

## Discussion Draft: Distributed Renewable Energy Generation 12-10-07

Rooftop solar photovoltaics have the technical potential to generate 74,000 MW, so that during peak periods solar output would exceed the entire current peak electrical demand in California<sup>1</sup>. This technology has significantly higher than market costs today, with the potential to eliminate these margins by 2020 in the many areas of California that are well-suited for solar if development trends match those of the computer industry. Building on existing policies to encourage technology innovation in solar and any other renewable zero GHG renewable energy technologies that are suitable for California will help encourage the innovation that would be needed to achieve that goal.

- *Timeframe:* In place by 2012
- *GHG Reduction Potential:* Every 1,000 MW installed will save 1 MMT CO<sub>2</sub> per year.
- *Ease of Implementation:* Moderate to establish, low to moderate once established
- *Co-benefits / Mitigation Requirements:* Increased renewables will reduce power plant emissions of other air pollutants, and will create a potential clean energy source for zero emission vehicles. Innovation in PV solar will likely lead to greater usage world-wide.
- *Responsible Parties:* Legislature, public utilities commission, utilities, and California residents and building owners.

### *Problem:*

The recent McKinsey Report states that there are several barriers from a national perspective, leading to major variability in predictions about the scale of future PV solar deployment. Immediate cost barriers include the high capital cost, the need for net metering, and the ability to sell PV output back to the grid to pay back system costs where it exceeds the value of on-site electricity consumption. Interconnection, near-term bottlenecks in supply, and the need for continuing innovation are additional barriers. Current research challenges include maximizing PV panel power output per meter and/or reducing production costs per KW output, and reducing the balance of system costs.

### *Potential Solutions:*

The California Solar Initiative and the federal solar tax credit (which expires in 2008) will help address the capital cost issue for residents and businesses that are willing to accept long payback times or pay an extra costs for purchases of "Green" electricity. Municipal Assessment Districts, as recommended by ETAAC in the finance sections of this report, will also help spread out capital costs to better match customer savings. Extension of the federal tax credit will also help lower this hurdle.

The state should also require that utilities buy distributed renewable energy generation provided to the grid after the customer's bill has been "zeroed out" (as recently required for Combined Heat & Power distributed generation under AB1613). This is especially important because PV systems cannot be economically scaled down to match the output needed to "zero out" the electrical bill for a residential customer with low electricity usage; and because multi-unit buildings cannot economically split on-site solar output to each unit in the building. For solar, that value should reflect the benefit of delivering on-peak power without new transmission investments & impacts, air pollution, or land-use impacts.

In addition, the net metering cap at 2.5% of electrical demand should be raised to allow California to achieve its goal of 3,000 MW distributed solar electricity expected under the California Solar (along with other distributed energy goals), or eliminated for renewable zero GHG generation (as long as there are no serious adverse effect to the reliability of the electric grid that cannot be remedied). In addition, time of use metering should remain open for renewable energy distributed generation customers. These steps will continue to support investment in innovation and increased supply to for solar energy and will also encourage the development of other renewable energy distributed generation technologies.

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<sup>i</sup> California Energy Commission. *California Solar Resources*. Staff Draft paper in Support of the 2005 IEPR. April 2005.