1. Let $\mathbf{x}_a$ represent the center of the atom, and let $q_j$ represent the $j$th charge of the atom, whose relative position to the center is $\mathbf{x}_{ja}$. This gives the charge density function

$$\rho(\mathbf{x}) = \sum_j q_j \delta\left(\mathbf{x} - \mathbf{x}_a - \mathbf{x}_{ja}\right) \tag{1}$$

Thus the electric force

$$\begin{aligned}
\mathbf{F}_e &= \int \rho(\mathbf{x})\mathbf{E}(\mathbf{x})\, d^3x \\
&= \int \sum_j q_j \delta\left(\mathbf{x} - \mathbf{x}_a - \mathbf{x}_{ja}\right)\mathbf{E}(\mathbf{x})\, d^3x \\
&= \sum_j q_j \mathbf{E}\left(\mathbf{x}_a + \mathbf{x}_{ja}\right) \\
&\approx \sum_j q_j \left[\mathbf{E}(\mathbf{x}_a) + \sum_\alpha \hat{\mathbf{e}}_\alpha \sum_\beta \left.\frac{\partial E_\alpha}{\partial x_\beta}\right|_{\mathbf{x}_a} \left(x_{ja}\right)_\beta\right] && \text{recall atom is neutral} \\
&= \sum_\alpha \hat{\mathbf{e}}_\alpha \sum_\beta \left.\frac{\partial E_\alpha}{\partial x_\beta}\right|_{\mathbf{x}_a} \underbrace{\sum_j q_j \left(x_{ja}\right)_\beta}_{d_\beta} = [(\mathbf{d}\cdot\boldsymbol{\nabla})\mathbf{E}](\mathbf{x}_a) && (2)
\end{aligned}$$

And the magnetic force

$$\begin{aligned}
\mathbf{F}_m &= \int \mathbf{J}(\mathbf{x}) \times \mathbf{B}(\mathbf{x})\, d^3x \\
&= \int \sum_j q_j \delta\left(\mathbf{x} - \mathbf{x}_a - \mathbf{x}_{ja}\right)\left(\mathbf{v}_a + \mathbf{v}_{ja}\right) \times \mathbf{B}(\mathbf{x})\, d^3x \\
&= \sum_j q_j \left(\mathbf{v}_a + \mathbf{v}_{ja}\right) \times \mathbf{B}\left(\mathbf{x}_a + \mathbf{x}_{ja}\right) \\
&\approx \sum_j q_j \left(\mathbf{v}_a + \mathbf{v}_{ja}\right) \times \left[\mathbf{B}(\mathbf{x}_a) + \sum_\alpha \hat{\mathbf{e}}_\alpha \sum_\beta \left.\frac{\partial B_\alpha}{\partial x_\beta}\right|_{\mathbf{x}_a} \left(x_{ja}\right)_\beta\right] \\
&= \sum_j q_j \mathbf{v}_{ja} \times \mathbf{B}(\mathbf{x}_a) + O\left(v_{ja} x_{ja}\right) \\
&\approx \dot{\mathbf{d}} \times \mathbf{B}(\mathbf{x}_a) && (3)
\end{aligned}$$

where we ignored the contribution from higher order multipoles.

2. Assume the medium is linear dielectric, i.e.,

$$\mathbf{d} = (\epsilon - \epsilon_0)\mathbf{E} \tag{4}$$

If our field is plane wave, let $\mathbf{E}$ be in the $\mathbf{x}$ direction, and $\mathbf{B}$ be in the $\mathbf{y}$ direction, so the wave travels to the $\mathbf{z}$ direction. Then the electric force

$$\mathbf{F}_e = (\mathbf{d}\cdot\boldsymbol{\nabla})\mathbf{E} = (\epsilon - \epsilon_0)(\mathbf{E}\cdot\boldsymbol{\nabla})\mathbf{E} = 0 \tag{5}$$

because the field $\mathbf{E}$ has no variance in $\mathbf{x}$ direction.

On the other hand

$$\mathbf{F}_m = (\epsilon - \epsilon_0)\frac{\partial \mathbf{E}}{\partial t} \times \mathbf{B} = (\epsilon - \epsilon_0)\mu_0 \frac{1}{2}\frac{\partial}{\partial t}(\mathbf{E}\times\mathbf{H}) = \frac{(\epsilon\mu_0 - \epsilon_0\mu_0)c^2}{2}\frac{\partial}{\partial t}\left(\frac{\mathbf{E}\times\mathbf{H}}{c^2}\right) = \left(\frac{n^2-1}{2}\right)\frac{\partial \mathbf{g}_{\text{em}}}{\partial t} \tag{6}$$