11. (a) For ^{239}Pu, $Q = 94e$ and $R = 6.64\,\text{fm}$. Including a conversion factor for J $\rightarrow$ eV, we obtain

$$\begin{aligned} U &= \frac{3Q^2}{20\pi\varepsilon_0 r} = \frac{3[94(1.60\times10^{-19}\,\text{C})]^2(8.99\times10^9\,\text{N}\cdot\text{m}^2/\text{C}^2)}{5(6.64\times10^{-15}\,\text{m})}\left(\frac{1\,\text{eV}}{1.60\times10^{-19}\,\text{J}}\right) \\ &= 1.15\times10^9\,\text{eV} = 1.15\ \text{GeV}\ . \end{aligned}$$

(b) Since $Z = 94$ and $A = 239$, the electrostatic potential per nucleon is $1.15\,\text{GeV}/239 = 4.81\,\text{MeV}/\text{nucleon}$, and per proton is $1.15\,\text{GeV}/94 = 12.2\,\text{MeV}/\text{proton}$. These are of the same order of magnitude as the binding energy per nucleon.

(c) The binding energy is significantly reduced by the electrostatic repulsion among the protons.