



Staple this cover sheet to the front of the technical brief you are reviewing. Make additional marks on the paper.

After completing the critique, give the author points for each category in the table provided.

Reviewer's Name: Fahad Alharza

Author's Name: Kenric Freiwald

	Points Possible	Points Earned
Format	50	
Grammar & Spelling	75	
Organization & Clarity	75	
Technical accuracy	50	
TOTAL	250	

1. Consult with the author for 5 minutes. Have the author identify his/her concerns about the paper. Record those concerns here:

Organization

text

2. Quickly read through the paper, paying attention to the overall flow. If a passage does not make sense, make yourself a mark for you to focus on that section later.

- a. Does the paper flow? Explain.

- b. Briefly, summarize the main point of the paper (in your own words). According to the author:

- i. what is the need?

- ii. what compare/contrast points does the author make?

3. Look at the entire paper for organizational headings and evaluate the figures and tables.
 - a. Do headings provide details about each section? Explain.
 - b. Are the figures and tables easy to understand? Explain.
 - c. Do the figures and tables help clarify and make the paper more concise? Explain.
4. Reread the entire paper. Focus on the details, such as grammar, spelling, active verbs, sentence structure, vague words (or phrases), consistency, clarity, citations (in-text with footnotes or reference list), etc.
 - a. Mark the actual paper.
 - b. Make constructive suggestions for ways to improve the paper.
 - c. Provide any additional concerns here:
5. Check for plagiarism by using the web to search key phrases. Alternatively, search Google for “check for plagiarism” to find web tools. If you find plagiarism, mark the passage and document the web link here:
6. List the two most important things the author should do to improve this paper during revision. Be specific.
7. What are the strengths of this paper? What did the writer do well?

Kenric Freiwald

February 17, 2015

Prof. Dave Richter

EGR186-6

Harnessing the Power of Fusion Energy

Capturing power from fusion energy is one of the grand engineering challenges of our day. Converting the energy made from putting a hydrogen atom under pressure and an immense amount of heat would provide clean energy that could meet the rising need, as more and more of the human population industrializes and the population continues to grow exponentially. What makes it an engineering challenge is making it safe and finding or creating the materials that can withstand the heat and pressure required. I did some research on this topic and found two articles: One that addresses the gravity of the situation and one that conducts the experiment on a small scale.

Both of these articles are very helpful to address the future of fusion energy. *Experience towards the operation of a fusion reactor gained through fusion experiments using deuterium-tritium mixtures in JET* looks to the using deuterium-tritium mixtures to create the most energy, as these isotopes of hydrogen are more stable as they feature an electron. *Nuclear Fusion Energy—Mankind's Giant Step Forward* agrees with this theory, saying this mixture combined with a tokamak device, which'll contain the created plasma the best, is the key to keep the human race advancing without having to worry about the loss of fossil fuels or the cost of renewable energy. Also, both sources agree readily that the next step in the solution to this problem is the creation of the International Thermonuclear Experimental Reactor (or ITER). This

collaboration will be built in France as a combination of the efforts of about 3 dozen countries from around the world. This is where soon, they'll test the applicability of the solutions the world engineers have come up with, as well as make sure the device is safe to produce in other countries, hopefully providing the Earth with the fusion energy it needs to advance mankind.

While these articles are similar, they are more different than alike. While the 1st article claims that the key is to safety, the 2nd article just claims that the key is to advancing things forward, but doesn't really give any specific solutions to this problem, it mostly talks about the human spirit and perseverance. Also, the same could be said about the population problem and why this grand challenge needs solved. The 1st article just goes over the technicalities of the experiment they performed and the jargon from the experiment; however, the 2nd article focuses on the exact opposite, bringing to light the potential problem and fully exploring why we need this solved.

Together, these two articles could be very powerful, and the key to pushing forward the problem to hopefully seek out an end solution. They provide driving forces from both a technical and moral standpoint. Unfortunately, the 2nd article doesn't exactly present a solution, which makes a full scale comparison difficult.

References

- [1]S. Lee and S. Saw, 'Nuclear Fusion Energy—Mankind's Giant Step Forward', *Journal of Fusion Energy*, vol. 30, no. 5, pp. 398-403, 2011.
- [2]A. Gibson, 'Experience towards the operation of a fusion reactor gained through fusion experiments using deuterium-tritium mixtures in JET', *Fusion Engineering and Design*, vol. 47, no. 2-3, pp. 107-113, 1999.