According to the IPCC, it “is very likely that hot extremes, heat waves, and heavy precipitation events will continue to become more frequent.” For instance, by midcentury, the number of heat wave days in Los Angeles is expected to at least double over the late twentieth century, and quadrupling is expected by the end of the century. This doesn’t mean that the average temperature will increase dramatically, but the number of extreme events will go up sharply.

These changes will have significant effects on our energy system. Electricity generation uses water to turn turbines for hydropower or produce steam for thermoelectric power, and it also uses cooling water to condense the steam produced by thermoelectric generation. It accounts for 48% of total water withdrawals and 3% of freshwater consumption in the United States. Heatwaves and droughts directly impact this water use. For instance, in the big European heat wave, nuclear reactors had to cut back or even close down. Hydropower is also obviously sensitive to drought. In the summer of 2001, drought drained hydroelectric power resources for the Pacific Northwest and Northern California.

Renewable energy becomes an increasingly attractive alternative because it is not sensitive to heat or drought. Improved demand management and greater capacity to import power also become important. In addition, we should think about increasing water storage capacity and about improved efficiency in using water to cope with potential reduced supplies.