Reply Comments Regarding Incentives for Non-PV Solar Technologies

1. ASPv (and Other Parties) Continues to Support the Dual Program Approach for Solar Thermal Technologies

The CPUC has proposed inclusion in the CSI solar thermal hot water, heating and cooling technologies. The solar industry, and ASPv, have consistently supported the development of all solar resources and technologies for the benefit of the citizens of California. It is notable that most of the parties that addressed solar thermal technologies ("STT") in opening comments supported their inclusion in the CSI, a position the Commission has taken by specifically including solar hot water, heating, and cooling. ASPv also continues to support inclusion of all solar thermal technologies. Further, many parties, along with ASPv, support the bifurcation of the program as it is moving forward. Specifically, SDREO will develop a pilot program for residential and small commercial solar domestic hot water ("SDREO Program") and the CPUC will develop a PBI program for all solar thermal applications ("CPUC Solar Thermal Program").

ASPv has briefly reviewed the SDREO Program proposal and supports its concepts for residential and small commercial systems. It is important to note, however, that the SDREO Program limits itself to these smaller systems and the production of domestic hot water only. The CPUC Thermal Program still needs to address the larger solar domestic hot water systems along with solar process and space heating and solar process and space cooling, as proposed by Staff.

No parties appear to object to this type of division for solar thermal applications and only one party appears to question the inclusion of thermal technologies, and only solar thermal HVAC, in the CSI. San Diego Gas & Electric/Southern California Gas Company ("SDG&E") indicates that it believes that solar HVAC (cooling and heating)

technologies are premature, although the Commission has included these technologies in the CSI. As ASPv has previously indicated and the Commission believes, commercial solar HVAC systems are far more advanced than most other non-PV solar technologies and deployed more widely throughout the world. Residential HVAC systems, due to chiller sizing, are still not market-ready, but are moving in that direction and are certainly no less advanced than residential concentrating solar power ("CSP") systems. Again, the PBI incentive will ensure that only working systems receive incentives.

Solar thermal technologies are important to California for a variety of reasons: first, they include thermal storage and provide firm power; second, they displace peak electricity; third, thermal collectors are well over 50% efficient and produce a maximum amount of energy even with change in angle; fourth, they also displace natural gas, a fuel of increasing concern due to rising costs and limitations based on increased use for electric generation. California will benefit greatly by allowing solar thermal technologies to continue to develop. By allowing this technology to move forward under both the SDREO Program and the CPUC Solar Thermal Program utilizing PBI and maintaining a constant program over the first two to three years as proposed by Staff the Commission will obtain valuable data and be able to adequately modify the Program(s) as necessary in year three to maximize the benefits to California's ratepayers.

2. Specific Issues Raised by Parties

ASPv wishes to address the few specific issues raised by other parties. First, Joint Solar Parties discuss the appropriateness of the SRCC rating system within the context of the SDREO Program and suggest that this certification process be utilized for other solar thermal applications in the broader CPUC Solar Thermal Program. As discussed in our

original comments to the Staff proposal, the SRCC rating system is appropriate to smaller, flat-plate technologies but not to other types of solar thermal collectors. Although SRCC may have the ability to test certain additional types of collectors, they do not have the ability and are not set up to test all types of collectors and/or systems.

ASPv recommends that the CPUC Solar Thermal Program take an approach currently used by the CEC for adding technologies without certification mechanisms, such as CSP and solar HVAC, to the Emerging Renewables Program: "Manufacturers of solar thermal systems must provide acceptable evidence . . . of one year of reliable operation for each model of systems they wish to sell under this program . . . by a full-scale facility using this technology under field conditions." This approach, along with the PBI requirement, will provide adequate assurance that solar thermal technologies will perform as anticipated.

The Consumer Federation of California (CFC) suggests that only cost-effective solar technologies be included under pilot programs. To require cost-effectiveness seems reasonable; nonetheless, except for the pilot program for small solar domestic hot water, pilots are not necessary for the well-proven solar thermal technologies that are being incentivized under a PBI method.

Solar thermal applications are both well-proven and cost-effective technologies, as supported by other filings made and information provided. For solar cooling, the incentive requested is at or below the incentive level requested by the PV industry. This is presumably the benchmark for reasonableness. The incentive proposed for solar heating and hot water applications is much lower. When the two are combined in a solar HVAC system, the number will be lower then the maximum. In the early years of the

Program due to the higher cost of solar cooling, we expect that most systems will combine cooling with heating and/or hot water. This will reduce the average cost per kWh of systems well below the incentive for solar cooling.

3. Clarification Regarding Program Administration

ASPv recommends that the Commission hold an additional workshop on the non-PV solar technologies to insure that all issues are clear for the Handbook development stage of this process.

4. Solar Space Cooling

Both SDG&E and Solargenix have addressed technical questions related to solar space cooling. There is a possibility that the proposed definition of solar space cooling is unclear. ASPv proposes the following as a definition for solar thermal space cooling technologies that qualify under this program: "Solar Space Cooling is a technology that uses solar thermal energy absent the generation of electricity to drive a mechanical refrigeration machine that provides space cooling in a building, displacing electricity." This definition encompasses the types of systems that are commercially available and well-proven. These systems can be easily measured and stated in kWh equivalent.

SDG&E also raises a question related to how solar cooling systems are measured due to the differing chiller efficiencies and has proposed a formula for incorporating chiller efficiency. ASPv agrees with SDG&E that chiller efficiency should be considered in solar cooling incentives and that this issue and any other remaining technical issues be handled during an additional workshop or Handbook development.