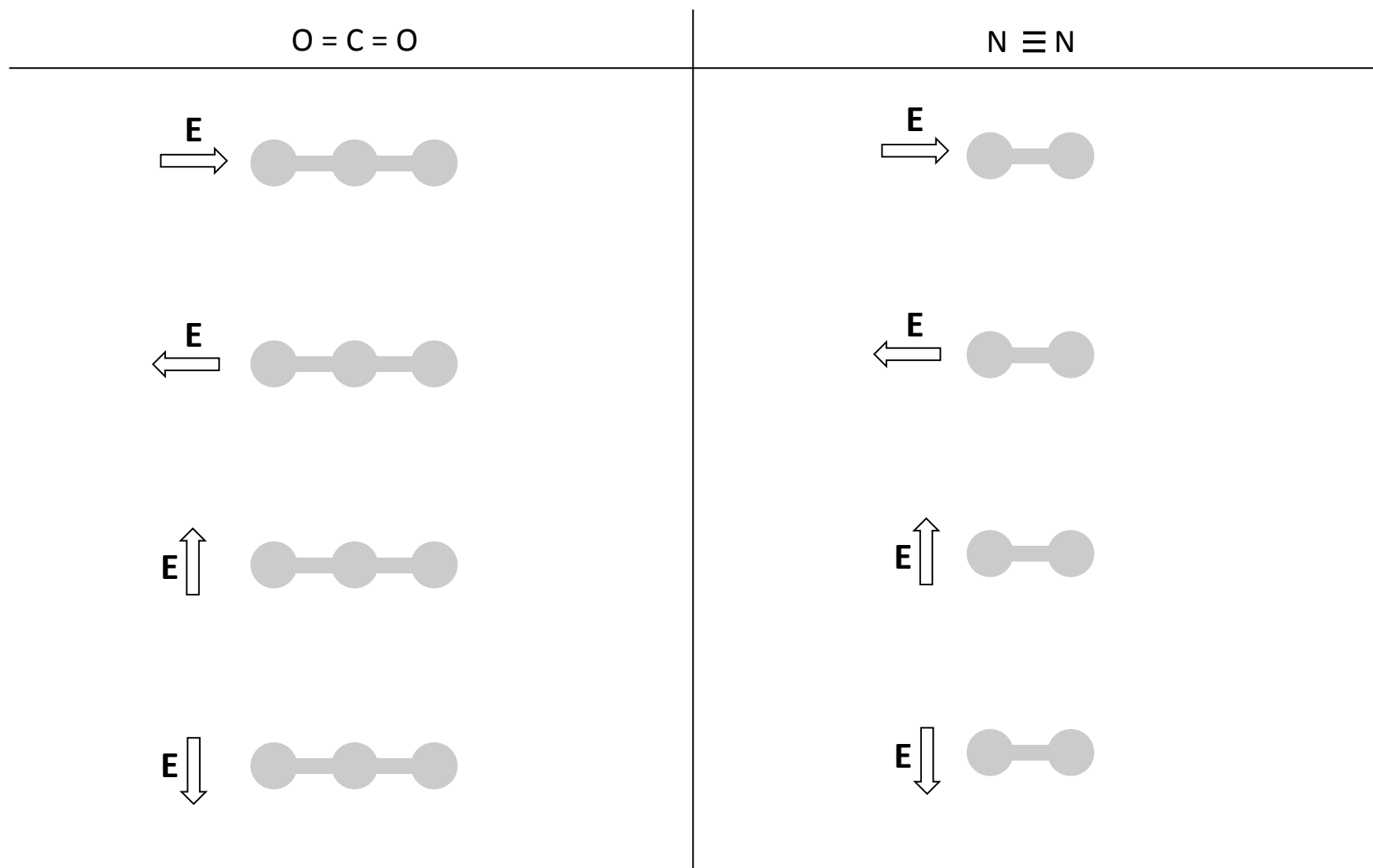


a) The shadows show the molecular structure when  $E = 0$ . The electric field distorts the structure. Sketch the distorted structure on top of the shadow, assuming that the bonds are like springs and the partial charge associated with each atom does not change.



b) Consider the example in the top left. Equilibrium length of the C=O bond is 0.123 nm, each bond has a spring constant 800 N/m. If  $E = 1000 \text{ V/m}$  (constant electric field), and  $\delta_C = +0.1e$ ,  $\delta_O = -0.05e$ , what will the new bond lengths be?