

Superconductor Use in Energy Production Efficiency

CONCLUSIONS

High temperature super conductors can have a huge impact on the efficiency of power production. Sixty percent of the power generated is lost in conversion. Being able to cut that loss down is very impactful to cost, and green energy. production p

OBJECTIVES

Through research discover how much potential high have in the current production process and provide examples of superconductors with a manageable critical and pressure.

USA expenditure on energy production in billions (current vs ideal)

RESULTS

- Many high temperature super conductors capable of being cooled by liquid N2 or CF4
- 17073.13 Billion U.S. Dollars spent on energy years 1980-2020 (Statista)
- If we cut down the energy lost and made it ideal it would have been 6829.252 billion instead (Statista)
- Room temperature superconductor was discovered however requires such a high pressure it isn't feasible but shows promising potential (Rochester)
- With this cut down on energy loss the amount of fossil fuel usage can be cut down

References

"Expenditure on energy in the United States from 1980 to 2020." Statista, Jan 31 2023

"U.S. Energy System Factsheet." Center For Sustainable Systems University Of Michigan, 2021, Pub. No. CSS03-11

"Room temperature superconductor? Rochester lab sets new record toward long-sought goal." University of Rochester, March 30 2021

Timeline of the discovery for advancements in superconductors (1900-2020)

Model of how a room temperature superconductor was created (Rochester Lab)