018, consider developing guidelines to clarify the circumstances in which utility or affiliate ownership of DERs is appropriate to: 2.7. By 2018, approve utility applications for ownership of DERs as required by AB 2868.
2. As we have commented in both the IDER and DRP proceedings, putting distribution reliability in the hands of unregulated third parties is a profoundly misguided effort that threatens both electric reliability and safety.<sup>1</sup> This effort is misguided not because it would increase Distributed Energy Resources, or even because it would have regulated utilities deploy DERs in place of more traditional resources. Rather, the flaw is putting distribution reliability and safety in the hands of unregulated third parties who have different economic and regulatory incentives than the regulated distribution utilities. The Commission has no statutory mandate to take this gamble. Yet the Commission has offered no response to our concerns, continuing its failure to engage in any consideration of the risks of this path. Until the Commission fully

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<sup>1</sup> Comments Of The Coalition Of California Utility Employees On The Assigned Commissioner's Ruling Introducing A Draft Regulatory Incentives Proposal, R. 14-10-003, May 9, 2016; Comments Of The Coalition Of California Utility Employees On The Competitive Solicitation Framework Working Group Report, R.14-08-013, August 22, 2016.

examines the merits of this path, Item 2 regarding the IDER proceeding should be deleted from the Action Plan.

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**DER Action Plan Informal Comments Submitted by Environmental Defense Fund | October 11, 2016 – 19:48 | Online portal ID: 6442450981.**

Environmental Defense Fund (EDF) has requested clarity about how the CPUC will align actions with the needs of a clear vision for the future. EDF applauds this Action Plan as a significant step towards toward clarification. EDF does identify a few missing pieces. Our most significant concerns are highlighted first, and then we provide a more detailed list.

**EDF Recommendations for Significant Elements to Add to the Action Plan:**

- EDF believes process reforms should focus on market functions rather than regulatory decisions to determine the evolution of the grid.
- The Action Plan should include a Vision to pursue a least-cost pathway to meet IRP goal rather than the Vision 2.F which seeks to deploy Distributed Energy Resources (DER) to “lower the cost”. The CPUC should adopt a vision of an open marketplace that will allow for a least-cost pathway to be “found” by innovative market actors.
- To open pathways for least-cost solutions, EDF believes the most important missing Actions are to advance time- and location-variant pricing (from Tariffs and Rates actions) and the necessary underlying marginal cost methodologies (from Distribution Planning actions.)
- Finally, EDF encourages the Commission to robustly weave the Integrated Resource Planning (IRP) proceeding into the Action Plan since DER deployment and optimization is going to be an important part of the IRP strategy.

**Detailed EDF Comments on the Action Plan**

**1. Comments on Tariffs and Rates Category**

- A. EDF supports the discrete category of Tariffs and Rates and strongly supports the Vision elements, including the advancement of “time- and location-variant pricing and incentives”. EDF encourages the CPUC to consider a portfolio of DERs.
- B. EDF believes a significant omission in the draft Action Plan are efforts to advance time- and location-variant pricing (from Tariffs and Rates actions) and the necessary underlying marginal cost methodologies (from Distribution Planning actions.) Neither the TOU pilots nor the DRP demonstrations are developing marginal cost methods, nor are they calculating the full set of values that DERs might provide to the distribution and transmission grids, and to wholesale markets for energy and ancillary services. The TOU pilots are not testing location-specific marginal distribution costs as a price signal in retail rates.
- C. The relationship between the rates and tariffs and distribution grid infrastructure categories needs to be recognized and leveraged. From the customers’ perspective, IOU & 3rd party programs are effectively

pricing regimes, so it is important for the Tariffs and Rates category to have an action item that considers rebates, subsidies and other incentive mechanisms.

- D. An important action item missing from the list is the need to make tariff-based “procurement” commensurate with contractual procurement. For example, customer investments prompted by tariffs should receive similar longevity assurances as contracts provided by vendors.
- E. While EDF strongly supports actions related to TOU rates, we are concerned about ongoing gaps remaining after the pilots are completed. That is, there is need for an action item that identifies and closes the gap between tested and needed marketing, education and outreach. Specifically, EDF notes the need for bill impact mitigation and strategies that better aligns demand with renewables so as to avoid economically irrational renewable generation curtailments. EDF sees the need for an action item to optimize DER services so as to mitigate TOU bill impacts; these strategies are not being planned for testing in the TOU pilots.
- F. Just as EDF is concerned about the timing of TOU pilots, it is not clear that the DRP demonstrations will be sufficiently comprehensive or timely to inform transitioning to residential TOU rates in 2019. It is therefore hard to know how well DRP planning can be done to reward DERs in ways that mitigate bill impacts associated with TOU rates, and there is currently no action item planned to address this concern explicitly.

## **2. Distribution Planning, Infrastructure, Interconnection and Procurement**

- A. EDF supports the Vision, with the exception that EDF believes process reforms should focus on market functions rather than command-and-control regulatory decisions to determine the evolution of the grid. In this vein, EDF supports an explicit recognition of the role of pricing, resulting demand-response, and impact on grid needs and characteristics. That is, in markets demand, supply, and prices influence each other dynamically; something the Commission should seek to emulate if the markets themselves do not yet exist.
- B. Rewrite Vision 2.B because EDF does not support motivating the IOUs to deploy DERs “regardless of impact on distribution capacity investment opportunities.” Rather, those opportunities should motivate environmentally beneficial DER deployments, both to utilize existing capacities and to optimize DER values.
- C. Vision element 2.D should include the perspective of total social cost and the full social cost of GHGs, not just GHG mitigation costs as reflected in the CARB cap and trade program allowance price.
- D. Vision element 2.F does not include a least-cost pathway; rather than a notion of “lower cost” without a point of comparison. EDF believes the CPUC should adopt a vision of an open marketplace that will allow for a least-cost pathway to be “found” by innovative market actors rather than an “avoided costs” mode of thinking. In this vein, growth scenarios need to explicitly link to tariffs and resulting expected responses in terms of the physical needs of the grid and customer investments in DERs.
- E. EDF supports the following modifications to Continuing Elements:

- a. Data needs should include Locational Net Benefits Analysis, Integrated Capacity Analysis and the other information that stakeholders, including EDF, have identified as necessary to empower customers and third party vendors.
- b. The second phase of General Rate Cases in which tariffs are considered should be included as a continuing element.
- c. Forecast methodologies need to be honed on an area basis, and include consideration of tariffs and associated impacts.
- d. Impacts on polluting air and greenhouse gas emissions should be considered.
- e. There is a big gap remaining: testing IOU fees of hosting DERs and providing services to those DERs
- f. Element 2.8 should also consider EVs, storage and smart appliances, and more should have more ambition for demand response (as per the LNBL DR potential study)
- g. PG&E's application to close Diablo Canyon assumes high and low scenarios of EE and DG penetration as well as commitments to fully replace Diablo output with GHG-free resources. However the proposed procurement only articulates 25% of Diablo's output. There is need to align and incorporate DER forecasts and citing into the replacement procurement for Diablo.

### 3. Wholesale Market Design

- A. EDF supports a Vision to unearth the set of principles and attributes that aggregated DERS must achieve in order to effectively compete in ancillary markets and as fast ramping resources. That is, EDF supports consideration of the ways DERs might function and compete in a regionalized grid, and what market reforms are needed to maintain growth of DER in an expanded market.
- B. With this goal in mind, continuing elements should consider CAISO initiatives, such as the Energy Storage and Distributed Energy Resources stakeholder process.
- C. It is not clear to EDF where the Diablo Canyon-related commitments by PG&E will fit into the RA/LTPP plans and IEPR load forecasts. (This point overlaps with the other two categories of vision/action.)
- D. Action Element 3.2 should consider how to maximize value for DER portfolios, not just NEM policy. As well, market reforms should allow for aggregated DERs to provide resource adequacy values to enable least-cost pathways toward the Action Plan vision.

### 4. IRP Coordination

- A. Finally, EDF seeks clarification on how the DER Action Plan will inform and or be informed by the Integrated Resources Planning (IRP). While the Action Plan acknowledges that not all PUC efforts are in the Plan, the IRP is a fundamental and transformative planning tool that is tasked with driving forward the SB 350 commitments.
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**DER Action Plan Informal Comments Submitted by Interstate Renewable Energy Council (IREC) | October 11, 2016 – 16:08 | Online portal ID: 6442450973.**

IREC is a 501(c)(3) non-partisan, non-profit organization working nationally to expand and simplify customer access to reliable and affordable distributed clean energy. IREC’s current work focuses on grid modernization (particularly hosting capacity/ICA, DER forecasting, and integrated distribution planning), interconnection, energy storage, shared renewables, DER policies for low- to moderate-income customers and customers in “disadvantaged communities,” and consumer protection and education.

IREC has been active in numerous California proceedings addressed by the Draft DER Action Plan, including: 14-07-002 (NEM 2.0); R.14-08-013 (DRP); R.14-10-003 (IDER); R.11-09-011 (interconnection); R.12-06-013 (residential rate reform); R.12-11-005 (DG); A.12-11-008 (GTSR); and A.14-11-007 (CARE/ESAP). IREC applauds the Commission’s effort to provide a long-term vision for DER and related policies, and to link this vision to ongoing proceedings and concrete actions. IREC generally agrees with the draft vision elements. However, we believe there are some gaps, especially with respect to near-term action needs. We provide specific suggestions in our areas of expertise below.

In sum, the Action Plan should address these key points: adopt broader interconnection and DER integration goals; identify bridges between short-term test projects and long-term shifts in policy and practice; and better incorporate the needs of low-income customers. IREC appreciates the opportunities to provide written and oral comments on this draft. For future updates to the Action Plan, IREC encourages the Commission to develop a clear process for soliciting and incorporating feedback from stakeholders in all affected proceedings, including ensuring effective notice of such opportunities is provided (e.g., via proceeding service lists). IREC notes that one potential role for the proposed Steering Committee could be to maintain an up-to-date website covering proceedings associated with the Action Plan, as part of its coordination efforts.

**Rates and Tariffs**

- V.A: Specify that the “continuum of rate options” includes options for low-income customers and customers in disadvantaged communities, to improve their access to and participation in DER growth
- V.E: Modify to state that rates should be affordable for not just non-DER customers but all customers, including especially low-income customers
- Additional Vision Element: Maintain predictable and understandable rates for DER customers and providers over time, to the extent possible
- C.5: Note that as part of the NEM 2.0 proceeding the Commission will consider policy alternatives to reach customers in disadvantaged communities in the immediate term
- A.1.7: Specify that innovative rates and tariffs under consideration should include a tariff or other mechanism to appropriately compensate energy storage customers and providers for discharge onto the grid

**Distribution Grid Infrastructure, Planning, Interconnection and Procurement**

- V.A: Add “proactive” as one of the intended attributes of the planning and sourcing process

- V.B: Indicate utilities will choose DER if they are cost-effective and meet policy goals; in doing so, the utilities should ultimately be indifferent between DER and traditional assets, and indifferent regarding DER ownership (utility vs. third party)
- V.D: Modify to state that frameworks should reflect “the full value of DERs including, but not limited to,” full grid services, renewables integration, GHG value, and any other values the Commission wishes to emphasize
- V.E: Broaden to include other improvements to interconnection, such as cost-sharing for distribution upgrades and the interconnection of energy storage
- C.1: Expand to include immediate/near-term continuing discussion and refinement of the ICA and LNBA, and discussion of how they will be deployed and used beyond the demonstration context
- C.3: Revise to note this proceeding also addressed interconnection of energy storage and advanced inverter issues; a recent decision closed this proceeding, so the Action Elements should include the need to open a successor proceeding to address interconnection issues and reforms going forward
- A.2.4: Add the identification of next steps required, and associated timelines and opportunities for stakeholder input, to continue to work toward the goal of DER integration into distribution planning as new technologies emerge and tools and methodologies become more sophisticated
- A.2.6: Also address other important interconnection reforms, including interconnection of energy storage, cost-sharing for distribution upgrades, and evaluation of the cost certainty pilot and its full incorporation into the procedures, either within this Action Element or in a separate element(s)
- Additional Action Element(s) should address the utility business model, cost recovery, and utility incentives and disincentives, to ensure the utility incentives pilot currently under consideration segues into meaningful, comprehensive reforms, including consideration of performance-based incentives and ratemaking
- Additional Action Element(s) should address the need to effectively link current and future utility general rate cases, which may include investments identified in the DRPs, with DER policy goals, to ensure the benefits of these investments as identified in the DRPs are realized in practice.

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**DER Action Plan Informal Comments Submitted by Marin Clean Energy (MCE) | October 11, 2016 – 16:13 | Online portal ID: 6442450974.**

The Commission should consider the growth of Community Choice Aggregators (CCAs) and their ability to deploy Distributed Energy Resources (DERs) when evaluating options to meet distribution system needs. The role and growth of CCAs need to be considered as the Commission deliberates on deploying DERs to address distribution system needs. All operational CCAs in California are founded with the mission to reduce Greenhouse Gas (GHG) emissions by adopting more renewable energy sources and DERs. The likelihood significant growth in CCAs is great in California, with CCAs actively launching or under development in much of the State. As new CCAs continue to form and existing CCAs expand, the role CCAs can play to deploy more DERs will become more significant.

Both MCE and Sonoma Clean Power have funded pilots to better understand opportunities and challenges associated with DER adoption, including Demand Response (DR), Electric Vehicle (EV), and Energy Storage (ES) technologies. As CCAs are actively pursuing an increase in renewable energy generation in California, they should also be incorporated in the DER planning and deployment to help facilitate renewables integration. CCA DER programs should be part of the distribution system planning and be eligible to deliver system benefits to meet identified system needs. MCE recommends that each CCA be able to appoint a representative to the DER Steering Committee. Moreover, the Commission should include two additional proceedings in the DER Action Plan to ensure that CCA DER programs are included in the Commission's DER planning efforts:

1. The Diablo Canyon Power Plant Retirement Proposal and the Integrated Resource Planning (IRP) proceeding. The Diablo Canyon Power Plant Retirement Proposal (A.16-08-006) should be added to the DER Action Plan. CCAs' deployment of DERs needs to be considered to accurately assess resource procurement needs and distribution system planning. The Commission should ensure that ratepayer funds will be spent prudently to deploy DERs based on actual system needs resulting from retiring a generation asset. The IRP proceeding (R.16-02-007) should be added to the DER Action Plan. The IRP will have significant impact on renewable integration and resource procurement. The Commission should provide clear guidance on the types of resources that can satisfy renewable integration through the IRP. Potentially, the sourcing of DERs to fill the generation needs of the retirement of the Diablo Canyon Power Plant should take place in the IRP because replacing a generation resource with DERs will likely impact other Load Serving Entities' DER procurement.
2. The Commission needs to explore other utility business models, most notably the Distribution System Operator (DSO) model. MCE urges the Commission to include vision and action elements to explore various utility business models in the DER Action Plan. As it currently stands, the DER Action Plan does not put forth a path to explore other utility business models to optimize DER integration and interconnection. There is tremendous interest among the stakeholders to delve into other business models. Many parties, including MCE, have expressed that the Commission needs to provide venues to examine other business models other than the utility incentive mechanism. Most recently in its General Rate Case (GRC) Phase 2 Application, Southern California Edison (SCE) argued that utilities are ideally positioned to act as a DSO to unlock the values of DERs. This signals to the Commission that there is tremendous interest among stakeholders to explore other business models.
  - a. The DER Action Plan (under Section 2 – Distribution Planning, Infrastructure, Interconnection, and Procurement) should acknowledge consideration of alternative business models such as a DSO deployment model under “Continuing Elements” in the IDER proceeding. The Commission can commence this process by hosting collaborative workshops in 2017 to gather stakeholder recommendations, and consider pilot proposals to test the feasibility of various models in 2019.
3. The Commission should ensure that sourcing mechanisms will adequately reflect California's environmental policy goals. MCE is encouraged that the DER Action Plan has elements that consider

how existing sourcing mechanisms reflect the locational value of DERs. MCE further recommends the Commission consider additional sourcing mechanisms such as programs and tariffs. The Commission should consider how sourcing mechanisms will help achieve California's environmental policy goals in addition to the goal of adequately valuing DERs based on the locational system value.

4. The Commission has already begun developing a cost-effectiveness test in the IDER proceeding. This test would reflect a program's ability to reduce GHG emissions. MCE recommends moving towards a unified cost-effectiveness metric that is based on carbon to better align resource deployment with State policy. When considering sourcing mechanism pilots, the Commission should pursue the pilots that would achieve the greatest carbon reduction to provide consistency with the State's environmental policy goals.

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**DER Action Plan Informal Comments Submitted by National Fuel Cell Research Center (NFCRC) | October 11, 2016 – 15:20 | Online portal ID: 6442450969.**

The National Fuel Cell Research Center (NFCRC) appreciates the opportunity to provide comments on the recently released draft Distributed Energy Resources (DER) Action Plan, prior to the October 18, 2016 workshop. The NFCRC is working with GE-Fuel Cells, LLC, LG Fuel Cell Systems Inc., Fuel Cell Energy, Doosan Fuel Cell America and Bloom Energy. The NFCRC has one important comment to offer on this draft document. The clear intention of this Action Plan is to provide technology neutrality.

We appreciate the very broad definition of DER per reference to Appendix A: Distributed Energy Resources (DER) Sourcing Mechanisms. In this Appendix, the inclusion of GHG-reducing fuel cell systems as DER is based on the fuel cell net energy metering (NEM) tariff and the Self Generation Incentive Program (SGIP). Pursuant to PU Code Section 2827.10, the size limit for the existing fuel cell NEM tariff is 1 megawatt (MW). This limit will increase to 5 MW under the provisions defined in AB1637 (Low, 2016). The SGIP limits projects to 3 MW. A key market for fuel cell systems is utility-scale DER, which already exceeds 5 MW projects in several other states and countries, including deployments up to 60 MW.

The NFCRC therefore requests clarification that DER fuel cell systems will not be constrained by the project size limitations in the fuel cell NEM tariff and the SGIP. Thank you again for the opportunity to provide comment, with the goal of creating the most comprehensive and environmentally beneficial DER programs.

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**DER Action Plan Informal Comments Submitted by Natural Resources Defense Council (NRDC) | October 11, 2016 – 22:04 | Online portal ID: 6442450982.**

1. NRDC thanks President Picker and the PUC staff for developing this DER Action Plan. The Action plan demonstrates the scope and ambition of California's many activities and proceedings related to DERs in a format that is digestible for the many interested stakeholders. NRDC appreciates this framing of DER deployment as a strategy to meet California's ambitious greenhouse gas reduction goals. It is important that

both AB 327 and SB 350 are cited as the key statutory drivers of the Action Plan. In addition, SB 32 should also be referenced.

2. General comments – Building on an already strong document, NRDC suggests the following overarching revisions and additions to the Action Plan:

- 2.1 Recommendation: The Action Plan should clarify opportunities for stakeholder engagement and feedback. For example, will the Steering Committee proposed in the Action Plan include stakeholders or will there be some alternative mechanism for non-PUC staff to provide input? Will there be clear processes (e.g. a DER Action Plan list-serve) so that stakeholders are informed if/when the Action Plan changes?

- 2.2. Recommendation: DER sourcing that occurs in the context of the IRP/LTPP proceedings and Diablo Canyon replacement should be added to Appendix A under the "Competitively Procured" and possibly "Incentive Programs" headings. These procurements will almost certainly include DER resources, so explicit acknowledgement of the need to coordinate with the other sourcing mechanisms and proceedings is warranted.

- 2.3. Recommendation: Where possible, the Action Plan should locate the “elements” in the forum where they will be addressed. For example, many of the “action elements” are not associated with a proceeding or other forum to guide the action identified. These relationships should be clarified where possible. For example, 2.2 (SCT in DER evaluation) is being addressed in the IDER cost effectiveness working group, 2.3 (locational value in sourcing) should be addressed in IDER, and 2.5 (grid modernization) should be addressed in Track 3 of DRP, etc.

3. Vision, Continuing, and Action Elements – In addition to those overarching recommendations, NRDC also suggests revisions and requests clarifications on specific “elements” of the action plan:

- 3.1. Rates and Tariffs

- 3.1.1. Recommendation: clarify in what contexts location-specific costs will be considered in rates and tariffs. Most of action elements outlined in the document focus on time-varying marginal cost. However, both the action plan and ongoing proceedings are beginning to consider location-specific costs. A substantial amount of Commission staff, utility and stakeholder effort has and will be put into developing tools like LNBA. Section 1.1.5 of the action plan reads "by 2018, ensure that analytical tools to assess value of DERs support review of NEM successor tariff." Clarity on whether tools being developed in 2016 will be used in tariff-setting is therefore needed to inform work that is presently underway.

- 3.2. Distribution Planning, Infrastructure and Procurement - The Vision Elements outlined in this section describe a regulatory, planning and operational framework that is very different from the one we have today. The Continuing Elements highlight proceedings through which the changes envisioned can be considered. The proceedings listed are a promising place to start, but it is not clear that they will be sufficient to make the state's ambitious policy vision a reality.

- 3.2.1. Recommendation: clarify connection of new valuation methodologies to GRCs. Section 2.1.c reads "Distribution deferral framework, including reforms to consider DRP results in GRC Phase I proceedings." This phrase suggests a transition in the utilities' revenue-requirement mechanism. Such a transition deserves special attention. As an example, consider a utility procurement based on LNBA values. If DER alternatives are deemed less-cost effective than some potentially deferrable infrastructure investments, are utilities' allowed revenue for those infrastructure projects bounded by DER providers' bids? It is unclear whether these issues can be addressed in Track 3 of the DRP proceeding or if some other venue is needed.
- 3.2.2. Recommendation: clarify the purpose and scope of the proposed grid modernization framework. Section 2.2.5 reads "By 2017, the Commission will conclude consideration of a grid modernization framework that shall set basic functionalities and interoperability requirements for utility grid investments." It is unclear what this process will entail and what outcomes it will produce. Will the definition of 'functionalities' and 'interoperability requirements' determine what types of projects utilities are allowed revenue recovery on? Will these definitions determine what services DER products can provide?
- 3.2.3. Recommendation: explicitly consider adjustments to regulatory and business models. Vision element 2.B. states that "Investor-owned utilities are motivated to accelerate deployment of DER regardless of the impact on distribution capacity investment opportunities." Instead, NRDC suggests that this element should read: "regulatory and IOU business models should be reviewed to ensure rapid deployment of DER in support of California's climate and energy goals."
- The changes in utility planning and sourcing outlined in this section raise questions of regulatory and utility business models. The vision in the Action Plan implies a substantial role for competitive procurement and new bulk-system interfaces in California's DER market. While California regulators and utilities have experience managing competitive procurements for system-level needs, use of these sourcing mechanisms to develop large quantities of DERs is not yet widespread. The traditional—infrastructure-oriented—utility regulatory and business model may not be appropriate in the context of a high DER deployment scenario that supports California's policy goals.
  - Several of the proceedings listed in the Action Plan touch on these business model issues (e.g. the pilot incentive mechanism in IDER & connection between DR programs and CAISO in Section 3). The outcomes of these proceedings will result in tweaks to the utility regulatory model. NRDC suggests a distinct process to understand the cumulative effect these tweaks and evaluate the state's evolving models against potential alternative structures. Such a process could also be an opportunity to map lessons from other jurisdictions with similarly ambitious clean energy and climate policy goals. (e.g. HI and NY).

**Pre-Workshop Comments of Pacific Gas and Electric Company on  
Discussion Draft, September 29, 2016  
*California's Distributed Energy Resources Action Plan – Aligning Vision and Action***

Pursuant to the Commission staff's request, Pacific Gas and Electric Company (PG&E) is pleased to provide its pre-workshop comments on the draft *California's Distributed Energy Resources Action Plan: Aligning Vision and Action*, provided by California Public Utilities Commission (CPUC) President Picker.

PG&E commends President Picker and Commission staff's goal of an integrated and forward-looking vision of changes driven by distributed energy resources (DERs). PG&E further appreciates the CPUC's efforts to align vision elements to near- and mid-term regulatory needs, enabling the DER Action Plan to serve as a roadmap for the dozens of applicable proceedings. An integrated and well-coordinated approach to the range of DER-related issues is critical, since so many topics cut across traditional utility functional areas or CPUC proceedings. PG&E looks forward to continuing to work with stakeholders to advance California's global-leading carbon reduction energy and environmental policies.

The DER Action Plan appropriately and affirmatively builds on and updates President Picker's February 2015 Assigned Commissioner Guidance Ruling in the Distribution Resources Plan (DRP) rulemaking (R.14-08-013), and adds new items and priorities that take into account the Legislature's enactment of Senate Bill (SB) 350 in 2016. To further support SB 350 in the DER Action Plan, PG&E recommends that the Commission include an overarching goal that focuses on cost-effectively reducing carbon across the entire electricity value chain to guide DER and non-DER proceedings. Implementation of the DER Action Plan should promote investments in new technologies and the grid to enable customers to take advantage of new and expanding DERs, while reducing overall costs and carbon emissions.

Given the interdependencies with other CPUC proceedings, PG&E encourages the Commission to consider the DER Action Plan as a "living document" that can be adjusted periodically to take into account the results of those proceedings, particularly the SB 350.

Integrated Resource Plans (IRPs). As required by SB 350, the IRP process will periodically produce comprehensive IRPs or plans that will include DERs as well as other candidate resources to achieve SB 350's requirements. Those IRPs will in turn be the basis for adjusting programs and tariffs in all the Commission DER-related proceedings that it references.

Design of rates and tariffs is another critical cross-cutting issue for customers as well as third parties and is an integral element of the DER vision that needs to be considered in a coordinated way. In particular, the DER Action Plan includes the Commission's on-going rate design reform proceedings, where the Commission is acting to ensure that residential electric rates reform and generally time-of-use rates for all customer classes are consistent with the ten rate design principles adopted in D.15-07-001, D.14-06-029 and other decisions to ensure rates are equitable and reasonable and send accurate cost-based signals.

Likewise, the DER Action Plan recognizes participation of DERs in FERC-regulated wholesale energy and CAISO-administered markets in conjunction with retail electricity markets regulated by the Commission. This complex initiative requires an extraordinary level of coordination and collaboration among the Commission, CAISO, FERC and all DER stakeholders.

As the Commission moves forward to flesh out the details of the governance structure for the DER Action Plan, PG&E recommends inclusion of additional detail on procedural schedules, expanded coordination, and possible consolidation among specific proceedings. Further, to most cost-effectively support customers and the market, the Commission should expand its DER coordination with other agencies such as the FERC, CAISO, California Air Resources Board, and California Energy Commission.

Again, PG&E commends President Picker and the Commission staff for taking this important and needed step, and looks forward to providing additional input on the Vision Elements, Continuing Elements and Action Elements of the DER Action Plan as the full Commission considers it.

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**DER Action Plan Informal Comments Submitted by San Diego Gas and Electric Company (SDG&E) | October 11, 2016 – 16:52 | Online portal ID: 6442450976.**

**CALIFORNIA’S DISTRIBUTED ENERGY RESOURCE ACTION PLAN:  
ALIGNING VISION AND ACTION PRE-WORKSHOP COMMENTS**

Date: October 11, 2106

To: California Public Utilities Commission

From: San Diego Gas & Electric

**I. Introduction**

San Diego Gas & Electric (“SDG&E”) appreciates the opportunity to provide pre-workshop comments to the Discussion Draft - California’s Distributed Energy Resource (“DER”) Action Plan: Aligning Vision and Action issued on September 29, 2016 (“DER Action Plan” or “Action Plan”). SDG&E appreciates the thoughtful approach that the DER Action Plan takes to DER integration into the electric system. The Action Plan is a well laid out roadmap that identifies a path forward toward wide-scale deployment of DERs onto the distribution system, which is one component of meeting the goals set out by Senate Bill (“SB”) 350. SDG&E believes the broad themes presented in the Action Plan provide a good framework from which to explore the details of an integrated DER future. SDG&E expects that as the details behind the Action Plan are fleshed out, a true DER implementation plan will emerge.

SDG&E appreciates the opportunity to provide these high-level foundational policy based comments prior to the workshop. We look forward to participating in the upcoming workshop and anticipate providing more detailed post-workshop comments specific to topics discussed during the workshop.

**II. DER Action Plan Purpose**

**A. The DER Action Plan should recognize the critical role of Integrated Resource Planning.**

SB 350, known as the Clean Energy and Pollution Reduction Act of 2015, includes new and overarching measures necessary to support the State’s efforts in achieving GHG emissions reduction targets in 2030. Notably, SB 350 represents a sea change in resource planning by mandating the creation of an Integrated Resource Planning (“IRP”) process aimed at meeting reliability needs and state policy goals, including GHG emission reduction, doubling of cost-effective and feasible energy efficiency (“EE”) and meeting a 50% renewable portfolio standard. SB 350 also dictates the critical role transportation electrification will play in meeting GHG reduction goals. SDG&E believes that SB 350 appropriately initiates “top-down” based discussions to developing state-wide based solutions that will be implemented, as appropriate, on a system-wide and/or localized level.

SB 350 changed the California Public Utilities Commission’s (“Commission”) long-term resource planning activities by requiring, among other things, that the Commission actively identify a diverse and balanced system-wide portfolio of resources needed to ensure a reliable electricity supply that meets state policy goals<sup>2</sup>. SB 350 requires the Commission identify a “diverse and balanced portfolio” and directs each electric corporation to propose “a strategy for procuring best-fit and least-cost resources” to satisfy that portfolio<sup>3</sup>. However, the DER Action Plan is notably silent on the IRP and fails to recognize the overarching role that SB 350 lays out for the IRP and its interplay with the other proceedings identified within the DER Action Plan. SDG&E submits that the IRP will provide critical guidance regarding the resource needs and characteristics, and most notably the information needed to determine the cost-effectiveness of both supply side and demand side resources required to meet reliability needs and achieve state policy goals. This top-down approach to system-wide resource planning, with a focus on both DER technology and ownership neutral procurement, will lead to identifying the optimal, most cost-effective portfolio of resources to achieve the desired level of GHG emission reductions.

Given the system-wide portfolio of measures needed to achieve the State’s policy goals under SB 350, the DER Action Plan should affirmatively recognize that DERs are just one of many tools that will be relied upon to meet GHG emission reduction targets in the most cost-effective manner possible.

**B. The DER Action Plan should recognize the changing landscape of the California Energy Market.**

The energy market in California has changed markedly over the past ten years. The DER Action plan needs to recognize these fundamental changes. First, if “behind-the-meter” DERs grow as expected in the current California Energy Commission (“CEC”) load forecasts and a doubling of cost-effective EE is achieved, utility loads will be declining, not growing. Thus, in some cases the addition of DER will not reduce the need for new resources but instead strand existing investments. Second, more choices are becoming available regarding who and how retail load is supplied. For example, there has been substantial growth in load served by Community Choice Aggregation (“CCA”), and the potential re-opening of Direct Access (“DA”) is debated each year in the legislature. This means that the investor-owned utilities (“IOUs”) will face the potential loss of

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<sup>2</sup> Pub.Util.Code Sections 454.51

<sup>3</sup> Pub.Util.Code Sections 454.51

a significant portion of their current loads. The DER Action Plan must acknowledge this change and consider future risks and uncertainty in order to implement well-conceived policies. Components of the DER Action Plan should only be implemented if the costs and benefits are shared equally across all customers.

### **III. Rates and Tariffs**

SDG&E is supportive of the vision presented in the DER Action Plan for rates, and provided with these comments are SDG&E's rate design principles as previously provided in various proceedings. Given the future challenges and opportunities faced by California IOUs, the importance of establishing the "right" rate design now cannot be overstated. There will likely be more change within the electric industry in the next ten years than in the past 100 years – California must anticipate this change and implement a well-conceived rate design that furthers rather than impedes advancement. It is critical that as the State moves forward into the next decade, its rate design policies be carefully crafted to maintain the current momentum toward realization of a sustainable energy future that incorporates increasing amounts of cost-effective DER through reliance on an advanced safe and reliable electric grid, while minimizing cost impacts on utility customers.

As we evolve from a world where all customers received "full service" from the utility, to one in which there is an abundance of choices available to customers for the various elements of service (i.e., rooftop solar for a portion of their energy needs, batteries for "banking" and/or meeting peak needs) previously solely provided by the utility, the need for accurate price signals that truly reflect the cost of the variety of services provided is critical. Achieving the State's energy policy goals in a sustainable manner requires load growth that is not dependent upon flawed rate design which creates cost shifts and results in indirect and at times unintended subsidies.

SDG&E's rate design policy objectives are summarized in the diagram below and described in more detail in the following:

#### **Diagram 1: SDG&E Rate Design Policy Objectives<sup>4</sup>**

1. **Accurate price signals:** Providing customers with accurate price signals means that utilities charge for the services they provide and rates are designed to cover costs on the same basis as they are incurred. By sending customers clear price signals regarding the cost of electricity and the cost of using the electric grid for the services they receive, SDG&E aims to give customers the best possible opportunity to make wise decisions about their energy use and to mitigate cost shifts between customers. Cost-shifting is exacerbated with incentives that are buried in rates and not transparently identified.
2. **Transparent incentives:** Incentives or subsidies that have been deemed necessary to further public policy objectives are separately and transparently identified. Building upon the foundation of accurate price signals, subsidies that advance state policy goals should be transparently identified in utility bills, separate from the charges for services provided to or from the customer.

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<sup>4</sup> Please refer to p. 5 of SDG&E's informal comments.

3. **Customer options:** SDG&E believes that a critical aspect of SDG&E’s policy framework is to balance the needs of customers while still providing a cost-based rate structure. SDG&E recognizes the importance of continuing to offer customers new cost-based rate options that best meet their needs.
4. **Transition paths to minimize impacts and inform customers:** SDG&E is committed to proactively providing customers with clear and timely information to help customers prepare for any rate change. SDG&E believes that implementing rate design changes in transitional phases: (i) helps to minimize customer impacts and (ii) provides the best opportunity for customers to progressively become more engaged and informed about the choices that are available to them.

SDG&E also believes the vision provided for rates should continue to align with the Rate Design Principles set forth in the Residential Rate Reform Proceeding (R.12-06-013). Only through explicit and transparent incentives can we simultaneously encourage conservation and energy efficiency, encourage reductions in both coincident and non-coincident peak demand, and maintain affordability for all customers. When all customers are able to see and be guided by the correct price signals, they are encouraged to make economically-efficient decisions, and will receive bill benefits for behavior that lowers the cost of service for all customers rather than for behavior that increases cost shifts to other customers.

#### **IV. Distribution Planning, Infrastructure, Interconnection, and Procurement**

##### **A. The DER Action Plan should prioritize Grid Modernization efforts that lead to a safer and more reliable grid and enable DER deployment.**

SDG&E believes that certain foundational principles should remain at the forefront of the Commission’s thinking. A modernized “Plug and Play” grid that is envisioned by many stakeholders is key to unlocking the potential of DERs to provide value and help meet California’s GHG goals. The modernized grid will increase safety and reliability, enable customer choice and DER development, and provide access to markets through the use of advanced technologies.

As with any industry, the electric grid is evolving due to the emergence of new tools and technologies. SDG&E’s view of Grid Modernization is not just what is needed to safely and reliably integrate DER, but more importantly, Grid Modernization is installing innovative new technologies, such as advanced micro-processor based control and protection systems, improved monitoring and communication with fiber optic connections, sophisticated substation and distribution automation systems, and technology platforms and applications that will allow SDG&E to improve the safe and reliable operation of the electric grid, regardless of DER penetration levels. A great example is through the deployment of advanced technologies such as wire-down detection, SDG&E is reducing the risk of wildfires and increasing reliability in its service territory by detecting and isolating a faulted wire before it actually strikes the ground. Grid Modernization efforts specific to DER penetration levels are technologies such as SDG&E’s Distributed Energy Management Systems (DERMS), which will enable SDG&E as a Distribution System Operator (“DSO”) to manage the grid in a way to maximize the use of DER to reduce GHG impacts of fossil fired generation. Increasingly, it is not just utilities, but also electric end-use customers who are adopting new energy technologies, such as electric vehicles (EVs), smart

homes, and energy storage. Without a modernized grid in place, these customers could be impaired from adopting these new technologies, potentially stifling customer energy choice. As part of the DER Action Plan, the Commission should accelerate consideration of Grid Modernization to put California on a path to a safe and reliable Plug and Play grid.

The first step toward the Plug and Play grid is to demonstrate the capabilities of DERs to meet distribution needs and provide value to the grid. The Distribution Resources Plan demonstration projects are instrumental in this effort. The Commission should not ignore, or pre-judge, the opportunity presented by the demonstration projects to incorporate their valuable learnings into the DER Action Plan. By first gathering the information learned in these pilots, the Commission will be better informed when it considers such aspects of the DER Action Plan as rates and tariffs, grid services, wholesale market participation, and “value stacking.” To proceed in these arenas without the knowledge gained from the demonstration projects would be shortsighted and result in a hodgepodge of DER initiatives that do not promote cost-effective DER, as well as an increase of cross subsidies to the detriment of all utility ratepayers.

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**DER Action Plan Informal Comments Submitted by Solar Energy Industry Association (SEIA) | October 11, 2016 – 15:55 | Online portal ID: 6442450971.**

President Picker: I write to you on behalf of the Solar Energy Industries Association (SEIA) in response to your Distributed Energy Resources Action Plan (hereafter “Action Plan”). SEIA appreciates the opportunity to comment on the Action Plan and thanks you for putting forward this vision. Given the complex work of the Commission occurring over numerous proceedings and under the direction of many California statutes, a vision helps parties navigate the complexity and provides clarity on priorities. We highlight some of the many strengths of this Action Plan that we find particularly relevant to the solar industry and the constellation of distributed clean energy resources that will increasingly accompany solar in the distribution system.

We also highlight a few items we believe warrant your, and the Commission’s, consideration. Most notable is a need for a broader examination of the regulated utilities’ cost-plus business model and accompanying cost-of-service regulation that have served the state well since the Commission’s founding over a century ago, but which create impediments to realizing the ongoing provision of reliable electricity at low cost for all ratepayers in an era of technology innovation and ambitious carbon reduction goals. We address the need for continuity to ensure the continued development of robust distributed energy resource and wholesale renewable energy markets while in the midst of a period of significant change. Finally, we note issues related to some of the tools needed to realize a distributed energy future, including smart rate design, data access and availability, and a deepening of the relationship between the distribution system and bulk electricity system.

**THE COMMISSION MUST EXPAND ITS WORK TO ALIGN UTILITY INTERESTS WITH CUSTOMER-DRIVEN DER ADOPTION.**

SEIA is pleased to see the Action Plan’s focus on reducing utility disincentives to the deployment of DERs embodied in plan’s vision element “Investor-owned utilities (IOUs) are motivated to accelerate

deployment of DER regardless of the impact on distribution capacity investment opportunities.” Progress has been made on this front, particularly with the examination of a shareholder incentive in the Integrated Distributed Energy Resources proceeding. We believe, however, that a multifaceted examination of cost-of-service regulation is needed to identify strategies for fully addressing the disincentive. Evaluating the "utility business model" is vital given that substantial capital investments are being proposed by the utilities while electricity sales are flat to declining.

Southern California Edison’s proposed 2.2 billion dollars of investment in grid modernization, the utilities’ electric vehicle charging plans, and recently enacted legislation permitting potentially hundreds of megawatts of utility-owned battery storage are notable examples of the significant investment that is being considered by the Commission or will be in the near future. California runs the risk of creating an overly capital-intensive and therefore expensive distribution system if the underlying motivation for utilities to make capital expenditures is not addressed.

The new categories of proposed utility investment highlighted above are on top of the routine billions in spending on distribution infrastructure. Despite a thirteen-year directive to consider DER alternatives to that routine utility distribution system investment, scant use of less expensive DER alternatives that has occurred in that time; this failure is not for a lack of technological capability or cost-effectiveness. Particularly following the passage of AB 327 in 2013, the Commission has done a laudable job directing the creation of many of the tools, such as the forthcoming Locational Net Benefit Analysis and Integration Capacity Analysis, which are needed to empower DERs to interconnect, provide new grid values and promote capital-efficient utilities. However, to ensure these tools are a success and fully utilized, we must have a full examination of the role utilities will play going forward, how they will be compensated in that role, and how they will be incentivized to excel in that role.

#### CLEAR TRANSITIONS ARE VITAL TO CONTINUING TO MEET CALIFORNIA'S CLIMATE GOALS WHILE ACHIEVING RATEPAYER SAVINGS

The high levels of clean energy resources expected both at the distribution and bulk-system level in the years ahead provide new opportunities for the state as well as new challenges. The Commission and the Independent System Operator are undertaking a number of transformative initiatives, including: the movement of all customers to time-of-use rates on a default or mandatory basis; the creation and implementation of a carbon-focused integrated resource planning process; a reinvention of distribution resources planning; the incorporation of distributed energy resources into wholesale markets; and the creation of new opportunities for distributed energy resources to provide- and be compensated for- a range of grid services.

Many of these initiatives are in the midst of multi-year processes and are not yet fully developed. In the coming years we hope, and we believe the DER Action Plan envisions, a distribution system where needs and constraints are transparent and a number of mechanisms- solicitations, rates, tariffs and other compensation mechanisms- are available for meeting those needs and further benefiting both customers adopting DERs. We believe a similar vision is shared for the bulk system, where distributed energy resources can provide an

alternative to transmission that would otherwise be needed to serve load and where these distributed resources are participants in numerous ISO markets.

Part of the challenge of making the transition to a future where DERs are playing an enhanced role is addressing different activities in the proper sequence and accounting for the ongoing operation of markets while new regulatory and market structures form. The DER Action Plan has done an excellent job of outlining a number of related issues being addressed concurrently in different proceedings and the necessary phasing of those different work streams to achieve their intended collective outcome.

One area where activity seems oddly delayed is the use of smart inverter functionality. Much of the enhanced functionality DERs can use to provide greater value to the system either exists in, or is managed by, smart inverters. Smart inverters provide new opportunities for customers and DER owners while also holding the promise of providing a lower-cost alternative to utility investments. However, while most smart inverters being deployed today have a vast array of potential functionality, the Action Plan does not envision the value of smart inverters being realized until 2019.

Also delayed is the consideration of Distributed Energy Resource Management Systems (DERMS) which can provide an operational hub for these smart-inverter enabled resources and their aggregators. We believe deployment of smart inverter capabilities can occur on a substantially expedited basis and believe the consideration of DERMS must occur soon as well. Another challenge in making the transition to the future envisioned by the DER Action Plan is that the state risks failing to realize some of the benefits that come from increased distributed solar deployment occurring while it develops this new future.

We can see several instances where a lack of continuity is yielding impacts today or where there is significant risk in the short term:

- 1) The wholesale distributed generation market is nearly moribund though commercial rooftops and distribution-tied ground mount solar opportunities exist; new tariffs and solicitations could provide an alternative to existing programs but remain several years away as proceedings progress.
- 2) While required to be sited close to load, Enhanced Community Renewables projects under the Green Tariff Shared Renewables program receive no locational benefits as the Distribution Resources Plan remains outstanding. This lack of locational value will persist until there is a resolution of locational valuation, and the lack of a locational value for projects in the program contributes to an unappealing customer proposition, which is expected to limit the market's response to the program. As a general matter there are scant opportunities for customers without the ability to use Direct Access to realize the financial savings that can come from community solar.
- 3) Although the state has a goal of all new residential construction being "zero net energy" (ZNE) by 2020, there is currently not a community solar program designed for new construction, which is essential to meeting the ZNE goal. Community solar for new construction would likely differ from existing homes in several ways. For example, California's existing community solar programs depend on customers' voluntary enrollment in those programs. In order for communities to achieve ZNE

status, however, enrollment in a community solar program might need to be mandatory. Moreover, when communities are designed to be ZNE, policymakers may wish to consider whether certain exit fees, like the Power Charge Indifference Amount, should apply, since customers taking delivery from an alternative provider from their inception are not “exiting” the utility’s system.

- 4) Uncertainty about changes to time of use periods in particular are creating uncertainty not only for potential new projects but also for customers who invested in response to price signals that stood for decades and which have helped shave both distribution and bulk-system peak capacity needs. Grandfathering of these existing customer’s TOU periods and a thoughtful approach guided by the outcome of the TOU OIR is vital.

### RATE DESIGN OPTIONS ARE KEY TO MATCHING SYSTEM NEEDS, CUSTOMER OPPORTUNITIES AND EMERGING AND EVOLVING TECHNOLOGIES

The Action Plan wisely highlights the need for rate designs that provide choices for customers. The compendium of rate designs with a continuum of rate options, and agile processes for adopting new innovative rates and tariffs, are essential to providing this customer choice. The principle of choice, and processes for developing rate choices, is particularly critical given the potentially dramatic changes in time of use rates currently being proposed by the utilities. As we have noted in the TOU OIR (R.15-12-012) choice is going to be key allowing customers to harness ample clean energy available during the day. While most customers lack loads they can shift into the middle of the day when increased load would be beneficial to the grid, some customers are well situated to do so or could make investments to take advantage of low-cost midday power.

Focused rate options are needed to achieve the desired response from these customers. Two example rate designs include “Discount Days” and a TOU rate for battery arbitrage. “Discount Days” would work much like critical peak pricing, but in reverse: when ample renewable electricity is expected, customers on this optional rate would receive a day ahead notice of reduced price electricity at those times. Another idea is a TOU battery arbitrage rate: while TOU rates adopted as default rates will not be sufficient to entice investments in battery storage, a rate with substantial differentials between on and off-peaks (in excess of 30 cents per kWh every day of the year) could incentivize the use of energy storage to shift load.

While well-crafted time-varying rates will help capture time-based value of DERs, rate design can also be a tool to capture locational value. The Commission has wisely recognized the broad array of tools- such as programs, rates, tariffs, solicitations, and other compensation mechanisms- that can help bring DER solutions to meet distribution grid needs and realize locational benefits. However, much of the discussion in proceedings has focused on solicitations, which are but one tool amongst the various “sourcing” options that could be developed.

Rate-based solutions to locational needs are one sourcing tool that needs further consideration. “Smart Home” rate designs can provide a scalable and focused way to “source” solutions to many of the locational needs that will be identified through the distribution resource planning process and the locational net benefit analysis. While new rate options, and processes for creating these options, are needed, there is also a need for

revisiting some long-standing rate design elements. Key among these is demand charges, and we are pleased to see the Action Plan's call for a revisit of the rationale underpinning non-residential demand charges.

At a time when some utilities are pursuing an ill-advised move towards residential demand charges, there is instead a need for a broader discussion of the value of mostly-volumetric rates in the Commercial class. SEIA has shown the value of mostly volumetric "Option R" rates, which are popular among commercial solar customers.

We also believe that, as the Commission considers how to incentivize longer duration energy storage or other forms of load shifting, that even a coincident peak demand charge can discourage the multi-hour load response desired as a demand charge occurs over a much shorter interval. Choice is key to enabling new technology adoption and beneficial customer responses through advanced rate designs, but there should also be recognition that choice includes the election of something that is simple.

Indeed, one of the keys to the success of behind-the-meter distributed solar, which has been adopted by over half a million California electricity customers, is a simple mechanism to credit electricity supplied to the electric grid and easily understandable rate schedules, which together provide a reasonable expectation of savings over the long-term. As the benefits of customer-sited solar spreads to new customers, we should not overlook the benefit of the choice to elect something that is simple. This is particularly true in light of the many moderate-income households that are a significant driver of residential solar growth now and going forward.

#### GREATER DATA AVAILABILITY AND ACCESS IS NEEDED.

In your Assigned Commissioner's Guidance on the Distributed Resource Plans in February 2015, you envisioned a DER "market" evolving in the coming years as part of a walk-jog-run progression in the state's DRP process. Markets thrive on ample data as those data foster competition and drive innovation. The dearth of available data on the distribution system and a utility mindset that there must be a clearly defined use case for any set of data inhibits the formation of robust markets. The Commission has required significantly increased data availability related to the Locational Net Benefit Analysis and Integration Capacity Analysis; this is a significant improvement from the methodologies originally proposed by the utility where data underlying these analyses was going to be held confidential.

At the same time, June's Rule 21 decision increases the transparency around costs for distribution system upgrades related to interconnection of distributed generation. Despite the increased availability of data, there is scant information about what the utilities' incremental investment needs are—for example, where is there a substation that needs increased capacity due to expected load growth and what are the underlying drivers of that need? This data can help enable the formulation of DER alternatives to these projects.

The utilities have argued that making this "market sensitive" data available would limit DER bids in any solicitation for non-wires alternatives to distribution infrastructure investments; this does not seem plausible in a competitive marketplace where providers will be driven to provide lower cost solutions to beat their competitors' bids. Instead, this lack of data is likely to limit the opportunities where DER solutions can provide alternatives to utility infrastructure investments since third-parties would be able to see needs beyond those the

utilities select for solicitations and provide proposed solutions in rate cases or other venues. With the current cost-plus utility business model, there is a clear disincentive for the utilities to make this data available. However, if maximum ratepayer savings are to be achieved the availability of this data is necessary.

**ENHANCED DISTRIBUTION SYSTEM AND BULK SYSTEM COORDINATION IS NEEDED.**

We are very pleased that the Action Plan includes a section on DERs participating in wholesale energy markets. Both inverter-based and synchronous renewable energy technologies are capable of providing numerous services beyond energy and capacity, and there are ongoing efforts at the CAISO and in other wholesale markets and regulatory bodies to ensure that there are market opportunities for these services. The CPUC has a role to play in helping address some of the “seams” issues between the distribution system and bulk system, particularly relating to the increased data flow needed between CAISO, the distribution utilities, and third parties, and more generally an understanding of the roles these three parties will play in coordinating distribution system needs with CAISO dispatches. Also needed is a greater incorporation of DERs into transmission planning processes.

The geographically granular forecasting of DERs under development in the Distribution Resource Planning proceeding will be a key input into the interrelated activities among the Energy Commission’s Integrated Energy Policy Report, the Commission’s Long-term Procurement Planning (now Integrated Resource Plan), and the CAISO’s Transmission Planning Process. The \$192 million in cancelled transmission projects due to distributed solar and efficiency growth announced by PG&E earlier this year is just one example of savings that could be enhanced through better forecasting.

Ensuring accurate forecasts will help avoid unnecessary transmission being built on the expectation of load growth. However, under FERC Order 1000 CAISO has the obligation to consider non-wires alternatives to transmission projects, which could yield incremental transmission avoidance. What remains unclear is how non-wire projects would be compensated when they are able to meet a transmission-level need, and the solar industry looks forward to working with CAISO to determine a means for providing this compensation.

Thank you again for your leadership in putting forward this Action Plan. We appreciate the opportunity to comment on the plan and look forward to working with you, the Commission, and Commission staff as this Action Plan evolves.

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**DER Action Plan Informal Comments Submitted by SolarCity | Submitted October 11, 2016 – 16:58 | Online portal ID: 6442450977.**

SolarCity appreciates the efforts of President Picker and the Commission to articulate an overarching vision and roadmap for distributed energy resources (DERs). The DER Action Plan, although an informal guidance document, is significant to the degree it serves to inform future efforts the Commission will undertake to facilitate the widespread deployment and effective utilization of DERs in furtherance of the state’s energy and climate policy interests. Generally we believe the DER Action Plan has reasonably characterized the high level categories that encompass critical elements in achieving the overall DER vision as well as the actions the

Commission should take. As discussed below, there are a number of elements that we feel could be further expanded upon to ensure the document more comprehensively addresses the efforts and activities necessary to bring the DER vision to fruition.

#### DATA ACCESS FOR GRID PLANNING AND DER SOLUTIONS.

The DER Action Plan identifies “DER Data Needs” as a “Continuing Element” under the “Distribution Grid Infrastructure, Planning, Interconnection and Procurement” Issue/Proceeding section (page 4). SolarCity agrees that data needs, specifically distribution system operational data, are an important element to fully accessing the opportunity embodied by DERs. Indeed, we would argue that data plays a pivotal role in animating opportunities for DERs, recognizing that the ability for solution providers to come to the table with innovative and cost-effective solutions to address grid needs depends fundamentally on understanding the nature of the grid needs that system operators face. To date, however, discussions on data needs and access have been somewhat scattershot, spread across multiple proceedings and/or across working groups within a given proceeding. SolarCity believes that a more comprehensive and centralized discussion would be highly valuable in advancing this issue.

Ultimately, we believe the Commission will need to identify the host of distribution system data elements that are necessary to support the development and application of DER solutions and establish requirements in terms of which of those data elements can be made available, to whom they should be provided, as well as under what conditions and formats. To that end, we believe the Action Plan should be amended to include some additional direction regarding how the Commission plans to address the data access issue. SolarCity suggests that within the Action Elements of the Distribution Planning, Infrastructure, Interconnection and Procurement section of the document that the Commission includes the following:

- “2.x By 2017 to the Commission shall develop a distribution resources planning data access matrix identifying the comprehensive set of data to support the development and deployment of DER solutions to address grid needs, as well as requirements regarding who shall have access to this data, under what conditions, and in what format.”

#### STREAMLINED CUSTOMER ENROLLMENT.

A somewhat prosaic, but very real challenge in fully taking advantage of DERs to provide a range of services, whether for purposes of supporting distribution system operations or providing wholesale services, is the customer enrollment process. To date, customer enrollment in various programs by a third party has required the submission of Customer Information Service Request (CISR) forms to the utilities, a time consuming and cumbersome process. In a recent decision, D.16-06-008, the Commission directed the establishment of a “click-through” process that would replace the existing approach with a process through which customer enrollment in demand response (DR) direct participation programs such as the Demand Response Auction Mechanism (DRAM).

With click-through enrollment, customers would be able to enroll in a program via email link that sent by a third-party DR aggregator. As the role of utility customers changes from being passive consumers of energy to

more dynamic participants in the energy system via behind-the-meter, grid-interactive assets, providing for a seamless process to enroll customers becomes increasingly important. However, the DER Action Plan currently does not explicitly include this. The establishment and ongoing efforts to implement click-through for DR direct participation programs is an important step, but this effort should be broadened to encompass all programs in which customer may wish to enroll. To that end, SolarCity suggests that the following language be included in the DER Action Plan, perhaps under the Rate and Tariffs section (pg. 3):

- Under Vision Elements: “F. Process for streamlined enrollment in utility tariffs and programs”
- Under Continuing Elements: “7. Complete development of “click-through” platform for DR direct participation”
- Under Action Elements: “1.9 By 2017 expand click through enrollment to all customer-facing programs.”

#### ROLE OF DERS IN REDUCING TRANSMISSION NEEDS.

Earlier this year, PG&E announced that it was canceling \$192 million in transmission projects owing to the deployment of energy efficiency and distributed solar, which had eliminated the need these projects were intended to address (see “Californians Just Saved \$192 Million Thanks to Efficiency and Rooftop Solar”; Julia Pyper, Greentechmedia, May 31, 2016. Available for download at <http://www.greentechmedia.com/articles/read/Californians-Just-Saved-192-Million-Thanks-to-Efficiency-and-Rooftop-Solar>). Moreover, a recent study by the Energy Commission found deferral of transmission projects is a potentially significant benefit of DER deployment. The study states that: “DERs can potentially provide ratepayer benefits in comparison to traditional system infrastructure investments. In the San Joaquin Valley region, the primary benefit is transmission infrastructure deferrals with an estimated long-term ratepayer benefit of over \$300 million.” (see “Customer Power: Decentralized Energy Planning and Decision-Making in the San Joaquin Valley,” California Energy Commission, July 2016. (<http://www.energy.ca.gov/2016publications/CEC-200-2016-005/CEC-200-2016-005.pdf>)).

These recent examples highlight the substantial benefits that DERs can provide by way of avoided infrastructure investment beyond the distribution system. Just as the Commission envisions reforming the distribution planning process to ensure that DER-driven solutions are considered alongside more conventional approaches to addressing distribution system needs, efforts should be undertaken to similarly ensure that DERs-driven solutions are considered in lieu of more traditional “wires-solutions” at the transmission level.

Currently there are significant challenges that limit the ability of DER solution providers to offer approaches to address transmission level needs through the deployment of DERs. Much like at the distribution level, access to the data that describes the nature of the problem a transmission project is intended to address is often too limited to offer meaningful alternatives. Additionally, there are significant cost recovery issues that need to get resolved. Specifically, while FERC Order 1000 requires transmission planners to consider non-transmission alternatives (NTAs) in lieu of conventional transmission solutions, it does not provide a means to recover the costs of those NTAs and allocate those costs to benefitting jurisdictions.

Thus, even if a DER-solution is more cost effective than a conventional transmission project, the inability to recover and allocate the costs puts DER projects at a considerable disadvantage to conventional transmission solutions, which can achieve cost allocation and recovery through Transmission Access Charges. Indeed, without a means to recover and allocate costs, DER providers are unlikely even to propose NTA solutions in the transmission planning process.

To address these two issues, SolarCity, recognizing that these issues will require coordination with and action by the CAISO, suggests that the following additional items be included in the Distribution Grid Infrastructure, Planning, Interconnection and Procurement section of the document. Under Vision Elements, modify at page 4 as follows:

- 2.A. DERs meet distribution and transmission grid needs through a transparent, seamless planning and sourcing process, resulting in increased DER deployment and grid reliability with decreased cost.
- Under Continuing Elements, page 4-5, modify as follows: “CAISO Transmission Planning Process modified to ensure robust data sharing to support ability of DER solution providers to develop solutions to address transmission system needs.”
- Under Action Items at page 5, modify as follows: “By 2017, CAISO establishes data-sharing requirements to support the ability of DER solution providers to develop alternative proposals to address identified transmission system needs. By 2017 CAISO develops a cost allocation and recovery mechanism for non-wires alternatives to transmission projects.”

#### NON-DISCRIMINATORY TREATMENT OF BEHIND THE METER RESOURCES.

In a number of instances, behind-the-meter resources have been or are being marginalized in terms of their opportunity to offer and be compensated for services that they are technically capable of providing. This is largely a function of the tendency to classify resources on a binary basis, as either load-modifying or supply-side, a technical distinction that is increasingly blurred due to advancements in technology options available to customers. We flag these because they represent tangible and potentially significant missed opportunities to reduce the cost of energy services by increasing the number of options available to provide those services, as well as provide additional revenue streams to support DER deployment.

First, in the context of the recent Aliso Canyon emergency storage procurement effort, behind-the-meter resources were explicitly excluded from consideration. From a ratepayer and market development standpoint, we continue to question the reasonableness of this and would encourage the Commission to more generally seek to ensure that the utility meter does not become an artificial boundary that is used to limit market opportunities of resources that are, as a technical matter, capable of providing the services being sought. Similarly, participation in net energy metering (NEM) has become another demarcation that arbitrarily limits the ability of co-located resources that are perfectly capable of providing valuable wholesale services, like capacity, from doing so. For example, storage paired with net-metered generation is limited in its ability to participate in demand response programs to the degree DR events are called during periods when there is limited net-load

(e.g. when a paired solar system is producing significant output and thereby reducing the net load of the host site).

From an operations standpoint, DR events are called when grid operators desire a physical outcome, either to meet an engineering constraint or alleviate economic congestion. Usually, whether or not a resource contributes to reducing the net loading on the system or increasing the system's supply of capacity, is an arbitrary distinction from a power systems perspective; however, existing tariffs and program designs value these capabilities completely differently for end-users. There are practical legacy reasons why this is the case today, but there is no technical merit for the continuation of this distinction in the future to the extent it significantly reduces the potential value of a DER and results in suboptimal incentives for operations.

From a policy perspective, using a storage device to meet onsite loads, allowing more of the solar resource to be exported to the grid is just as valuable as a customer dropping load outright. Furthermore, to the degree the storage device could meet or exceed onsite needs, the state should be establishing a means by which those resources can be fully utilized. For example, an electric vehicle with a 10 kw residential charger also has the potential to discharge 10 kw during periods of grid congestion, either at the bulk system level or distribution system. Average residential loads are typically between 1-2 kw, leaving 8-9 kw of technical capacity untapped. As penetration of residential storage and electric vehicles increases in the state, this minor issue today has the potential to become a low ceiling on the value of distributed storage resources.

More generally we believe that the state should move towards an approach that allows all resources to be considered and compensated for the provision of services based on their technical merits, i.e. their ability to provide the services being sought, rather than on artificial demarcations, like on which side of the meter a resource is located. To support this, we suggest that this concept be incorporated into the DER Action Plan by amending item 3.B under the Wholesale DER Market Integration and Interconnection as follows:

- “3.B DERs are appropriately enabled to earn multiple revenue streams based on their technical capacity to provide services to the wholesale market, distribution grid and end users.”

Again, SolarCity wishes to thank President Picker and the other Commissioners for their leadership and vision on these issues and for their efforts in putting together the DER Action Plan.

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**DER Action Plan Informal Comments Submitted by Southern California Edison Company (SCE) | Submitted October 12, 2016 – 9:32 | Online portal ID: 6442450983.**

**Southern California Edison Company's Informal Comments on  
Distributed Energy Resources Action Plan**

Southern California Edison Company (SCE) appreciates the opportunity to submit these informal comments on the Distributed Energy Resources (DER) Action Plan in advance of the October 18, 2016 workshop.

[The Commission and SCE Share a Vision of a Modernized, Digital Distribution Grid](#)

SCE supports the Commission’s DER Action Plan, which provides a vision of DER goals and outlines how DER-related activities in multiple proceedings will be coordinated. SCE, in its recently released whitepaper “The Emerging Clean Energy Economy,”<sup>5</sup> outlined a similar vision to accelerate the industry transformation towards a clean, reliable energy future that supports California’s carbon goals and includes a high penetration of DERs. SCE’s whitepaper describes the “plug-and-play” future that SCE envisions for the electric grid, by enhancing reliability and safety while improving the ease of adopting DERs, facilitating customer choice, and creating additional opportunities for DERs to provide grid services. It is evident from SCE’s whitepaper that the Company shares the Commission’s goals, including equitable rates and affordability, customer choice, and environmental benefits.

Realizing this shared vision of a modernized plug-and-play power grid will take a significant effort from all stakeholders, and SCE believes that the DER Action Plan can play a key role in ensuring the integration of regulatory efforts to address the myriad issues inherent in such industry transformation. SCE looks forward to engaging with the Commission and other stakeholders to achieve this shared vision.

#### Prioritizing Grid Modernization Strengthens the DER Action Plan Objectives

SCE believes that modernizing and reinforcing the distribution system is foundational to improving system safety and reliability, accelerating DER penetration, and enabling the use of DERs for grid services. Customers are already rapidly adopting DER technology—rooftop solar, on-site energy storage, plug-in electric vehicles, and energy management systems—to achieve cost savings, cleaner energy, conservation, and enhanced reliability. Furthermore, California’s legislative initiatives, including AB 327, SB 350 and SB 32, have emphasized the prominent role DERs could play in achieving the state’s environmental goals, signaling a much higher level of DER deployment on utilities’ distribution systems by 2030.

While SCE is experiencing robust customer adoption of DERs – averaging 5,000 NEM applications each month – the Company believes that the pace of DER deployment must be accelerated to achieve the state’s ambitious carbon and clean air goals. For example, a significant amount of electrification in the transportation sector is needed if the state is to meet SB 32’s goals by 2030.<sup>6</sup> SCE’s system is not currently ready for such high-levels of DER penetration. For example, SCE has little visibility to DERs on the system and no ability to monitor their performance – two capabilities needed for system reliability and safety in an environment of greater DER utilization and for enabling DERs for grid services at significantly higher forecasted levels in the future. This is one reason why SCE’s whitepaper brings attention to grid modernization and reinforcement needs.

2030 is only fourteen years away. SCE believes that prioritizing grid modernization within the DER Action Plan will help ensure that clean energy resources can be optimized for their carbon benefits. To ensure safety and reliability of the system, utilities will need, at a minimum, an ability to predict DER deployment and output, monitor DER performance and, to the extent possible, control DER dispatch. No such capability exists

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<sup>5</sup> SCE’s whitepaper can be found at: <http://www.edison.com/content/dam/eix/documents/our-perspective/derdso-white-paper-final-201609.pdf>.

<sup>6</sup> For example, gasoline-powered passenger vehicle could have a useful life upwards of 15 years. Unless displaced early and on a quicker pace, it is likely that a large number of such passenger vehicles will still be in service in 2030.

today. For example, gasoline-powered passenger vehicle could have a useful life upwards of 15 years. Unless displaced early and on a quicker pace, it is likely that a large number of such passenger vehicles will still be in service in 2030. The DER Action Plan suggests that the Commission will conclude consideration of a grid modernization framework by the end of 2017, and consider the role of a Distributed Energy Resource Management System (DERMS) by the end of 2020. Following the completed work of the Investor Owned Utilities, the Commission, and stakeholders on significant modifications to the distribution planning process, SCE recommends that the Commission should decide on a grid modernization framework much earlier in 2017, and consider the role of DERMS as a part of this framework. In addition, SCE believes that the Commission should decide on the utilities' proposed grid modernization plans and programs in the DRP and General Rate Case proceedings in a timely and expeditious manner.

Decisions made now will have profound implications for how the energy grid adapts to enhance system reliability and safety while facilitating customer choice and reducing carbon emissions – key policy goals of the State and the Commission. A smart, more dynamic and secure power grid will provide improved reliability and safety while giving customers more control, greater flexibility, and more choices. Modern technology and a reinforced grid, with a focus on safety, reliability and providing visibility to DERs on the electric system, is key to the vision elements outlined in the DER Action Plan. For example, advanced tools will help anticipate the location of future DER growth and allow utilities to leverage them for grid services. Therefore, SCE urges the Commission to accelerate the current grid modernization related vision and action elements - and to add appropriate grid modernization and reinforcement vision and action elements - to the DER Action Plan.

#### The DER Action Plan Should Synchronize with On-Going Proceedings

As stated previously, SCE agrees that the DER Action Plan establishes important vision elements, many of which align with SCE's and other stakeholders' views. These vision elements span a broad set of proceedings, which are at varying degrees of maturity. SCE encourages the Commission to complete a robust review of all the proceedings identified in the DER Action Plan to ensure that previously established scopes and schedules align with those articulated in the DER Action Plan. The DER Action Plan should broadly serve to align Commission proceedings. SCE also suggests that the Commission explore whether there are any additional proceedings which should be synchronized with the vision and activities described in the DER Action Plan.

#### The DER Action Plan Should Include Coordination with CAISO's Distributed Energy Resource Provider Activities

The CAISO recently introduced a pathway for DERs to be aggregated and then participate in the CAISO's wholesale markets. The Distributed Energy Resource Provider (or DERP) is a new concept with the potential to greatly increase market participation from DERs, on the supply and demand side. In order to maintain distribution reliability, the utilities must engage with the DERP and will need to enhance distribution grid capabilities and refine practices as wholesale market participation grows. Aggregating and integrating distribution customers will likely entail Commission engagement as the DERP and other participation increases. As a result, SCE recommends the Commission's vision statement recognize the

CAISO's new and evolving DERP program, as well as the likelihood of additional mechanisms for wholesale participation, and note the potential for Commission engagement in implementation and refinements of such programs.

#### Jurisdictional Concerns Related To DER Interconnection

To better facilitate distributed resources, SCE supports the need for ongoing refinements to the interconnection processes. However, the wholesale market participation rules for DERs, including DERs that interconnect to the utilities' distribution systems via the Commission-jurisdictional tariffs, are evolving. SCE expects refinements will need to occur at the retail level through the Commission's Rule 21 process, as well as at the wholesale level through FERC's WDAT process. At the same time, the CAISO will likely seek reforms in some of its interconnection processes as DERs proliferate and are able to play an increasing role in the CAISO's markets. SCE looks forward to working with the Commission on Rule 21 enhancements, and working with the CAISO and FERC to implement complementary reforms to better address issues related to DER interconnection and DER participation in wholesale markets.

SCE appreciates the Commission's consideration of these informal comments and looks forward to engaging with the stakeholders and the Commission on the DER Action Plan and related proceedings.

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#### **DER Action Plan Informal Comments Submitted by The Utility Reform Network (TURN) | October 11, 2016 – 14:00 | Online portal ID: 6442450966.**

Preliminary Comments:

- \* Appendix A - Competitive Procured: Another primary procurement mechanism is the Renewable Auction Mechanism (RAM) for distribution-connected distributed generation at 3-20 MW.
- \* Sec. 2.E - How do "proactive investments" based on DER Growth Scenarios "lower the cost to ratepayers" as compared to investing on an as-needed basis to interconnect DERs? Does the analysis consider the distinctions between wholesale distributed generation (where interconnection costs are reflected in competitive generation bids) versus retail (i.e. Net Energy Metering) interconnection costs?
- \* Sec. 2: The Vision Elements should recognize that one of the Legislative goals in Section 769 is to ensure "net benefits" to ratepayers from any utility proactive investments to promote DER integration.
- \* Sec. 2, Action Element 2.8: If possible, accelerate this item to 2018 or 2019 due to the significant potential benefits of smart inverters.

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#### **DER Action Plan Informal Comments Submitted by UtilityAPI | October 11, 2016 – 17:09 | Online portal ID: 6442450979.**

We thank the Commission for this opportunity to comment and for its leadership. Data Access for Grid Planning and DER Solutions The DER Action Plan identifies "DER Data Needs" as a "Continuing Element"

under the “Distribution Grid Infrastructure, Planning, Interconnection and Procurement” Issue/Proceeding section (page 4).

UtilityAPI agrees that data needs, specifically distribution system operational data, are an important element to fully accessing the opportunity embodied by DERs. Indeed, we would argue that data plays a pivotal role in animating the market for DERs, recognizing that the ability for solution providers to come to the table with innovative and cost-effective solutions to address grid needs depends fundamentally on understanding the nature of the grid needs that system operators face. To date, however, discussions on data needs and access have been somewhat scattershot, spread across multiple proceedings and/or across working groups within a given proceeding.

UtilityAPI believes that a more comprehensive and centralized discussion would be highly valuable in advancing this issue. Ultimately, we believe the Commission will need to identify the host of distribution system data elements that are necessary to support the development and application of DER solutions and establish requirements in terms of which of those data elements can be made available, to whom they should be provided, as well as under what conditions and formats. To that end, we believe the Action Plan should be amended to include some additional direction regarding how the Commission plans to address the data access issue.

UtilityAPI suggests that within the Action Elements of the Distribution Planning, Infrastructure, Interconnection and Procurement section of the document that the Commission includes the following:

- “2.x By 2017 to the Commission shall develop a distribution resources planning data access matrix identifying the comprehensive set of data to support the development and deployment of DER solutions to address grid needs, as well as requirements regarding who shall have access to this data, under what conditions, and in what format.”

#### Streamlined Customer Enrollment.

A somewhat prosaic, but very real challenge in fully taking advantage of DERs to provide a range of services, whether for purposes of supporting distribution system operations or providing wholesale services, is the customer enrollment process. To date, customer enrollment in various programs by a third party has required the submission of Customer Information Service Request (CISR) forms to the utilities, a time consuming and cumbersome process. In a recent decision, D.16-06-008, the Commission directed the establishment of a “click-through” process that would replace the existing approach with a process through which customer enrollment in demand response (DR) direct participation such as the Demand Response Auction Mechanism (DRAM) could be achieved via an email link that a third party DR provider can send to customers.

The click-through process should be inclusive of the following guiding principles:

1. Full Data Set: Standardize availability of a requisite set of data for historical and ongoing data access.

We are happy to provide a list of suggested data elements and have done so in the context of the Click-through workshop.

2. Synchronous Data: Once a data request is authorized and authenticated, data is delivered on-demand, upon authorization, (e.g. data begins streaming w/in 90 seconds of request).
3. Instant, Digital Authorization: A digital signature (incl. click-through) is valid for authorizing data sharing.
4. Instant, Consumer-Centric Authentication: A third-party will not be held to a higher authentication standard than the Utility holds itself. Accordingly, the Utility will authenticate using consumer-centric login credentials, for example, zip code and account # or Online Account username and password.
5. Seamless Click-through: A utility account holder will be allowed to begin and end the click-through process on the Third-Party website. This may happen without any requirement to log in to any other site/process during this flow (e.g. checkbox) or may allow the user to remain in the third party website flow, even in various authentication scenarios (login, signup, forgotten password, etc.), as in the case of OAuth or open authorization protocols. The click-through process shall be designed to be one-click and the third party may lead the customer request for the types of data and the time frame of data sharing. The customer may approve or reject such a request in its sole discretion.
6. Strong Security Protocols: Adopt strong security protocols. Data security may accommodate cloud-based systems. In addition, we recommend consideration of security elements (We will share them upon request). Inclusion of these guiding principles will make the click-through process far more durable, and thus a sound investment of ratepayer dollars, and it builds upon prior efforts and investments to address data access and customer enrollment.

As the role of utility customers changes from being passive consumers of energy to more dynamic participants in the energy system via behind-the-meter, grid-interactive assets, providing for a seamless process to enroll customers becomes increasingly important. However, the DER Action Plan currently does not explicitly include this. The establishment and ongoing efforts to implement click-through for direct participation demand response programs like DRAM is an important step, but this effort should be broadened to encompass all programs in which customer may wish to enroll. To that end, UtilityAPI suggests that the following language should be included in the DER Action Plan, perhaps under the Rate and Tariffs section (page 3):

- Under Vision Elements: “F. Process for streamlined enrollment in utility tariffs and programs.”
- Under Continuing Elements: “7. Complete development of ‘click-through’ platform for DR direct participation.
- Under Action Elements: “9. By 2017 expand click-through enrollment to all customer-facing programs.”

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**DER Action Plan Informal Comments Submitted by Vote Solar | October 11, 2016 | Online portal ID: 6442450975.**

Dear President Picker and Commissioners:

Vote Solar appreciates the opportunity to comment on the Commission's Draft California's Distributed Energy Resources Action Plan: Aligning Vision and Action (DER Action Plan). Vote Solar has been encouraging the Commission to develop a vision to guide its work on DER and we are encouraged and grateful to the Commission for issuing the DER Action Plan to link regulatory actions with a vision for DER. We recognize the complexity of the issues surrounding the deployment of high levels of DER onto the distribution grid and at the same time see the tremendous potential benefit of DERs to help the State achieve its aggressive greenhouse gas reduction goals, as well as transition the grid to be more reliable, cost effective and customer responsive. We believe it is essential to have a clear vision and action plan to guide the utility industry through this significant transition to a cleaner, more distributed future.

### **Scope.**

The DER Action Plan correctly points out that the breadth of issues surrounding DERs are vast and therefore necessitate limiting the scope of the planning effort. However, the plan's focus on DER strategies that are only controllable by grid operators or that target certain geographic areas is too limited and ignores the potential impact of customer-driven DER deployment on grid planning, operations and investment. We strongly believe DERs can provide significant locational benefits to the distribution grid and fully support the objectives of the Distribution Resources Planning (DRP) proceeding (D.14-08-013). However, there is still great uncertainty about the degree to which and how customers and/or third party aggregators will respond to as-yet-to-be developed sourcing options to fill needs identified by the DRP processes.

Additionally, customers will continue to deploy DER to meet their own needs, as well as to achieve broader societal/climate needs, regardless of the impact on the grid. We believe it is important to develop the sourcing mechanisms, incentives, education and outreach to support DER deployment to support these needs, while minimizing impacts on the rest of the distribution grid, to the benefit of all customers. Indeed, Public Utilities Code Section 769 directs utilities to deploy DER in a manner that maximizes net benefits to all customers. Limiting the vision and action plan to just DER deployed to provide grid benefits misses a significant amount of DER that will be added to the grid. Unless this deployment is done in a manner that leverages the work of the DRP, it will be extremely difficult to achieve the goals of greater reliability and lower cost. *We therefore recommend the DER Action Plan be expanded to include DER deployed regardless of the ultimate motivation.*

### **Removing Barriers to Market Transformation.**

The DER Action Plan correctly recognizes the need to motivate Investor-Owned Utilities (IOUs) to accelerate DER deployment, regardless of the impact on distribution investment opportunities. We see the misalignment between the IOUs' financial motivations and public policy goals underpinning the Commission's efforts to deploy DER as one of the greatest barriers to animating and sustaining the market for DERs. We believe this warrant elevating the issue as a separate initiative, supported by the effort identified in the Integration of Distributed Energy Resources (IDER) proceeding (R.14-10-003) to address utility business models. So long as utilities are asked to procure DER at the expense of creating shareholder value, they cannot

realistically be expected to fully embrace third party owned DER deployment or assist in the development of sourcing mechanisms and market structures that fundamentally contradict their own best interests. Only by aligning IOU financial motives with DER public policy goals can we truly animate the market for DERs and achieve the objectives of the DER vision, including maximizing net benefits for all customers.

Closely related to this is the effort in the DRP Proceeding Phase 3 concerning grid modernization. Under the current regulatory framework, IOUs earn value for shareholders in large part by making capital investments in distribution assets, which can in turn be placed into the rate base and on which the IOUs are allowed to earn a rate of return, assuming the investments are deemed prudent and necessary by the Commission. Track 3 attempts to address the issue of which grid modernization investments are truly necessary to facilitate the efficient deployment of DERs and which investments might be deferred or avoided by deploying DER as an alternative. As long as there remains a financial disincentive to procure third party DER, IOUs will be more inclined to over-invest in grid upgrades instead.

Similarly, some of the IOUs have proposed DRP pilots that emphasize direct utility control over the dispatch of DER, versus providing a signal to aggregators or customers who in turn dispatch their DER. While this may be appropriate in some circumstances, it may result in the IOUs investing in additional equipment, software and services to monitor and dispatch DERs. Since many DER already have the capability to respond to utility dispatch signals, this could create duplicative, costly and unnecessary investment by the IOUs.

Vote Solar believes these issues deserve a separate grouping, given the potential negative implications on DER market development. Relegating these issues to the backburner only makes it more difficult to make meaningful progress on the multitude of complex issues related to DER deployment. While there will always be competing and conflicting motivations from the variety of stakeholders, having the unhindered support of IOUs will yield large dividends in achieving the State's ambitious goals.

### **Expanding Sourcing Options**

The DER Action Plan focuses on procurement of DERs, though there are mentions of "sourcing" for DER embedded in areas of the plan, and a section specifically on rates and tariffs. To fully animate the market for DERs, the Commission needs to evaluate multiple sourcing options, including procurement, rates, tariffs, incentives, programs, and possible new market structures. While we appreciate the complexity of exploring all these options, we must also keep in mind the goals of the DER effort to enhance reliability, ensure cost-effectiveness, support customer choice, and reduce greenhouse gas emissions, while maximizing net benefits to customers.

Through the existing DRP and IDER processes, we are gaining insights and information necessary to better understand and evaluate potential new sourcing mechanisms and market structures. If this DER Action Plan truly is designed to align the Commission's vision and action, it must include a vision for evaluating and piloting new sourcing options and market structures. Otherwise, we may address relevant issues such as data access, including the development of a DER data platform, which will need to be rethought and redesigned under a new market construct.

Rather than building a framework based on very limited sourcing options such as competitive procurement and tariffs, it makes more sense to consider the broader potential sourcing options even though some of these mechanisms may be further down the road. Much like the carpenter’s axiom of “measure twice, cut once” emphasizes good planning and foresight, so too should the Commission approach planning for sourcing DER.

### **Steering Committee.**

We appreciate the Commission’s proposal to create a steering committee to oversee the DER Action Plan. Given the complexity and length of time it will take to work through these issues, such oversight is essential. However, we do not see a role outlined for stakeholders in this proposed steering committee. While the Commission Staff is in an ideal position to coordinate action in the various DER related proceedings and seek procedural advice from the Administrative Law Judge Division, we believe there should be a means for stakeholders to provide insights and guidance to the DER Action Plan. Stakeholders have unique perspectives and insights into DER capabilities, technological advances, customer needs, and market potential that can assist staff in their understanding of issues and timing of the proceedings. We therefore recommend the section detailing the formation and role for the steering committee be expanded to include a role and means for stakeholders to provide insights and guidance to the staff.

### **Additional Recommendations.**

In addition to the issues and recommendations described above, Vote Solar makes the following specific recommendations to modify the draft DER Action Plan. This is by no means a comprehensive list of modifications, but provides a starting point for discussion at the scheduled October 18th workshop. Vote Solar may provide additional comments and recommendations after the workshop.

- Add the phrase “and societal” after “”capacity” in Vision Element D under Rates and Tariffs.
- Add a new Vision Element “F” to the Rates and Tariffs section that reads: “DER customers realize the full and appropriate value for the benefits they provide to the grid.”
- Add a new Vision Element “G” to the Distribution Planning, Infrastructure, Interconnection, and Procurement section that reads: “Evaluate, pilot and deploy as appropriate a suite of sourcing options and market mechanisms that support a robust and sustainable market for DERs.”
- Add a new Vision Element “H” to the Distribution Planning, Infrastructure, Interconnection, and Procurement section that reads: “Portfolios of DER are evaluated and sourcing mechanisms developed to support deployment of DER to maximize net benefits to all customers.”
- Add Action Elements to the Distribution Planning, Infrastructure, Interconnection, and Procurement section to 1) evaluate and pilot alternative sourcing options by 2018, and 2) evaluate and pilot new market structures for deploying DER by 2018.
- Accelerate the timeline for Action Elements 2.8 (dealing with smart inverter deployment) and 2.9 (DERMS deployment) from “by 2020” to “before 2018.”

- Add “Aligning IOU Revenue Motives with DER Public Policy Goals” as a fourth grouping/initiative in the Scope and Structure of the DER Action Plan. - Move/add Vision Elements, Continuing Elements and Action Elements under the proposed new grouping that address evaluating new financial incentives, revenue structures and mechanisms to align IOU financial motives with DER public policy goals, with proposed action before 2018.
- Add Vision Elements pertaining to evaluating IOU capital investment for grid modernization and DER monitoring and dispatch and ensuring only those investments deemed necessary to support DER deployment, that are more cost-effective or essential to grid reliability are approved.

**Conclusion.**

Vote Solar appreciates the opportunity to provide initial comments on the draft DER Action Plan and looks forward to discussing the plan at the workshop and providing additional comments and recommendations.