



# DOCKET

11-IEP-1G

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Chairman Robert Weisenmiller  
Commissioner Karen Douglas  
California Energy Commission  
Dockets Office, MS-4  
Re: Docket No. 11-IEP-1D  
1516 Ninth Street  
Sacramento, CA 95814-5512

## Re: “Docket #11-IEP-1G Renewables” Implementation of 12,000 MW DG Goal

Dear Chair Weisenmiller and Commissioner Douglas:

Thank you for the opportunity to submit these comments regarding policies to implement the Governor’s goal of 12,000 MW of distributed generation. We look forward to further participation in this proceeding and with all stakeholders.

Bloom Energy’s Energy Server™, utilizing a solid oxide fuel cell technology, is a new class of distributed power generator, producing clean, reliable, affordable electricity at the customer’s site. Bloom Energy fuel cells use commonly available materials instead of precious metals and can convert fuel into electricity at nearly twice the rate of some legacy technologies. Bloom’s Energy Servers are capable of using either renewable or traditional fuels. Each Energy Server provides 100 kilowatts of baseload, continuous power in roughly the footprint of a standard parking space.

### Overarching Policy Considerations

In addition to providing responses to the specific questions posed by the Commission, Bloom offers the following overarching ideas we believe must be considered to ensure a fully functioning distributed generation (DG) market and indeed must be followed in order to reach the governor’s 12,000 MW goal.

**Technology Inclusiveness** – The distributed generation market is flourishing, with many technologies participating the State’s various programs. The program and policies to achieve the 12,000 MW goal need to continue to provide technology inclusiveness and flexibility for adding new technologies as they come to market, recognizing that energy markets can change significantly over a decade. A myopic or limited paradigm will stifle innovation and inadvertently pick winners and losers. To achieve the 12,000

MW goal, the DG market needs a broad policy that provides a general framework and plans from the outset for adding new or additional technologies through a transparent and certain process.

**Recognizing the Unique Need for Reliable, Baseload DG Solutions** – We encourage the Commission to consider that certain technologies can be more than just a generation resource. As intermittent technologies come online, clean DG resources that can add predictability, reliability, and stabilize voltage fluctuations should also be valued in this dialogue. Baseload, 24-7, DG technologies have many benefits that need to be incorporated into a holistic solution.

**Planning for the Future** --Technologies like Bloom's Energy Servers can help bridge the changes and evolution that the distribution system will undergo. While Bloom's systems can provide significant GHG reductions today when running on natural gas, they can seamlessly switch to operate on biogas and become a 24/7 renewable resource when biogas availability increases in our state. In addition, as we experience wide deployment of electric vehicles, technologies like Bloom's fuel cells have the potential to serve as high capacity local energy generation resources specifically for EVs, avoiding the need to draw from the distribution system. One could foresee EV charging hubs producing DC power in areas of high grid congestion without having to draw down from grid. Maintaining a broad scope of potential opportunities for DG solutions is critical in allowing for the best solutions to come to this quickly evolving market.

**Not Just Renewable** – While we understand the initial thrust of the Governor's goal is for additional renewable DG, Bloom encourages the Commission to take this opportunity to provide a push for the most efficient, clean technologies, renewable or otherwise. We believe it would be a mistake to focus wholly on intermittent renewables for the 12,000 MW goal. In fact, the 12,000 MW should be seen as a **clean** energy generation goal, integrated with the goals and challenges of AB32 and RPS, which provides a diverse portfolio to meet our ongoing energy needs.

### **Answers to Specified Questions**

#### **I. Developing Interim and Regional Targets for 12,000 MW by 2020**

**1) Please suggest a methodology for setting interim and regional targets building to the 12,000 MW goal by 2020. Considerations to address include: state and local policies, the capability of the distribution system, economics, and resource availability. To aid discussion, staff has identified the following options for parsing out the goal:**

- **Set targets for each load serving entity or county.**
- **Set targets per sector, for example, residential, commercial, public, or other.**

- **Set separate targets for installations that serve on-site load and for projects that produce energy for wholesale.**
- **Set targets by utilities' portion of coincident peak.**
- **Set targets based on resource potential and/or best use of the distribution system.**

**Answer:** Bloom suggests that some variation of all of the suggested options be used to attain the 12,000 MW goal recognizing that many sectors will be involved in the right solution. If the policy design is too narrow or overly specific, the State will struggle to reach its goals. Rather, a broad framework that allows for participation from every geographic region, every customer type, from both behind the customer meter and wholesale generation, and recognizing that every clean DG resource should be included in an integrated solution.

Bloom especially cautions that the state will have to balance the goal for new DG resources against the need, costs and impact to the distribution grid. We suggest that nameplate capacity versus generation capacity be considered in determining and measuring achievement of this DG goal. Additionally, the benefits of GHG emission reduction and from both renewable and high efficiency clean technologies should be taken into consideration. We caution against standalone geographic targets as it fails to recognize the existing energy regimes at the local level as well as potentially being overly restrictive.

**2) Related to the above question, some utilities have noted in the California Public Utilities Commission's Rule 21 Working Group and its Renewable Distributed Energy Collaborative (Re-DEC) that up to 15 percent of peak load for individual circuits could reliably interconnect with minimal system upgrades. Other utilities have said that individual circuits could handle distributed generation additions for up to 50 to 100 percent of minimum load. Could a 15 percent of peak load or 50 to 100 percent of minimum load penetration rate be implemented statewide? If so, how much renewable capacity would be installed per utility?**

**Answer:** Bloom suggests that narrowing the scope of the State's implementation of the 12,000 MW goals to exclusively renewable DG will miss other beneficial DG resources and create more of a burden on the distribution grid than is necessary. The State needs to recognize that certain DG resources, like the cleanest, most reliable baseload DG solutions, are more than just generation sources. When integrated into the State's energy infrastructure, these technologies can provide support to the intermittent technologies connected to the distribution system, thereby off-setting the costs of additional peakers and transmission and distribution system upgrades, providing a more reliable, secure and diverse grid.

**3) Please provide comments on any methodologies discussed at the workshop. Indicate whether you support or oppose a particular approach and the rationale for your position.**

**Answer:** Bloom has no position at this time on particular regimes and asks that our comments included here on broad policy design be considered under any regime.

**4) Should the state create incentives or penalties to ensure achievement of targets? If so, please suggest program design and implementation.**

**Answer:** The State should ensure that existing DG incentive programs (California Solar Initiative, Self Generation Incentive Program, Emerging Renewables Program and New Solar Homes Partnership) and other DG related procurement programs (Feed in Tariff and Renewable Auction Mechanism) are continued in a robust manner. These programs will provide the right market signals to encourage the necessary private sector investment and ensure that the DG technologies mature quickly enough meet the 12,000 MW goal. Unpredictable programs that start and stop slow market growth and will be a hindrance to achieving much bigger goals. Without consistency in policy design and implementation of existing programs that are already designed to lead us towards the 12,000 MW goal, our path could be derailed unnecessarily.

**5) If the state established regional targets, should there be options to trade allocation requirements? If so, how should this be implemented?**

**Answer:** Bloom does not support the use of regional targets as we do not believe they are a useful metric and will lead to a program that limits opportunity rather than encourages development. An overly prescriptive program could stifle innovation and limit the ability for the best solutions from being implemented throughout our state. Rather, we believe the 12,000 MW goal is statewide and as such the market and program design shouldn't favor certain jurisdictions over others. Allowing for the best solution in the best location to manifest itself based on merits will better ensure the goal is met with technologies that can successfully provide localized energy and the correlated benefits.

**6) What are the near-term and long-term actions needed to achieve 12,000 MW by 2020?**

**Answer:** In the near term, Bloom believes it is imperative that the State continue to support DG through existing programs such as the SGIP, CSI, ERP and NSHP as well as DG related procurement programs such as FIT and RAM. Continued implementation of current DG programs and related policies create the regulatory certainty needed to attract investment in DG technologies. Further, in both the near term and the long term, the State needs to ensure that DG is integrated into larger energy policies including resource

adequacy, long term procurement planning, GHG reduction, and renewable procurement. In essence, DG needs to be seen as part of – not separate from – ALL of the State's energy policies and goals.

## **II. Discussion on European experience integrating large amounts of DG**

### **7) How are the European electrical distribution systems similar to or different from California?**

**Answer:** Bloom has no position on European feed in tariffs at this time.

### **8) What challenges have European countries encountered from integrating distributed renewables that are applicable to California, what actions did they take to address the challenges, and what lessons are applicable to California?**

**Answer:** Bloom has no position on European feed in tariffs at this time.

### **9) As California builds out its distribution system, what lessons can be learned from the European experience?**

**Answer:** Bloom has no position on European feed in tariffs at this time.

## **III. Discussion of “Developing Renewable Generation on State Property, Installing Renewable Energy on State Buildings and Other State-Owned Property”**

### **10) Please provide comments on the staff report and on lessons learned from the European or local experience that may be applicable to California.**

**Answer:** Bloom offers overall comments on the role the State can play through the installation of DG on or at State facilities. We believe the State can act as an early adopter and leading consumer to help facilitate the widespread deployment and market transformation of DG. However, the State needs to be more flexible in regard to placement and siting of DG on state property. Importantly, the Report focuses entirely on renewable DG and in doing so misses a critical opportunity to holistically plan for and deploy DG resources. We encourage the State to broaden the 12,000 MW goal to include all clean and efficient DG that can help our state meet its environmental and energy goals, while simultaneously saving the state money on its electricity bills.

## **IV. How Research Development and Demonstration (RD&D) can Help Advance Distributed Generation**

**11) What is the role of RD&D in advancing distributed generation and helping achieve the Governor's *Clean Energy Jobs Plan* and other current and future state policy goals such as the Renewable Portfolio Standard and AB 32?**

**Answer:** Bloom supports continued investment in RD&D. Bloom further suggests that the policy focus should be on technology neutral, market oriented policies that will both encourage innovation and drive wide deployment of technologies. We believe that it is relevant to restate our earlier comments on the need to continue existing market transforming programs as these will lead to long term job growth. In the near term, Bloom believes it is imperative that the State continue to support DG through existing programs such as the SGIP, CSI, ERP and NSHP as well as DG related procurement programs such as FIT and RAM. Continued implementation of current DG programs and related policies create the regulatory certainty needed to attract investment in DG technologies.

Ensuring that existing programs remain robust, while also creating a framework that promotes utility ownership and investment in DG projects, will provide opportunities for job growth and market transformation.

**12) Please comment on the maturity of distributed generation technologies. Which technologies or components should RD&D efforts focus on to address some of the barriers for advanced DG deployment?**

**Answer:** Bloom suggests that California's policies and programs should be focused on taking a technology neutral approach to accelerate the commercialization of new distributed generation technologies that can realize significant cost reductions and will meet emission and GHG reductions according to ARB and the AB 32 Scoping Plan. With the prevalence of intermittent renewable generation, there should be a focus on the advancement of complementary baseload DG to help stabilize the grid and help the CAISO manage grid reliability. We need to create incentives for utilities to embrace DG, and to be able to rate base DG technologies in order to help meet utility goals of reliability and GHG reductions. Without utility support, the barriers to entry for DG technologies remain extremely high.

**13) Are currently existing technologies and tools enough to power facilities with nearly 100 percent renewables in a technically and economically feasible manner? What are some emerging technologies that may be able to reduce costs when produced at scale?**

**Answer:** Bloom believes that limiting the 12,000 MW goal to renewable technologies misses many opportunities to achieve comprehensive clean DG integration and energy market transformation. As we stated above, we believe that technologies like Bloom's can be an integral part of a distribution system "solution". Use of status quo renewables without dynamic partnerships will only meet demand at certain times of the day and have a low capacity factor, predictability, and reliability. If the State broadens the goal by using existing

– and emerging – clean and efficient DG, especially when paired with renewable DG, it can promote a holistic generation and distribution solution.

Bloom is a technology that is a highly efficient, emissions reducing, 24-7 technology that can operate on both traditional and renewable fuels. Bloom provides customers with reliable generation that is ultra-clean, efficient, and displaces the need for peaker plants. While there are significant benefits to using renewable fuel in Bloom's Energy Servers, this Solid Oxide Fuel Cell technology provides significant GHG reductions and increased reliability even when running on natural gas. Additionally, Bloom is a good example of an emerging technology that has seen reduced costs upon scaling production. If California pursues a path that does not integrate viable ultra-clean, yet non-renewable, options from State energy goals, it would send inconsistent signals and miss a huge opportunity to promote an integrated clean energy future.

**14) What issues impede the deployment of distributed generation technologies in utility distribution territories that RD&D can help address? If so, please identify the issue and how RD&D can help in a manner that benefits both the utilities and customers.**

**Answer:** To understand the full value of ultra-clean, targeted, baseload DG, we need to better understand the "avoided costs" to utilities. DG should not only be seen as offsetting generation, but offsetting transmission and distribution systems investment as well. If DG is looked at only looking at offsetting generation or only offsetting transmission and distribution, DG will fail to be widely deployed. Recognizing the value of DG to the utilities, California Independent System Operator and state regulators beyond generation will further the dialog and open up policy design to capture the full value of DG.

**15) What other future research direction, focus, strategies or initiatives may be recommended for PIER to undertake so that RD&D can better help advance DG?**

**Answer:** Bloom has no position at this time.

Thank you for the opportunity to provide comments on the IEPR Workshop on Renewable, Localized Generation. Please contact me with any questions or concerns. I look forward to continuing to work with your offices and Commission staff on these issues.

Sincerely,

/s/

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