

BEFORE THE PUBLIC UTILITIES COMMISSION  
OF THE STATE OF CALIFORNIA



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Order Instituting Rulemaking on the Commission's Own motion to improve distribution level interconnection rules and regulations for certain classes of electric generators and electric storage resources.

R.11-09-011  
(Filed September 22, 2011)

**REPLY COMMENTS OF THE DIVISION OF RATEPAYER ADVOCATES  
ON CEC/CPUC CANDIDATE DER CAPABILITIES:  
RECOMMENDATIONS FOR UPDATING TECHNICAL REQUIREMENTS  
IN RULE 21 (VERSION 15, MAY 22, 2013)**

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BEFORE THE PUBLIC UTILITIES COMMISSION  
OF THE STATE OF CALIFORNIA

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**I. INTRODUCTION**

Pursuant to the June 11, 2013 “Administrative Law Judge’s Ruling to (1) Issue Working Group Paper on Autonomous Inverter Functionalities (2) Set Comment Dates and Workshop (3) Enter Working Paper Into the Record and (4) Announce New Rule 21 Working Group” (ALJ Ruling), the Division of Ratepayer Advocates (DRA) submits the following reply comments on the Smart Inverter Working Group (Working Group) working paper, “Candidate Distributed Energy Resources (DER) Capabilities: Recommendations for Updating Technical Requirements in Rule 21” (Working Paper).

Despite some overarching concerns with the process, to which DRA made some recommendations to address, DRA appreciates the opportunity to comment on the Working Paper, and now takes this opportunity to respond to comments made by California Energy Storage Alliance (CESA), Clean Coalition, Enphase Energy, Pacific Gas & Electric Company (PG&E), Power-One, San Diego Gas & Electric Company (SDG&E), Solar Energy Industries Association & California Solar Energy Industries Association (SEIA-CSEIA), Southern California Edison Company (SCE), SunRun, and SunSpec Alliance.

## II. BACKGROUND

The ALJ Ruling, and other parties, directed Energy Division to work with utilities to identify “minor” improvements to Rule 21 for clarity and seek input of parties.<sup>1</sup> The Working Group is a joint effort by the California Energy Commission (CEC) and the California Public Utilities Commission (Commission) to conduct an on-going collaboration and discussion between representatives from the CEC, Commission, investor owned utilities (IOUs), professional and governmental organizations, and other interested stakeholders dedicated to developing national standards and testing procedures for "inverter-interfaced" technology. Through the Working Group, the Commission seeks to develop a proposal that lists a range of functions and capabilities for "inverter-interfaced technology" in anticipation of the implementation of California Governor Brown's 12,000 megawatts (MW) of DER for the state, with a stated intent to identify inverter functions to ensure the long-term safety, reliability, and efficiency of the electric power system (EPS).<sup>2</sup> This effort yielded both the subject draft Working Paper at issue, as well as the parties' comments, which DRA addresses in its reply comments.

DRA's recommendations on the Overarching Working Group process and Working Paper included:

1. Maximize consumer choice and protection and encourage interoperability of smart inverters and their functionalities through Open Architecture based on national standards;
2. Include an open standards development process in the next phase of the Working Group; and
3. Develop a master plan to ensure coordinated efforts to update and assess related Commission proceedings and programs, created through consensus

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<sup>1</sup> See “Administrative Law Judge’s Ruling to (1) Issue Working Group Paper on Autonomous Inverter Functionalities (2) Set comment dates and workshop (3) Enter Working Paper into the record and (4) Announce new Rule 21 Working Group,” June 11, 2013.

<sup>2</sup> CEC/CPUC Candidate DER Capabilities: Recommendations for Updating Technical Requirements in Rule 21, Version 15, May 22, 2013.

4. Improve transparency and promote efficiency to the implementation of related initiatives by including more inverter experts.
5. Continue using the current version of Rule 21, which has been fully harmonized with the current version of IEEE-STD-1547, and under which, currently-available inverter functionalities for DER interconnection can continue to be provided to the California market, pending modification to the IEEE 1547 series of interconnection standards, to which Rule 21 can be subsequently harmonized, again.
6. Do not have the Commission adopt California-specific inverter standards that would bypass the normal American National Standards Institute (ANSI) Standards development process due to safety, reliability, and cost concerns.

In response to Enphase Energy proposal that “Implementation of any new requirements must follow an achievable schedule designed to minimize unnecessary disruption of industry,” DRA recommends:

1. The Commission issue a Ruling to outline and clarify the purpose and process of the Working Group;
2. An invitation to additional interveners with expertise on inverters;
3. Documentation of Working Group discussion; and
4. Additional phase for consideration of costs, that will consider a reasonable balance between the costs and the benefits to ratepayers for the implementation of any proposed inverter functionalities.

DRA’s comments largely parallel other parties’ comments. DRA would like the Commission to acknowledge and appreciate the emerging consensus about needed changes in the present Working Group processes and consider DRA’s recommendations to improve the Working Group process.

### III. WORKING GROUP PROCEDURAL DISCUSSION

#### A. The Commission Should Focus the Working Group on Sound Processes and Critical Priorities in Order to Avoid Unintended Consequences

DRA supports the use of advanced inverter functions that promote DER integration onto the grid, and supports various parties' comments addressing the *potential* usefulness of these functions. As SDG&E highlighted, "smart inverters can serve an important role in fostering the integrity and reliability of the electrical system as the use of distributed renewable resources increases."<sup>3</sup> However, DRA, along with many parties have raised procedural and technical concerns of the Working Group and Working Paper.

DRA agrees with the comments of various parties<sup>4</sup> indicating that the Working Group is not headed in the right direction. In particular, DRA notes that the "utility members of the [Working Group] have repeatedly indicated that widespread use of the proposed functionality is unlikely in the near-term, if at all. Nonetheless, the [Working Group] insists that all features must be included now in order to deal with future issues that may or may not occur."<sup>5</sup> DRA agrees with parties that indicate the Draft Report, as presently developed, is not a reasonable starting point for discussion.<sup>6</sup>

DRA agrees with other parties that prioritization is essential;<sup>7</sup> otherwise, some features may increase the cost of DER systems and thus negatively impact utility ratepayers as progress is made toward achieving Governor Brown's 12 GW DER goals.<sup>8</sup>

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<sup>3</sup> SDG&E, at p. 1.

<sup>4</sup> Clean Coalition, at p. 2; Enphase Energy, at p. 2, 3, and 10; Power-One, at p. 1 and 2; SDG&E, at p. 1; SEIA-CSEIA, at p. 3; SCE, at p. 1, 2.

<sup>5</sup> SEIA-CSEIA, at p. 12.

<sup>6</sup> CESA, at p. 2.

<sup>7</sup> PG&E, at p. 1; SEIA-CSEIA, at p. 9.

<sup>8</sup> SEIA-CSEIA, at p. 9.

Specifically, DRA concurs with SCE, that the Working Group should focus on autonomous features that could result in UL<sup>2</sup> certification requirements.<sup>10</sup> The Working Group should first focus on defining these straightforward features and developing testing criteria that can be translated into Test Specifications that could allow for near-term UL testing and certification. DRA doubts that the Working Group can circumvent the standards development and product certification process of the American National Standards Institute (ANSI) and Nationally Recognized Testing Labs (NRTLs) without compromising California’s ability to bring significant DER on-line due to safety and reliability concerns. For example, if a standard is used that is not certified by ANSI and NRTL, there may be a greater chance the inverter would fail in a way that results in a fire on the system. DRA also agrees with the SunSpec Alliance that good planning is critically important to avoid an expensive, impractical solution that over reaches relative to the technical requirements while potentially causing unintended consequences that could stifle the DER industry.<sup>11</sup>

**B. Parties Are in General Agreement that the Commission Should Take Procedural Steps to Ensure a Transparent, Balanced, and Collaborative Working Group Process.**

The opening comments from most of the parties agree that the Working Group process should be “designed to solicit [,] accept and consider input from all interested stakeholders.”<sup>12</sup> “Without input from a wide range of stakeholders, the Working Group cannot comprehensively address potential issues from the Working Paper that impact

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<sup>2</sup> UL, formerly “Underwriters’ Laboratory,” is a global independent safety science company, founded in 1894, that offers certifying, validating, testing, inspecting, auditing, and advising and educating expertise across five key strategic businesses: Product Safety, Environment, Life & Health, Verification Services and Knowledge Services. UL is one of Occupational Safety and Health Administration’s (OSHA) Nationally Recognized Testing Laboratory (NRTL); typically, only equipment that is listed as tested and safe by a NRTL may be installed in new or renovated residential or commercial buildings without violating OSHA regulations or breaching fire insurance requirements.

<sup>10</sup> SCE, at pp. 1-2.

<sup>11</sup> SunSpec Alliance, at p. 3.

<sup>12</sup> Enphase Energy, at p. 1.

consumers, manufactures, and states other than California.”<sup>13</sup> This concern is reflected in the opening comments from SunSpec Alliance, who “noted that the CPUC recommendation was made with almost no input from key stakeholders —the owners, operators, and equipment manufacturers— that are most directly impacted, and is primarily the position of the California Investor Owned Utilities (IOUs).”<sup>14</sup> The list of potential stakeholders extends to energy storage industries,<sup>15</sup> solar industry and regulatory compliance/standards development community, including representatives from Institute of Electrical and Electronics Engineers (IEEE), UL, and Department of Energy (DOE), who were not aware of the Working Group activities until this summer.<sup>16</sup> One of the main implications of the Working Group’s unbalanced approach is the potential for biased towards utility needs, which is raised by several parties, including, DRA, Power-One, SEIA-CSEIA, and Enphase Energy.<sup>17</sup>

DRA agrees with other parties that recommended additional outreach efforts to promote an open process with open meetings, public notice, and comment periods, to create consensus within a working group that better reflects the various constituencies involved.<sup>18</sup> Additionally, consistent with DRA’s recommendation as well as SEIA-CSEIA, Power-One, and Enphase Energy in order to introduce a balanced approach to the Working Group and to produce a Working Paper that reflect consensus, the process should be modeled after the nationally-recognized standards process regulated by ANSI/UL or IEEE, “which requires the Standards Technical Panel (STP) to be made up of a balanced membership representing utilities, equipment manufacturers, national labs, NRTLs, and other interested stakeholders.”<sup>19</sup>

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<sup>13</sup> [DRA Opening Comments, at p. 5.

<sup>14</sup> SunSpec Alliance, at p. 3.

<sup>15</sup> CESA, at p. 1.

<sup>16</sup> SEIA-CSEIA, at pp. 3-4 and Enphase Energy, at p. 4.

<sup>17</sup> Power-One, at p. 2, SEIA-CSEIA, at p. 2 and 4, Enphase Energy, at p. ,1, 3, and 5.

<sup>18</sup> SEIA-CSEIA, at p. 2.

<sup>19</sup> SEIA-CSEIA, at p. 7.

**C. The Commission Should Provide More Flexibility in the Working Group Schedule**

DRA concurs with PG&E and SCE that more flexibility should be permitted in the working group schedule.<sup>20</sup> Other parties' observations regarding the potential problems of pursuing the proposed approach, under the existing schedule, should be given serious consideration.<sup>21</sup> In particular, DRA supports general recommendations of parties that the present schedule, however desirable, is simply unachievable,<sup>22</sup> as well as the specific recommendations of SEIA-CSEIA and others for a milestone approach,<sup>23</sup> and a permissive adoption period.<sup>24</sup>

**D. Other Parties' Recommendations for the Working Group Process to Coordinate with Updates to National Standards to Ensure Safety and Consistency of Functionality Echoed DRA's Comments**

DRA concurs with other parties' comments that support the importance of customer choice, open architecture,<sup>25</sup> and national standards.<sup>26</sup> DRA also supports safety issues other parties have raised. It is important that the Working Group and the Working Paper address the implications of California-specific inverter standards with regards to testing procedures and safety. SEIA-CSEIA suggested that the Working Group "needs to determine which solutions are effective and safe and then request California-wide

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<sup>20</sup> PG&E, at p. 1, SCE, at p. 1.

<sup>21</sup> SEIA-CSEIA, at p. 7; CESA, at p. 2; Enphase Energy, at pp. 4-5; SEIA-CSEIA, at p. 13; Sunrun, at p. 2; Enphase Energy, at p. 8; SEIA-CSEIA, at p. 7; Enphase Energy, at p. 13.

<sup>22</sup> CESA, at p. 4; Enphase Energy, at p. 8; Power-One, at p. 2; Enphase Energy, at p. 7; SEIA-CSEIA, at p. 6; Enphase Energy, at p. 3.

<sup>23</sup> SEIA-CSEIA, at pp. 2-3, 6-7.

<sup>24</sup> SEIA-CSEIA, at p. 7; CESA, at p. 4; Enphase Energy, at p. 8; Enphase Energy, at p. 2. A "permissive adoption period" is a temporary period of time under a new regulation adopting standards, in which adherence to the adopted standard is voluntary, rather than mandatory, thus allowing early adopters to go forward with the new requirements immediately, while allowing a grace period for later adopters to adjust to new requirements.

<sup>25</sup> Enphase Energy, at p. 1.

<sup>26</sup> Nine of the eleven parties filing comments supported the use of National Standards. *See*, Enphase Energy, at pp. 5 and 13; SunSpec Alliance, at p. 4; Sunrun, at p. 2; SEIA-CSEIA, at p. 1; SCE, at p. 2; Power-One, at p. 2; PG&E, at p. 2; CESA, at pp. 3 and 4.

adoption of only these solutions. The [Working Group] can do this by working with DER system designers and equipment manufacturers (SEIA and CALSEIA members) to conduct small-scale tests and by reviewing what has been effective in the European networks referenced in its proposal.”<sup>27</sup> SCE opined “it is crucial that the Commission allow for thorough analysis and confirmation that any proposed functions work as anticipated, prior to making decisions about Rule 21 modifications or requirements” and “the Working Group should focus on autonomous features that could result in UL certification requirements. The Working Group must first focus on defining these features, and develop testing criteria that can be translated into a Test Specification that could allow for UL testing and certification.”<sup>28</sup>

DRA and other parties have raised potential concerns regarding the Working Group’s efforts to develop recommendations for California-specific inverter that would bypass the normal ANSI/UL 1741 Standards development process and to use a UL Certification Requirements Document (CRD), which “is the weakest form of technical standard and is not accepted by all jurisdictions in California, including the Los Angeles Department of Building Safety.”<sup>29</sup> The intent of Section 1254 of the Energy Act of 2005 is to develop national interconnection standards through the IEEE 1547 process to reduce costs of interconnection and consistency of functionality.<sup>30</sup> The Working Group and the Working Paper should address these concerns.

Part of ensuring the long-term safety, reliability, and efficiency of the power grid should involve coordination with the on-going updates to existing national standards: IEEE 1547a, IEEE 1547.1a, UL-1741, and IEEE 1547.8. DRA emphatically agrees with other parties that the existing, well-developed, and widely-understood ANSI-accredited

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<sup>27</sup> SEIA-CSEIA, at p. 9.

<sup>28</sup> SCE, at pp. 1-2.

<sup>29</sup> Enphase Energy, at p. 7.

<sup>30</sup> SEIA-CSEIA, at p. 4 and Enphase Energy, at pp. 5-6.

national standards development process is needed,<sup>31</sup> in concert with IEEE-STD-1547<sup>32</sup> or ANSI/UL-1741.<sup>33</sup> Power-One asserts that the Working Group should “take into careful consideration coordination with the greater US standards making community and this work should be coordinated with the upcoming revision to IEEE 1547 and UL 1741. Certifying that these changes and the correlating test procedures provide for a continued safe installation of these power systems is crucial to the utilities, the building owners and homeowners, and the future of DER in California.”<sup>34</sup> DRA agrees. As explained in several parties’ opening comments, there’s no need for California to move outside the IEEE process as ratifications of 1547a appears likely in the near term with development of test plans underway.<sup>35</sup> Similarly, revisions to UL 1741 are likely to be finalized within the next 9-12 months;<sup>36</sup> coordination with these standards as part of the Working Group process should not be burdensome. DRA agrees with Clean Coalition, PG&E, SCE, and SunSpec Alliance that the implementation plan/timeframe for the Working Group’s proposal should ultimately align with updates to IEEE 1547a and 1547.8.<sup>37</sup>

DRA reiterates the important comments made by other parties that as with the ANSI national standards development process the Working Group should include a balanced membership,<sup>38</sup> open meetings, public notice and comments periods, balloting of draft documents, and balanced representation of all stakeholders.<sup>39</sup> Finally, DRA concurs with SEIA, CSEIA, and Enphase that, in the spirit of balanced representation, it would be beneficial for the CPUC, the CEC, and the Working Group to take a more active role in

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<sup>31</sup> CESA, at p. 4; Enphase Energy, at p. 2, 3, 5; Power-One, at p. 1-2; SEIA-CSEIA, at p. 2; Sunrun, at p. 2.

<sup>32</sup> Enphase Energy, at p. 6.

<sup>33</sup> Enphase Energy, at p. 7.

<sup>34</sup> Power-One, at pp. 1-2.

<sup>35</sup> Enphase Energy, at p. 6.

<sup>36</sup> Enphase Energy, at p. 7.

<sup>37</sup> Clean Coalition, at p. 6, SCE, at p. 2, PG&E, at pp. 1-2, and SunSpec Alliance, at p. 4.

<sup>38</sup> Enphase Energy, at p. 5; Power-One, at p. 2; SEIA-CSEIA, at p. 7.

<sup>39</sup> Power-One, at p. 2.

the IEEE and ANSI/UL processes, and that this would benefit both California and the Nation.<sup>40</sup>

**E. DRA Shares Other Parties' Concerns Regarding the Absence of Cost Consideration**

Majority of the parties echoed DRA's concern regarding the potential cost implications of recommending California-specific inverter functionalities and a one-size fits all approach discussed in the Working Paper. Some parties cited potential the challenges such a proposal would cause to manufacturers,<sup>41</sup> testing efforts,<sup>42</sup> as well as cost impacts to system owners related to equipment and rates.<sup>43</sup> DRA shares the concerns of other parties, that consideration of costs and benefits must be included<sup>44</sup> in the process, which has not yet been done adequately,<sup>45</sup> leaving the impression that a number of potentially unneeded functions have been rendered mandatory.<sup>46</sup> DRA agrees with parties that, clearly, both costs and benefits tend to vary by system size,<sup>47</sup> and that smaller systems, primarily serving self-generating residential and small commercial customers, should be exempted from most requirements,<sup>48</sup> especially communications requirements,<sup>49</sup> and urges the Commission to reject Clean Coalition's lone call for global inclusion of small systems in all requirements.<sup>50</sup> Likewise, DRA appreciates and endorses SEIA-CSEIA's recommendation to exempt existing systems from new

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<sup>40</sup> SEIA-CSEIA, at p. 6; Enphase Energy, at p. 5.

<sup>41</sup> CESA, at p. 4.

<sup>42</sup> Enphase Energy, at p. 6 and p. 7.

<sup>43</sup> CESA, at p. 5 and SEIA-CSEIA, at p. 12.

<sup>44</sup> CESA, at p. 5; Enphase Energy, at p. 2; PG&E, at p. 2; Power-One, at p. 3; SCE, at p. 1.

<sup>45</sup> Enphase Energy, at p. 13; SEIA-CSEIA, at p. 3; SunSpec Alliance, at p. 4.

<sup>46</sup> SEIA-CSEIA, at p. 3.

<sup>47</sup> CESA, at p. 5; SEIA-CSEIA, at p. 10.

<sup>48</sup> Enphase Energy, at pp. 4, 12; PG&E, at p. 1; Power-One, at p. 2; SEIA-CSEIA, at pp. 3, 10, 11; Sunrun, at p. 1.

<sup>49</sup> Enphase Energy, at p. 12; SEIA-CSEIA, at p. 11.

<sup>50</sup> Clean Coalition, at p. 2.

requirements.<sup>51</sup>

DRA shares parties' concerns that costs arising from new requirements be reasonably mitigated and properly allocated according to cost causation,<sup>52</sup> and with particular care in situations where cost causation may be complex or counter-intuitive.<sup>53</sup> DRA particularly appreciates the concern expressed by PG&E for striking the right balance between costs and benefits.<sup>54</sup>

#### **IV. WORKING GROUP TECHNICAL DISCUSSION**

##### **A. Use Cases and Definitions of Terms Need to Be Developed**

DRA specifically endorses parties' comments that use cases have not been defined,<sup>55</sup> and recommends that in order to develop, test, and select the effective solutions that address the Working Group's concerns, the Working Group must define clear use cases that identify and prioritize the scenarios in which Smart Inverters would be used to address specific problems.<sup>56</sup> DRA agrees that, without such use cases, it will be very difficult to develop solutions to problems and test methods that verify the effectiveness of those solutions.

DRA supports the calls by other parties for greater definition of terminology and functional concepts in the Draft Report,<sup>57</sup> as DRA also recommended in its opening comments.<sup>58</sup> DRA provided draft definitions of terminology and functional concepts as part of its comments.<sup>59</sup>

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<sup>51</sup> SEIA-CSEIA, at p. 11.

<sup>52</sup> CESA, at p. 5; Power-One, at p. 3.

<sup>53</sup> SEIA-CSEIA, at p. 11; Clean Coalition, at p. 5.

<sup>54</sup> PG&E, at p. 2.

<sup>55</sup> CESA, at pp. 4-5.

<sup>56</sup> SEIA-CSEIA, at p. 9.

<sup>57</sup> PG&E, at p. 2; SCE, at p. 2; SEIA-CSEIA, at p. 12; SunSpec Alliance, at p. 3.

<sup>58</sup> Technical terms used in this Draft Document should be fully defined *within* the Draft Document. This may be achieved either by direct definition of terms in the text of the Draft Document itself, or by excerpts from other, published documents presented in an attached appendix to the Draft Report. Leaving the definition of terms to each individual user of the document will result in safety and reliability errors.

<sup>59</sup> DRA Comments, Appendix A, pp. 6-11.

**B. It Isn't Clear how the European Experience Interconnecting DERs Can Be Applied to California**

Some parties have noted certain European developments in interconnecting large penetrations of DER into their EPS,<sup>60</sup> and some have recommended at least some aspects of such approaches to the Commission for application in California.<sup>61</sup> However, DRA points out to the Commission the importance of recognizing, as noted by SEIA-CSEIA,<sup>62</sup> that the United States relies on a fundamentally different approach to regulatory compliance as compared to that used in Europe, that such strategies are not trivial to implement,<sup>63</sup> can be costly,<sup>64</sup> and, even under the best circumstances, additional study would be needed.<sup>65</sup>

**C. The Current Process Has Not Been Fully Thought Out and Has a High Probability of Leading to Unintended [and Adverse] Consequences**

DRA t concurs with other parties' comments that the Draft Report embraces an incomplete,<sup>66</sup> inappropriately premature,<sup>67</sup> and experimental approach,<sup>68</sup> with technical inaccuracies.<sup>69</sup> DRA endorses recommendations that the Commission needs to allow changes in the Working Group's scope,<sup>70</sup> which needs to be narrower.<sup>71</sup>

Furthermore, DRA agrees with and endorses SEIA-CSEIA's observation that potential exists for interaction between the DER's voltage regulation functions and the

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<sup>60</sup> SunSpec Alliance, at p. 2; Clean Coalition, at p. 5; SDG&E, at p. 2.

<sup>61</sup> SEIA-CSEIA, at p. 1; Clean Coalition, at p. 5; SDG&E, at p. 2.

<sup>62</sup> SEIA-CSEIA, at p. 5.

<sup>63</sup> SEIA-CSEIA, at p. 5.

<sup>64</sup> SunSpec Alliance, at pp. 2-3.

<sup>65</sup> SEIA-CSEIA, at p. 1.

<sup>66</sup> CESA, at p. 2; Power-One, at p. 1; SEIA-CSEIA, at pp. 2, 12.

<sup>67</sup> SCE, at p. 2; Enphase Energy, at pp. 2, 13.

<sup>68</sup> SEIA-CSEIA, at p. 9.

<sup>69</sup> SEIA-CSEIA, at p. 2; Enphase Energy, at p. 5, 8.

<sup>70</sup> PG&E, at p. 1.

<sup>71</sup> CESA, at p. 2; Enphase Energy, at p. 3; Power-One, at p. 2; SEIA-CSEIA, at p. 7-9.

distributed inductances and capacitances inherent on the grid, and that it is conceivable that these interactions could result in local oscillations which could reduce grid stability. DRA concurs with SEIA-CSEIA's urge to caution, additional study, modeling, and testing, before the final requirements are proposed for California-wide adoption, to verify that the solutions will not cause other stability problems for the grid.<sup>72</sup>

#### **D. Grid Benefits**

The benefits to the Area EPS made possible by increased penetration of DER, as characterized by PG&E,<sup>73</sup> SDG&E,<sup>74</sup> and Clean Coalition,<sup>75</sup> undoubtedly merit the Commission's attention. Nevertheless, these potential benefits must be comprehensively considered in the context of an existing regulatory regime,<sup>76</sup> conversion costs,<sup>77</sup> however modest, and the relative costs and benefits of application to small systems.<sup>78</sup>

#### **E. Utility Discretion**

DRA's opening comments on Advanced Inverters<sup>79</sup> inadvertently included an error, published as:

##### **“B. Ratepayer Protection**

“DRA's recommendations in the attached Appendix A are intended to provide strong consumer protections for ratepayers, such as safety, reasonable rates, reliability and power quality, and are necessary safeguards against the market power of electric companies.

- “1. Utilities are no longer the only technically competent authorities on utility service, safety, reliability, and economic operation. *However*, unilateral utility discretions is *may be* appropriate in isolated situations

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<sup>72</sup> SEIA-CSEIA, at pp. 9-10.

<sup>73</sup> PG&E, at p. 2.

<sup>74</sup> SDG&E, at p. 2.

<sup>75</sup> Clean Coalition, at pp. 3-4, 6.

<sup>76</sup> SunSpec Alliance, at p. 2.

<sup>77</sup> SDG&E, at p. 1.

<sup>78</sup> Enphase Energy, at p. 12; SEIA-CSEIA, at p. 11.

<sup>79</sup> DRA Comments, Section B.1., at p. 15.

where the need for safety and reliability of utility legacy systems have been clearly demonstrated, fully reviewed, and fully documented.” [Emphasis added.]

This should read as:

**“B. Ratepayer Protection**

“DRA’s recommendations in the attached Appendix A are intended to provide strong consumer protections for ratepayers, such as safety, reasonable rates, reliability and power quality, and are necessary safeguards against the market power of electric companies.

- “1. Utilities are no longer the only technically competent authorities on utility service, safety, reliability, and economic operation. Accordingly, unilateral utility discretions is not appropriate except in isolated situations where the need for safety and reliability of utility legacy systems have been clearly demonstrated, fully reviewed, and fully documented.” [Emphasis added.]

DRA sent an email to the Service List on August 15, 2013, notifying all parties of the error, and formally corrects it on the record in these reply comments. DRA also recognizes and endorses other parties’ recommendations against any provision for unilateral discretion on the part of the Area EPS operator,<sup>80</sup> especially as this discretion can have cost and rate impacts,<sup>81</sup> and can be harmful to commercial relationships.<sup>82</sup>

**F. Anti-Unintended-Islanding**

DRA has been involved from the inception of the anti-unintended-islanding requirements of IEEE-STD-1547 and Rule 21 and appreciates the concerns expressed by parties over potential changes,<sup>83</sup> and the possible unintended consequences of those changes. While DRA generally supports conscientious efforts to “anticipate” further technical developments in the IEEE 1547 series of standards, so as to make those developments accessible in California as early as possible, anti-unintended-islanding

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<sup>80</sup> SEIA-CSEIA, at p. 3.

<sup>81</sup> SEIA-CSEIA, at pp. 3, 12.

<sup>82</sup> SEIA-CSEIA, at p. 12.

<sup>83</sup> SEIA-CSEIA, at p. 10; Enphase Energy, at p. 4; Enphase Energy, at p. 11.

techniques are one area in which it is imperative that the Commission err on the side of caution. Anti-unintended-islanding techniques of the future—a future of greater DER penetration into distribution systems—are very likely to be fundamentally different from those successfully used in the past. DRA strongly urges the Commission to not attempt to address anti-unintended-islanding techniques in a regulatory working group in anticipation of the results of the IEEE-1547 standards development process, but to wait until the national standards development process is completed before undertaking regulatory adoption of standards in this area. These issues are very technical and impact safety and reliability of the electrical grid and should be addressed by a technical working group, not a regulatory working group. The Commission should continue to rely on the existing nationally-standardized methods until the revised ANSI/IEEE national standards on anti-unintended-islanding techniques are completed.

#### **G. Specific Advanced Functions**

DRA appreciates the information provided by a number of parties as to the specific advanced functions that could provide increased EPS reliability without adversely affecting safety or customer choice,<sup>84</sup> and welcomes their full consideration in these workshops. However, DRA also appreciates the concerns shared by other parties, that small systems should be excluded from mandatory participation in “grid support” functions.<sup>85</sup>

While recognizing that the need for standards and the standards that support those needs must evolve over time, DRA must reject any characterization of IEEE-STD-1547 series of standards as “obsolete.”<sup>86</sup> Some parties may misunderstand the complexity of the DER interconnection problem, the applicability of voluntary consensus technical standards, or the regulatory relationship between the Area EPS and the various Local EPS. DRA has, over many years, invested considerable time and attention into these

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<sup>84</sup> Enphase Energy, at pp. 2, 6, and 8; SunSpec Alliance, at p. 4; Sunrun, at pp. 1-2; SDG&E, at pp. 1-2; and Clean Coalition, pp. 1-3, 5-6.

<sup>85</sup> Enphase Energy, at p. 12; SEIA-CSEIA, at p. 11.

<sup>86</sup> Clean Coalition, at p. 5.

efforts and understands that IEEE-STD-1547, like all other ANSI national standards, is a dynamic document that is regularly reviewed and updated as necessary. Any one party's disagreement with those reviews and updates does not constitute the obsolescence of that document.

#### **H. Testing Processes**

DRA is concerned that some parties' comments are critical of the testing process proposed in the Draft Report. Suggestions that these processes, as stated in the Draft Report, are unclear and likely to create uncertainty,<sup>87</sup> need more flexibility,<sup>88</sup> or are flatly "unreasonable,"<sup>89</sup> merit serious attention by the Commission to ensure safety and reliability will not be compromised by inadequate testing of new inverter-interfaced technology.

Likewise, parties' assertions that any testing schedule should include sufficient implementation time for laboratory- and field-testing,<sup>90</sup> and permissive trial periods,<sup>91</sup> is reasonable and should be given further consideration by the Work Group facilitators.

#### **I. Product Certification**

DRA appreciates the information brought forth by parties to advise the working group on product certification requirements in the United States, which include third party verification testing by NRTLs, using, in the case of interconnection systems for DER, the requirements of IEEE 1547 as the basis for testing, under the ANSI/UL 1741 certification test standard for grid interactive equipment.<sup>92</sup> The statement from the CEC-Energy Division (ED) facilitators, that "California cannot wait for the national processes to conclude," could expose California to unbounded risk, in that the

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<sup>87</sup> CESA, at p. 2.

<sup>88</sup> SCE, at p. 1.

<sup>89</sup> CESA, at p. 2.

<sup>90</sup> SunSpec Alliance, at p. 4.

<sup>91</sup> Enphase Energy, at p. 3.

<sup>92</sup> Enphase Energy, at pp. 6-7; SEIA-CSEIA, at p. 5.

proposed requirements under the Draft Report would not be a true ANSI/UL Standard, but a Certification Requirements Document (CRD), the weakest form of technical Standards, not accepted by all jurisdictions in California;<sup>93</sup> and that the testing protocol would likely change once IEEE P1547.1a was published,<sup>94</sup> would incur added costs.<sup>95</sup>

DRA cautions the Commission to give serious consideration to these issues, and endorses Enphase's observation that there is no demonstrable problem on the California grid that would justify such expenses, particularly where such expense ultimately would be borne by California consumers in the form of higher prices for renewable energy systems and, likewise, not support the use of a CRD when revision of the full ANSI/UL1741 Standard which is likely within the next 9 to 12 months.<sup>96</sup>

## V. CONCLUSION

DRA respectfully urges the Commission to adopt the recommendations submitted by DRA in its opening comments and in these reply comments.

Respectfully submitted,

/s/ ROBERT HAGA

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<sup>93</sup> SEIA-CSEIA, at p. 5.

<sup>94</sup> SEIA-CSEIA, at pp. 5-6.

<sup>95</sup> Enphase Energy, at p. 7.

<sup>96</sup> Enphase Energy, at p. 7.