CHAPTER 11  THE STONE AGE DIDN’T END BECAUSE WE RAN OUT OF STONES

All questions written in enlarged font are potentially closed-note questions for final.

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The author describes his opportunity to talk to China’s automakers at a meeting.  This suggests that his ideas are taken seriously at a global level.  What really was the gist of his talk, as he “went for the jugular”?

Why does the author say the first and foremost the green revolution is an innovation challenge rather than a regulation challenge?

Why does he believe that we have not made a breakthrough in abundant, clean, reliable, cheap electrons?  (page 243)

Friedman urges you by saying “If you only take one thing away from this book, please take this: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.  (fill in the blank)

He doesn’t believe we need a Manhattan Project for clean energy, but rather\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

What does Friedman believe the one rule in our energy garden has been?  (page 245)  Why does he use the analogy of a garden?  Hint – what are the “weeds” in the garden, and what does he mean by “overrun”?

What is he getting at with the example of different tariffs on sugarcane ethanol vs. Saudi crude oil?  Did you know this fact?  What about the erratic tax incentives for renewables such as wind and solar, but permanent or long term tax incentives for the fossil fuel industries?  Discuss.

What is the author’s favorite form of renewable energy?  Explain.

What is meant by “intelligent design” for energy systems, from Avidan and also Carlson?  Does Carlson believe that we should be picking the winners?

One measure of how seriously an industry has pursued research and development is the share of those activities of the total revenue of the industry.  What is it for the electric utilities?  What is this share in most competitive industries?

What does Friedman say about the American pet food industry?

How many generations of innovation has there been in health care in the United States in the past 26 years?  How many in the power industry?

What does this tell us, according to Jeffrey Immelt?

In three adjectives and/or active phrases, summarize how Edward Goldberg describes modern American capitalism in general.

In particular, from the writing of Goldberg, what’s wrong with the energy companies, as it concerns innovation for new energy sources?  What does he believe the role of government should be?  Why?

What is the most essential thing that markets respond to, according to Dan Kammen, the Berkeley energy innovation expert?

Prices and Innovation

What was the late Saudi Arabian oil minister Sheikh Ahmed Zaki Yamani worried about with high oil prices?  What was his famous saying?

Regarding the previous question, most industry analysts believe the magic price is probably somewhere between $70 to $100 per barrel.  At the time your humble instructor is writing this question, oil is trading at around $85 per barrel, after having been over $140 in mid-2008.

How can we simulate the market conditions of expensive oil – oil costly enough to stimulate alternative innovations, according to Friedman?  (a similar approach would also work for the other fossil fuels)

Read this op-ed for a late 2008 update:  http://www.nytimes.com/2008/12/28/opinion/28friedman.html?\_r=1&hp

Also, remember that the total cost of using fossil fuels, if externalities are priced in, is much higher than what we pay for them as consumers.

What does Friedman mean by “leveling the playing field”?  (page 252)

Another price signal that could work, aside from the previously-mentioned approaches, is a floor price.  What is the meaning of this?

Read the last sentence of paragraph two on page 254, and then weep.  Why weep?

What does the author believe would have stimulated the construction of several Prius plants in the United States after 9/11?  Why do you think he uses the word “Patriot” as part of the phrase?

Why does Friedman believe that some of our largest energy companies are not “all in” on clean-tech innovation?  How did GE’s Immelt put it?  How does he respond to those who say that government should not be in the business of fixing floor prices or other incentives to stimulate clean power?

Why are these giant companies so important if the world wants to see a new “green revolution”?

How did GE get to a third generation of innovation in wind turbines?

Immelt says:  “Government is a huge player in health care, with huge subsidies.  Cancer will be cured in our lifetime because of that."  Why not in renewable energy?  Discuss.

How does the amount of venture capital in clean energy (2007) compare with the amount of venture capital in the dot com boom (2000)?

What caused the huge investment into fiber optic cable from the late 1990s to the early 2000s?

What did Lester Brown say about the reason for the collapse of socialism, and why capitalism may collapse?

What did the CEO of Interface say, on page 260?

Make a list and brief description of the five most-often discussed ways to create a price signal.  After doing this, state which one you favor, and why.

What was learned in Denmark about the effects of a CO2 tax?  How applicable is this lesson to the United States?

One objection that some have to energy taxes is that yes, they are another unwanted tax.  How could this objection be addressed, without increasing at all the total tax burden in the United States, but having a new and significant energy tax?

The US does not have a national renewable energy portfolio mandate.  By the way, make sure you know what this term means.  Who is the famous politician who proved that they can work well, in the great state of Texas?

What did the writer Machiavelli say that has great applicability to the struggle of creating a new green energy system?    Why are the enemies of change more passionate than the protagonists?

Friedman is cognizant of the political problems of proposing a new tax.  How does he recommend framing the issue so that the proposal is politically palatable?  How well do think this would do with the American public?  Why?