

PHYSICS 105 Final Exam (Energy Policy)

Introduction

- Give a general overview of what you've learned in this class. Discuss any misconceptions you had about any particular energy/environmental concepts prior to taking this class. If your perspective on a certain area has changed (e.g. You didn't believe in global warming before this class, but now you do; You hated nuclear before, but now you love it), discuss that as well.

Policy

- Provide a plan of how we should power the U.S. moving forward. This pertains both to commercial electricity and transportation. Discuss any mandates you would put forth, subsidies you would allow, research you would fund, and/or laws you would implement. Make sure to provide a plan for how you would pay for such expenses. Give some estimate of the cost to the consumer (i.e. Electricity rates would increase by X % under my plan). Make sure to consider geography in whatever plan you propose (i.e. Solar works well in the desert, hydropower won't). You may use as many forms of energy as you deem necessary, including technologies not discussed in class. If you plan on using technologies not previously discussed, give a brief explanation of how they work and provide references. Include figures.
- Divide your policy into sections. Each method of energy generation should be its own section. Environmental laws, mandates, energy subsidies, etc. should also be separated into sections.
- Make sure to consider sustainability as well as environmental issues. Also consider ways to encourage people to reduce their use.
- Give quantitative assessments (e.g. Under my policy, X% of residential electricity will be generated by nuclear power; 15% of all oil must be replaced with bioethanol). Review the online lectures to get a feel for the amount of power consumed in the US. Consider such things as: "How much electricity does the average U.S. household use? How many households are there?" Give realistic estimates of what must be done. (**For example**, if you decide that you want 10000 GWh of electricity from hydroelectric, you would need to know how much hydropower is currently produced in order to estimate how many new dams you would have to build to reach this goal. How much space would this require? Is it feasible? You can refer to the lecture to see how much power can be obtained by a single dam, and use this to estimate.)

Conclusion

- Explain why your plan will work. Explain why it is important to have such a plan in place.
- Minimum 5 pages.