

California Energy Commission
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Infinia Corporation Comments on Senate Bill 1 Eligibility Requirements Staff Report

Thank-you for the opportunity to comment on the Eligibility Criteria and Conditions for Incentives for Solar Energy Systems Senate Bill 1 Staff Report. Infinia Corporation, headquartered in Washington State and a manufacturer of a solar electric product. Infinia's 3 kWe solar electric product has been in prototype development and testing for over two years and will enter commercial production in 2008. It fully meets the definition of "solar energy system" in SB1. When introduced in 2008, Infinia's solar electric product will convert solar energy into electricity at significantly higher efficiency rates than any PV product on the market today and offers the opportunity to significantly reduce the cost of solar electricity in California.

Unfortunately, under the proposed Eligibility Criteria for Solar Energy Systems in the Staff Report, Infinia's solar electric product will NOT qualify for any incentives because it is not a PV product.

Adoption of the Energy Commission's proposed Eligibility Criteria will limit consumer choice to only those products that use PV. This is clearly not good public policy because it artificially limits the number of potential solutions and solution providers available to the market. And it is not in compliance with SB1 requirements.

In CPUC and CEC staff writings, in related public comments and in the popular vernacular, "PV" is often used in a shorthand and inaccurate manner to mean "solar electric". Of course, on a formal and more accurate basis, "solar electric" is a much broader term than "PV" because it includes products and solutions for converting solar energy into electricity that do not rely on a photovoltaic process.

For the purposes of these comments, Infinia uses the term "solar electric" to describe situations when solar energy is converted into electricity. Infinia uses the term "solar thermal" to describe situations when solar energy heats a fluid (air, water, oil, etc.) and

that fluid is predominately used to displace natural gas or electricity usage. The Infinia product is a solar electric system.

SUMMARY OF INFINIA COMMENTS:

A. As proposed, the Eligibility Criteria and Conditions for Incentives for Solar Energy Systems Staff Report is NOT in compliance with SB1.

B. SB1 requires the Commission to establish eligibility criteria for all solar electric generating systems (PV and non-PV) under the original CSI program.

C. The SB1 solar thermal and solar water heating program is an ADDITIONAL program for solar thermal systems that displace electricity usage.

D. Infinia respectfully requests that the Commission REVISE its eligibility criteria by aligning it with SB1's broader definition of "solar electric systems" – encompassing both solar thermal electric and PV systems.

DISCUSSION:

A. As proposed, the Eligibility Criteria and Conditions for Incentives for Solar Energy Systems Staff Report is NOT in compliance with SB1.

1. In SB1, California's lawmakers described the objectives, requirements, and desired outcomes for a dramatic, world-leading solar electric program.
2. SB1 explicitly defines the term "solar energy systems" as meaning "solar electric systems" - a much broader definition than the "PV Only" approach put forward by the Commission staff.

The SB1 definition of "solar energy systems" is:

"Solar energy system" means a solar energy device that has the primary purpose of providing for the collection and distribution of solar energy for the generation of electricity, that produces at least one kW, and not more than five megawatts, alternating current rated peak electricity, and that meets or exceeds the eligibility criteria established pursuant to Section 25782"

3. The Staff Report RE-DEFINES what "Solar Energy Systems" means and in doing so incorrectly REDUCES the SB1 solar electric system program to a PV-ONLY Program.

In the opening paragraph of the Abstract (page i), in the opening paragraph of the Executive Summary (page ii), and throughout the Report, when the staff refers to the SB1 term "solar energy systems" it is frequently written as "Solar Energy (Photovoltaic (PV)) Systems" or even more briefly as "PV systems". This phrasing mistakenly equates "solar energy systems" as "photovoltaic (PV) systems". SB1 definition of "solar energy system" is explicit and does not use the phrase "PV" or "photovoltaic" in its definition. It is CLEARLY broader than PV.

In SB1, Division 15 of the Public Resources Code was amended to add the California Solar Initiative. And the first amended section (Section 25780) states:

"25780. The Legislature finds and declares both of the following:
 (a) It is the goal of the state to install solar energy systems with a generation capacity equivalent of 3,000 megawatts, to establish a self-sufficient solar industry in which solar energy systems are a viable mainstream option for both homes and businesses in 10 years, and to place solar energy systems on 50 percent of new homes in 13 years."

This DOES NOT say a goal to install "PV solar energy" (a term NOT DEFINED in SB1), but rather a "solar energy system" with the expressed definition that is NOT LIMITED to PV systems.

B. SB1 requires the Commission to establish eligibility criteria for all solar electric generating systems (PV and non-PV) under the original CSI program.

1. Section 25782 required of the Energy Commission:

"25782. (a) The commission shall, by January 1, 2008, in consultation with the Public Utilities Commission, local publicly owned electric utilities, and interested members of the public, establish eligibility criteria for solar energy systems receiving ratepayer funded incentives that include all of the following (emphasis added):

- (1) Design, installation, and electrical output standards or incentives.
- (2) The solar energy system is intended primarily to offset part or all of the consumer's own electricity demand.
- (3) All components in the solar energy system are new and unused, and have not previously been placed in service in any other location or for any other application.
- (4) The solar energy system has a warranty of not less than 10 years to protect against defects and undue degradation of electrical generation output.
- (5) The solar energy system is located on the same premises of the end-use consumer where the consumer's own electricity demand is located.
- (6) The solar energy system is connected to the electrical corporation's electrical distribution system within the state.
- (7) The solar energy system has meters or other devices in place to monitor and measure the system's performance and the quantity of electricity generated by the system.
- (8) The solar energy system is installed in conformance with the manufacturer's specifications and in compliance with all applicable electrical and building code standards."

The Commission is required to establish eligibility criteria for "solar energy systems", whose definition is not specific to PV-only. A plain interpretation of the SB1 definition and requirements for a "solar energy system" would clearly indicate that the legislature was describing a "customer-side solar electric system" program and not just a PV-ONLY program. To more accurately clarify the phrase "solar energy system", Staff should refer to "solar energy (electric) system" or even "solar electric system" within the Report.

2. In SB1, lawmakers acknowledged that the CPUC had adopted the California Solar Initiative (CSI) program, which was expressly understood to be, and was treated in SB1 as a solar electric program encompassing both solar thermal electric and photovoltaic systems.

In the opening lines of SB1, the legislature declared:

"The people of the State of California do enact as follows:

SECTION 1. (a) The Legislature finds and declares that the Public Utilities Commission (PUC) adopted the California Solar Initiative in Decision 06-01-024."

CPUC Decision 06-01-024 clearly identified the CSI program as encompassing photovoltaic and solar thermal electric systems (sometimes referred to in the text of the decision as "concentrated solar" or even as "solar thermal")

Conclusions of Law (D-06-01-024)

"3. The CSI should offer incentives to any solar technology with a capacity rating of less than 5 MW."

and

"6. Initial CSI incentive levels for solar PV and concentrated solar should be set at \$2.80 per watt in 2006, and should be scheduled to be reduced every 12 months or when certain MW targets are met, consistent with the recommendations in Appendix A."

The Legislative Counsel in the SB1 Digest summarized at section (2) that:

"In a PUC decision, the PUC adopted the California Solar Initiative, which modified the self-generation incentive program for distributed generation resources and provides incentives to customer-side photovoltaics and solar thermal electric projects under one megawatt."

This clearly indicates that the legislature understood that the CPUC CSI program included MORE than just PV...that it was a customer-side solar electric program that included PV and solar thermal electric.

3. **The preponderance of evidence throughout SB1 clearly indicates and requires a customer-side solar electric program.**

SB1 requires the Energy Commission to establish eligibility criteria for "solar energy systems" and it provided the explicit definition of the term to describe the class of solar technology that it intended the Commission to establish criteria for. And that definition includes the Infinia product. By definition in SB1, by historical precedent in CPUC's CSI program, and by straightforward application of market logic, the term "solar energy

systems” are “solar electric systems” and include products based on solar thermal electric as well as PV technologies.

C. The SB1 solar thermal and solar water heating program is an ADDITIONAL program for solar thermal systems that displace electricity usage.

It has been suggested that the “solar thermal and solar water heating” program created in SB1 be used to “accommodate” the NON-PV solar systems such as Infinia’s. Infinia believes that this is NOT a correct application of the requirements of SB1. This approach fails to recognize that Infinia’s solar electric product generates electricity directly from concentrated sunlight and may or may not make use of any available thermal energy for other uses. An attempt to accommodate non-PV solar electric systems in this “solar thermal and solar water heating” program and, consequently, to not provide appropriate eligibility criteria for solar electric systems such as Infinia’s, is not in compliance with SB1:

1. **SB1 explicitly states that the legislature understood that the CPUC had adopted the CSI program that included photovoltaic AND solar thermal electric installations** (see citations in B.4. above).
2. **The legislature then added a program for “solar thermal and solar water heating”.**

Infinia supports the CPUC interpretation that within the context of the SB1 requirements, this program is for solar heating that “displaces electricity usage.”

In Decision 06-12-033, the CPUC adjusted their prior decisions in an attempt to bring the CSI program into compliance with SB 1. In the text of the Decision, the CPUC discussed its original CSI program which included collecting revenues from gas customers to fund solar thermal technologies that offset natural gas usage. SB 1 forbid this program and focused on a solar electric program instead. These non-electric solar technologies were even referred to as “non-PV” in what APPEARS as a shorthand reference for non-electric producing solar technologies.

D-06-12-033 (page 21)

“A second issue we must address, given SB 1’s language limiting collections from gas customers, is whether it is appropriate to provide rebates to customers who install solar devices that displace natural gas usage. The ALJ ruling raised the question about the extent to which the Commission should provide incentives for solar technologies other than PV, and whether the Commission should exclude from the incentive program those “non-PV” solar technologies that displace natural gas usage.”

D-06-12-033 (page 22-23)

“The issue of whether to provide incentives to non-PV technologies has been an open question for some time. In D.06-01-024, the Commission stated its intent that all solar technologies should qualify for incentives, including solar PV, solar thermal, solar water heating, solar heating and air conditioning, and concentrating solar technologies. (D.06-01-024, pp. 13-14.)”

In this decision, the CPUC concluded:

D-06-12-033 (page 23-24)

“We find that given the SB 1's restrictions on collecting CSI funds from natural gas ratepayers, it would be inappropriate to use funds collected from electric ratepayers to subsidize natural gas savings. At the same time, SB 1 allows us to spend up to \$100.8 million for incentives to solar thermal and solar water heating devices. Therefore, we will include solar thermal and solar water heating in our CSI incentive program, but only those solar thermal technologies that *displace electric usage*. SB 1 explicitly defines a “solar energy system” as a device that “has the primary purpose of providing for the collection and distribution of solar energy for the generation of electricity....” (Public Resources Code Section 24505.5(a)(3).) *SB 1 states as a goal that CSI is an investment in peak electricity generation capacity. (Public Resources Code Section 25780 (b).)* Further, in describing eligibility criteria, SB 1 requires that solar energy systems primarily offset part or all of the consumer's own electricity demand. (Public Resources Code Section 25782(a)(2).) Thus, SB 1's goals do not include natural gas displacement.” (*emphasis added*)

The CPUC interpreted that the solar thermal and solar water heating program would be supported when it “displaced electric usage” and that SB1 did not support natural gas displacement but rather supported “investment in peak electricity generation capacity”. Then it ordered that it would incorporate this ADDITIONAL program for “electric-displacing non-PV technologies” into the CSI:

D-06-12-033 (page 26)

“As new solar non-PV technologies become viable, project proponents may apply for incentives as long as they meet other CSI eligibility criteria. Thus, there will be no percentage cap on participation of electric-displacing non-PV technologies, other than the \$100.8 million limitation in SB 1 for solar thermal incentives. The program administrators shall each track incentive commitments for non-PV technologies (i.e., solar thermal), and administer funds up to each program administrator's pro-rata share of the \$100.8 million limit, using the same proportional shares as specified in Table 2 of Appendix A to this order.”

Infinia understands from the CPUC discussions just cited above in the Decision that the CPUC order describes ONLY the SB1 ADDED program for “non-PV technologies

(i.e., solar thermal)" that "displace electricity usage". BUT this certainly can NOT be the program for the for PV and non-PV technologies that meet the SB1 definition and that are part of the CSI "investment in peak electricity generation capacity" and (as cited in A.4. above) were understood by the SB1 lawmakers to be part of the original CSI program. Granted, this "loose" usage of the term "non-PV" to mean "solar thermal" has caused confusion in the use of "non-PV" that is "solar electric".

While Infinia's product can provide solar thermal energy for the purpose of "displacing electricity usage", it can only do so when integrated with other technologies. The predominant use of Infinia's product is to generate electricity directly from concentrated sunlight...and to do so much more efficiently than PV products do.

D. Infinia respectfully requests that the Commission REVISE its eligibility criteria by aligning it with SB1's broader definition of "solar electric systems" – encompassing both solar thermal electric and PV systems.

The CEC Staff have done a remarkable effort in establishing eligibility criteria for PV systems. The Infinia solar electric product is only now coming to market but is not likely to be the only new solar electric technology that comes on the market during the duration of California's solar electric program. In the wisdom of the California lawmakers, the solar electric program was intentionally left open for a wider range of current and emerging solar electric systems to make a contribution to establishing a significant on-peak solar electric contribution (e.g. 3000 MW) in California and to establishing a thriving solar industry. Ensuring that this wider range of solar electric technologies can become eligible for incentives in California will ensure California ratepayers access to the best available products and technologies for converting sunlight into electricity...the "best bang for their incentive buck".

Thank-you for the opportunity to comment on this matter of great importance for Infinia. And thank-you for the opportunity to introduce to you a U.S. manufactured near-term available solar electric technology that can contribute to meeting California's solar electric objectives.

Respectfully submitted,

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