Explorations in Coal: What Is the Best Way to Utilize Coal’s Energy?

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Coal is one of the world’s largest assets in terms of energy, in 2012 coal provided 41% of the entire worlds electricity. In order to provide so much energy large reserves of coal were burned. This project is assessing whether or not coal is being burned in the most efficient manner. Currently coal is mined, shipped to an energy plant, crushed into small pieces and then burnt in large furnaces. From this two question can be formulated: is the coal that is currently being primarily used (bituminous) the most economical, and does crushing the coal provide any benefits in the energy process? In order to test and asses these questions samples of five different types of coal (peat, lignite, sub-bituminous, bituminous, anthracite) were collected and burned in a calorimeter. Within this, various trials of coal were crushed to test whether or not the size of the piece makes any difference. Data collected included beginning and final temperatures within the calorimeter, maximum temperature established by the coal, time spent burning, and also the mass and volume of the of the sample. Thermal energy calculations were performed in order to calculate the energy put off by the coal in every individual trial. In the end this project was able to conclude that in an energy sense, as in trying to acquire the largest amount of energy, crushing samples of bituminous coal is the most economically sound method of acquiring energy. This is because energy plants are trying to quickly push coal through their systems; therefore, the more coal that is burned the more energy can be collected.

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