

# ENVSC 15

## Introduction to Energy

### Group Project Assignment

The class will form groups of 2-3 students for this group project. The goal of this project is to determine the type(s) and proportion of energy sources that would be developed for a new city that your group is responsible for designing. Your group will write a report and present your report to the class at the end of the semester.

Your group will select a location for your proposed city from a list of locations provided by your instructor. You will be given a budget that is constrained by the economy of the location you choose (after you turn in your proposal, you will be given a budget to build the plant and an annual budget to operate the plant). Your energy choices are also constrained by the physical location of your future city. You also need to consider the impacts of your energy sources. For example, you may not want to use fossil fuels if you are concerned about the impacts upon the climate. Or, you may not want to use nuclear energy if you are concerned about the long term storage of nuclear waste (which has economic and humanitarian costs associated). You will probably want to select a variety of energy sources and you will need to list the proportion of each energy source and your budgetary (and other criteria) justifications for your choices.

You will need to make sure that the energy sources you select are reliable (e.g. is there enough wind for your wind turbines or enough incoming solar radiation for your photovoltaic panels) and sufficient to supply power to your new city. Demonstrate that you have determined your energy sources are realistic considering all the criteria you need to satisfy.

Final Result:

Your group will submit a report in electronic format to the instructor by Saturday Dec. 7, 8PM. The report will be comprised of 10-15 pages using times new roman font size 12, double spaced.

The basic format for the written report is as follows:

- I. Cover page: Including project title and your names.
- II. Objective of the project: What is the purpose or need for your project? (real or hypothetical) What are you doing, and why?
- III. Data Sources: What data did you use and where did it come from? (who collected them, when, and why?)
- IV. Methods: Steps followed to produce the final product or result (i.e., outline, written description, flow chart, etc.). How did you determine the energy source? How did you determine how much it would cost to build the energy plant(s)? How did you determine the size of the energy plant to build? How did you determine what the annual cost would be for the energy?
- V. Results: What were your findings, statistics generated, maps, tables and graphs produced?
- VI. Discussion and Conclusion: What do your results show? What problems were encountered? How did you deal with them? How would you advise someone who was now going to do the same or similar project?

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VII. References: Including references to book, journals, photos and maps in proper bibliographic form.

VIII. Appendices: Relevant attachments, including graphs, tables, maps.

Regions that can be selected:

- Arizona
- Alaska Coast
- Alaska Interior
- Coast of Oregon
- Puerto Rico
- Saudi Arabia
- Germany
- Hawaii
- Iceland
- Cascade Mountains
- Mammoth, CA
- Texas
- Louisiana
- Florida
- China
- East Africa