Paul Fili* (paul.fili@okstate.edu), 532 Mathematical Sciences Bldg, Oklahoma State University, Stillwater, OK 74078. Effective unlikely intersections and a metric of mutual energy. We introduce a metric of mutual energy for adelic measures associated to the Arakelov-Zhang pairing. Using this metric and potential theoretic techniques involving discrete approximations to energy integrals, we prove an effective bound on a problem of Baker and DeMarco on unlikely intersections of dynamical systems, specifically, for the set of complex parameters $c$ for which $z = 0$ and $1$ are both preperiodic under iteration of $f_c(z) = z^2 + c$. (Received September 25, 2017)