

Questionnaire about efficiencies for novel accelerator technologies

What is the estimated wall plug to driver (particle beam or laser) efficiency ?

Assume either existing technology, or technology under development but likely to be available within a reasonable a time frame. Please give references, if possible.

What is the estimated driver to main beam efficiency?

Indicate the key parameters used for the efficiency calculation. Indicate what is the basis for the estimate (Experiments? Simulations? Theoretical estimates?). Please give references, if possible.

If known, how does the efficiencies scale with key parameters?

Example from the CLIC CDR, for a 3 TeV c.o.m. energy CLIC, operating at 12 GHz and a loaded gradient of 100 MV/m :

- Wall plug to drive beam efficiency: 55 %
- Drive beam to main beam efficiency: 20 %
- Total wall plug to main beam efficiency: 55 % x 20 % = 11 %

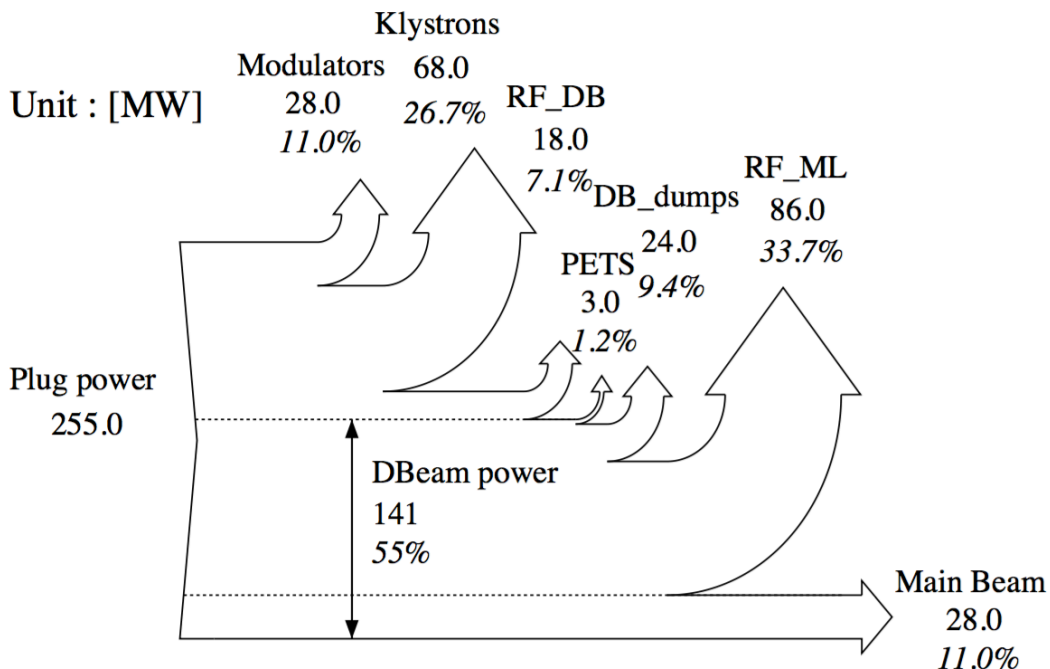


Figure: details of the 3 TeV CLIC wall plug to main beam efficiency calculations. From CLIC CDR: CERN-2012-007, Geneva, Switzerland, 2012.