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# Sustainable Energy

## Spring 2005

### Sample Term Paper Topics

These are a few suggestions to stimulate your creativity. Please discuss your ideas for a term paper with one of us before you submit your choice on February 24.

1. What can policy instruments do for increasing the deployment of renewable energy in the US (or the world)?
2. Geothermal energy – how can universal heat mining be achieved?
3. Wind energy technology: Lessons learned from Altamont Pass, California, and Nantucket Sound, Massachusetts.
4. PURPA: Lessons learned in the promotion of alternative energy.
5. Alaskan oil exploration and production from the Arctic National Wildlife Refuge (ANWR): Is it worth it?
6. Energy storage: Technology opportunities and their integration into interruptible renewable energy sources.
7. Distributed energy generation – is it the way of the future?
8. Is a zero net energy building a realistic sustainable goal?
9. Hybrid vehicles for transportation.
10. Electric vehicles for transportation.
11. Can CO<sub>2</sub> be successfully sequestered in the deep ocean (or in the depleted oil and gas wells or in aquifers)?
12. Carbothermic reactions that dominate our production of primary metals and materials: energy use trajectories and opportunities.
13. Can methane be recovered from marine or permafrost based hydrates?
14. Solar photovoltaics or concentrating solar power – Can they really make a difference as a major alternative energy supply?
15. Will the technology of modern biology enable the production of competitive fuels?
16. Technologies for low-head, run of river hydropower energy recovery – what are they and what will it take to develop and deploy them?
17. Efficiency for converting fossil fired heat to power – a steady history of improved performance.
18. Geothermal energy development in central America, Indonesia and the Philippines – a blueprint for the future?
19. Geothermal heat pumps – what will the potential impacts and deployment schedule be in the US?
20. How much oil is there in the world?
21. Is there a next generation for nuclear power in the US?
22. Can nuclear power be used to provide hydrogen sustainably?
23. Room temperature superconductivity for enabling electricity transmission and storage – is it possible?
24. Fundamental issues facing widespread deployment of fuel cells in either stationary or transport applications.
25. Will the California energy shortage “virus” of 2001 reappear and possibly spread to the other 49 states?

26. Can fossil energy from Mexico help the US in a sustainable fashion?
27. Hydropower from Quebec – Is this a sustainable approach?
28. Can western Canadian natural gas help eastern US consumers?
29. Can India meet its energy needs to support a developing industrial economy?
30. Third generation nuclear fission reactors: How viable, how safe, and how soon?
31. Electrification in Mindanao: Context and Sustainability Issues