Solar panels for hot water

Hot water heating accounts for 10% of the primary energy demand in buildings. The advantage of rooftop solar for hot water is that it is very efficient (50% to 60%) since we are producing heat and not electricity.

We assume 20 gallons per person per day of hot water are required for home use and an extra 30% for commercial use. This implies 5.5kWh/d per person which in Nevada can be delivered by 2m² of rooftop area.

Using rooftops to produce all the hot water we use is not a technological problem, it an issue of economics and will power.

Level 1
We assume rooftop hot water production remains at its current levels of a few MW per year. A very small proportion of buildings have a solar thermal system.

Level 2
We produce 10% of our hot water needs from rooftop solar by 2050. For example, 30% of buildings produce 30% of their hot water needs from solar.

Level 3
Ramp up to 50% by 2050. All suitable buildings have some level of solar heating system with around 50% of their annual hot water demand met by solar thermal.

Level 4
All the hot water in Nevada is produced by rooftop solar.