

Overall Accelerator Efficiency

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Accelerator Efficiency

- Assume a 10 MW proton beam with 50% efficiency
 - Means that 10 MW is in the proton beam
 - 10MW is low-grade heat
- Assume that the target is immersed in the fluoride salt as proposed by Charlie Bowman
 - The protons produce neutrons
 - The protons also produce 10 MW heat in the core
 - The heat will be converted to steam, then electricity
 - Conversion efficiency is at least 70%
 - 10 MW of beam is converted to 7 MW of electricity
 - 3 MW of spent steam
- **It takes 13 MW of electricity to produce a 10 MW beam**