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TO: California Energy Commission
Dockets Office, MS-4

FROM: Aaron Nitzkin
Independent Consultant
169 Glendora Avenue
Long Beach, CA 90803

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RE: Comments on New Solar Homes Partnership – Draft Proposal

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Please find below some of my feedback and comments in response to the CEC New Solar Homes Partnership Draft Staff Proposal.

1. Simplicity is key to program success. The majority of builders are already resistant and not happy about incorporating solar PV into their production building. The easier the transition, the more supportive the builders will be.
2. That being said, I really like the coupling of solar PV with energy efficiency. I believe that there should be 2 rebate levels, a base level for PV on new homes that meet Title 24 requirements, and a higher rebate (10-15% higher) for PV on new homes that exceed Title 24 requirements by a minimum threshold – possibly 40%.
 - a. One thing to also note is that the additional costs for the added requirements (i.e. field certification) should be factored into the rebate level and into the true cost to the builder.
 - b. I believe that geography should not play into the rebate levels. This will make it more confusing and inconsistent. If the goal is to truly get solar as a mainstream building material, it is critical to get equal support throughout the state, in all geographical locations.
3. The Expected PBI has to be truly dummy proof and really easy to use. If it is at all confusing, misleading, inconsistent, or incorrect, I fear that it could likely lead to program failure. That being said, a little confusion for the solar contractor/installer might be ok. It is the message that goes to the builder that is important. So as long as the solar contractor can keep it predictable and simple for the builder, this approach should work fine.
4. Rebate Allocation: \$400M is not enough. According to my estimates (see attached), I believe that the program will require \$742M in funding through 2016 in order to reach the desired goal of 50% market penetration. Also, it is imperative that clear funding exists for the program through 2016.
5. Rebate Amount: It is critical that the program's launch be successful. As in my estimates, I use an initial rebate level of \$2.50 per watt, which is as low as I think the CEC should go in the first year. The main metric used in determining "Value of PV" in new homes is cash flow, not the traditionally used "simple payback." This is without doubt one of the biggest selling features of

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putting solar on new construction and incorporating the costs into the mortgage. Accordingly, we should set the rebate with the hopes that the PV system will deliver a positive cash flow or close to a positive cash flow to the homebuyer.

- a. It would be sending an inconsistent message if the rebate amount for solar new homes is lower than the rebate amount for retrofit solar installations.
6. Administration of Program
 - a. The current ERP application reservation payment procedures are suitable to base this new program on. That being said, the one main change that I would make is to add a guaranteed response window to an application, e.g. 2-3 weeks for new home developments under 100 homes, 1 month for developments over 100 homes. During busy periods of applications in the past, the builder and the contractor were sitting in the dark wondering what was going on with their application. I personally had to wait over 3 months a couple of years ago to get feedback on an application. To truly ensure success of this program, the builder and contractor need to know for sure when they'll be able to confirm that their rebate has been reserved.
 - b. An online reservation system and/or ability to check online the status of an application would be helpful and would minimize such inquiries to the CEC.
 - c. The length of an application should be extended from 18 months to 36 months.
 7. Working with local BIA chapters, the CEC should sponsor a series of workshops across the state to introduce this new program to California's builders

Single Family Homes in California

Expected Solar System Average Size: 2.5 kW
 Multiplier for rebate vs total cost: 3.2

Year	New Homes Built	% SFH with Solar	New Solar SFH	New Annual Capacity MW	Cumulative MW installed	Rebate Level (per watt)	Total System Cost (per watt)	Total Solar Revenue (M)	Annual Total Rebates (000)	Cumulative Rebate (000)
2007	130,000	2%	2,600	7	7	\$2.50	\$8.00	\$52.0	\$16,250	\$16,250
2008	130,000	3%	3,900	10	16	\$2.25	\$7.20	\$70.2	\$21,938	\$38,188
2009	130,000	6%	7,800	20	36	\$2.00	\$6.40	\$124.8	\$39,000	\$77,188
2010	130,000	10%	13,000	33	68	\$1.75	\$5.60	\$182.0	\$56,875	\$134,063
2011	130,000	15%	19,500	49	117	\$1.50	\$4.80	\$234.0	\$73,125	\$207,188
2012	130,000	20%	26,000	65	182	\$1.25	\$4.00	\$260.0	\$81,250	\$288,438
2013	130,000	27%	35,100	88	270	\$1.00	\$3.20	\$280.8	\$87,750	\$376,188
2014	130,000	35%	45,500	114	384	\$0.75	\$2.50	\$284.4	\$85,313	\$461,500
2015	130,000	40%	52,000	130	514	\$0.50	\$2.50	\$325.0	\$65,000	\$526,500
2016	130,000	50%	65,000	163	676	\$0.25	\$2.50	\$406.3	\$40,625	\$567,125
			270,400	676				\$2,219.4		

Multi-Family Homes in California

Expected Solar System Average Size: 2.0 kW
 Multiplier for rebate vs total cost: 3.2

Year	New Homes Built	% MFH with Solar	New Solar MFH	New Annual Capacity MW	Cumulative MW installed	Rebate Level (per watt)	Total System Cost (per watt)	Total Solar Revenue (M)	Annual Total Rebates (000)	Cumulative Rebate (000)
2007	40,000	2%	800	2	2	\$2.50	\$8.00	\$16.0	\$5,000	\$5,000
2008	40,000	3%	1,200	3	5	\$2.25	\$7.20	\$21.6	\$6,750	\$11,750
2009	40,000	6%	2,400	6	11	\$2.00	\$6.40	\$38.4	\$12,000	\$23,750
2010	40,000	10%	4,000	10	21	\$1.75	\$5.60	\$56.0	\$17,500	\$41,250
2011	40,000	15%	6,000	15	36	\$1.50	\$4.80	\$72.0	\$22,500	\$63,750
2012	40,000	20%	8,000	20	56	\$1.25	\$4.00	\$80.0	\$25,000	\$88,750
2013	40,000	27%	10,800	27	83	\$1.00	\$3.20	\$86.4	\$27,000	\$115,750
2014	40,000	35%	14,000	35	118	\$0.75	\$2.50	\$87.5	\$26,250	\$142,000
2015	40,000	40%	16,000	40	158	\$0.50	\$2.50	\$100.0	\$20,000	\$162,000
2016	40,000	50%	20,000	50	208	\$0.25	\$2.50	\$125.0	\$12,500	\$174,500
			83,200	208				\$682.9		

Total New Homes

Year	New Homes Built	% SFH with Solar	Total New Solar Homes	New Annual Capacity MW	Cumulative MW installed	Rebate Level (per watt)	Total System Cost (per watt)	Total Solar Revenue (M)	Annual Total Rebates (000)	Cumulative Rebate (000)
2007	170,000	2%	3,400	9	9	\$2.50	\$8.00	\$68.0	\$21,250	\$21,250
2008	170,000	3%	5,100	13	21	\$2.25	\$7.20	\$91.8	\$28,688	\$49,938
2009	170,000	6%	10,200	26	47	\$2.00	\$6.40	\$163.2	\$51,000	\$100,938
2010	170,000	10%	17,000	43	89	\$1.75	\$5.60	\$238.0	\$74,375	\$175,313
2011	170,000	15%	25,500	64	153	\$1.50	\$4.80	\$306.0	\$95,625	\$270,938
2012	170,000	20%	34,000	85	238	\$1.25	\$4.00	\$340.0	\$106,250	\$377,188
2013	170,000	27%	45,900	115	353	\$1.00	\$3.20	\$367.2	\$114,750	\$491,938
2014	170,000	35%	59,500	149	502	\$0.75	\$2.50	\$371.9	\$111,563	\$603,500
2015	170,000	40%	68,000	170	672	\$0.50	\$2.50	\$425.0	\$85,000	\$688,500
2016	170,000	50%	85,000	213	884	\$0.25	\$2.50	\$531.3	\$53,125	\$741,625
			353,600	884				\$2,902.3		