Homework Assignment 1 (due W February 3rd)
Physics 140: The Greenhouse Effect
Spring 2016

Reading

2. Beyond Smoke and Mirrors (BSM) pp. 1 - 16.

Problems/Questions

1. (3 pts.) The United States (US) consumes $10^{20}$ J (joules) of energy each year. What is the average power consumption of the US in TW (terawatts)? You may want to use the fact that there are $3 \times 10^7$ seconds in 1 year.

2. (3 pts.) How many TWh (terawatt-hours) of energy does the US use in one year?

3. (3 pts.) How much average power per person does the US consume? You can take the current US population to be 300 million.

4. (6 pts.) GW p. 17 Problem 1.

5. (10 pts.) GW p. 17 Problem 2.

6. (5 pts.) Richter in BSM discusses the fact that major climate changes have occurred in the past. Why is climate change now then such a problem?

7. (5 pts.) What does Richter mean by “BAU”? Please use a minimum of two sentences to explain.

8. (5 pts.) In his Introduction, Richter talks about “Energy from Three Perspectives: Economy, Security and Environment”, indicating that there are many reasons to change our ways beyond climate change. In a minimum of three sentences, please discuss what he means here.


10. (5 pts) In his Introduction, Richter writes that “Hardin’s ‘Commons’ today is the Earth’s atmosphere.” Please explain using a minimum of two sentences what is meant by this statement.

(Total = 50 points)