29 A stationary nitrogen nucleus reacts with a high speed α-particle to produce a proton and a nucleus of an oxygen isotope as shown in the equation:

$$^{14}_{7}\mathrm{N} + ^{4}_{2}\alpha \rightarrow ^{17}_{8}\mathrm{O} + ^{1}_{1}\mathrm{H}$$

The masses of the nuclides involved are as follows

nuclide	mass / *u*
$^{4}_{2}\alpha$	4.002604
$^{1}_{1}\mathrm{H}$	1.007825
$^{14}_{7}\mathrm{N}$	14.003074
$^{17}_{8}\mathrm{O}$	16.999130

Which is the minimum energy that the α-particle possess in order for the reaction to occur?

A 1.9×10^{-13} eV

B 4.0×10^{-13} eV

C 1.2 eV

D 1.2×10^{6} eV