In this talk we consider the large deviations behaviour of Kac's many-particle stochastic model, corresponding to the spatially homogeneous Boltzmann equation, in the limit where the number of particles \$N\to\infty\$. With the natural rate candidate function, the large deviations lower bound is only true on a restricted class of paths, and we find counterexamples to a global lower bound related to Lu and Wennberg's energy non-conserving solutions to the Boltzmann equation. On the other hand, the class of paths where we have a matching upper and lower bounds is sufficiently rich to rederive the celebrated Boltzmann H-Theorem from the reversibility of the particle system.