

PS#7 Due Monday, March 12

- 1) Draw and explain the famous California Wealth/Energy use decoupling graph. What is the very very important socio-economic-political message behind that graph regarding GHG reductions? Help?: it shows the per capita electricity use as a function of the year for California and the USA versus the other states and USA as a whole.
- 2) You hear some people talking, “Heat pump, Heat engine, refrigerator... are they just all the same thing?” Please distinguish these two things or explain how they are the same.
- 3) Old freezers didn’t have defrost, so they would accumulate ice on the evaporator coils. We can clean off the ice by using a screw driver!
 - a) Will removing ice improve the efficiency of the freezer? Why or why not?
 - b) Why should you **NEVER** clean the ice off this way?
- 4) OTEC What’s the best thing about it? What’s the greatest challenge?
- 5) You have a wind farm and notice that when the wind blows at about 3 m/s, it generates 20 MW. About what will be the power you generate when the wind blows at 6 m/s? Why?
- 6) Incandescent, fluorescent, and LED lighting technologies
 - a) Explain with a drawing how these three light-producing technologies work
 - b) Why do incandescent lights get such bad efficiency?