W21 questions: renewable energy

Energy questions: W21 Renewable Energy

Please read:

Chapter 21: Renewable energy

https://elab.hpa.edu/apes/texts/Withgott7e%20v.2%20ocr/ch21ocr.pdf

Bozeman Science:

027 - Energy Reduction

http://www.bozemanscience.com/ap-es-027-energy-conservation

028 - Renewable Energy

http://www.bozemanscience.com/ap-es-028-renewable-energy

Questions:

1. Using the metaphor for a leaking ship, should you get a bigger pump or fix the leak?
2. How does this metaphor relate to energy?
3. TOU is the latest incentive for Hawaiian Electric-what does this mean?
4. In 1976, President Carter's TV messages showed him in a sweater in the winter, what message was he sending?
5. We were then asked to keep the thermostat at 68 in the winter, 75 in the summer. Why are these different?
6. Why does a hybrid car use less fuel than a pure gasoline or diesel car?
7. A hybrid vehicle gets 45 mpg in the city and 40 on the highway. A gas car might get 25 in the city and 35 on the highway. Explain.
8. Why would a laptop computer use less power than a desktop computer?
9. What are the CAFE standards?

10. What vehicle was exempt?
11. What is the broken part of the CAFE standard?
12. What do you see in the video that you use in your dream home?
13. What are the six forms of RE (renewable energy)?
14. Which ones are sustainable?
15. Heat pumps can be over 100% efficient. How is this possible?
16. How is charcoal formed and why?
17. Why is the EROEI for sugarcane in Brazil higher than in the US?
18. As the price of PV drops, what happens to the EROEI?
19. Hydrogen is not really a fuel, but more like a battery-explain.
20. Our energy grid is fossil fuel based-explain
21. Explain why open loop geothermal caused problems in Puna (near Hilo) in the 1970’s
22. Why is PSH greener than any other storage, and could we use it at HPA?
23. China has exclusive access to many of rare earth mines around the world. Why?
24. What changes in government policy could increase RE use?
25. Why has this not happened?
26. What is the difference between passive and active solar thermal?
27. Why do you need an invterter to include PV into your home use?
28. Why are PPAs evil and good at the same time?
29. Explain a “smart grid” and why we don’t have one now.
30. What is your vision for your future regarding energy?

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