Erratum: Simple Proof of Equivalence between Adiabatic Quantum Computation and the Circuit Model [Phys. Rev. Lett. 99, 070502 (2007)]

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In the third to last paragraph of the Letter, we used the inequality $\langle Z|H|Z\rangle \geq \epsilon O(1/N^2)$ as part of a proof of an $\epsilon O(1/N^4)$ lower bound on the gap. This inequality is not valid for arbitrary $|Z\rangle$. We asserted it based upon reasoning along the lines of Ref. [1] Sec. II of which is incorrect [2]. Thus, the proof appearing here is correct only for a single qubit, multiple noninteracting qubits, or two qubits undergoing at most one controlled-NOT (CNOT) gate; it is not correct in the general case of many qubits and many CNOT gates. However, we do expect that the scheme described in this Letter would function as described even in the general case. This expectation is based on Ref. [3], which proves an $\epsilon O(1/N^4)$ lower bound on the gap for a similar scheme with restrictions on qubit geometry, a different adiabatic path to the final Hamiltonian, and various benign adjustments detailed there.

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[2] A. Mizel, M. W. Mitchell, and M. L. Cohen, Phys. Rev. A **102**, 049905(E) (2020).
[3] A. Mizel, Phys. Rev. A **99**, 022311 (2019).

