The second law of the thermodynamics, in the formulation of Clausius and Kelvin, is a statement that is violated by each thermodynamics fluctuation, because of a measurable infinitesimal fluctuation from equilibrium cause a heat transfer from a colder body, or because of a measurable infinitesimal fluctuation derive a mechanical effect (infinitesimal piston) cooling a single source.

The statements of Clausius and Kelvin are a direct consequence of the impossibility of the perpetual motion (of the second kind): I say that the impossibility of the perpetual motion is more correct of the classical statements, due to the possible extension to the nanoscale, where the fluctuations are important, and where the classical definition fails; also the fluctuations dominate the quantum realm, and this old, and new, definition is applicable to the quantum world.

A time measure is an effect of a measure on a cycle (a quantum, or classical, perpetual motion), and each time measure is limited in the time, because of the impossibility of the perpetual motion, due to instrumental errors, wear and tear, fluctuations, etc.

It is possible to obtain an energy production in a single thermodynamic cycle (or each N thermodynamic cycle), in violation of the current second principle, but it is not possible get this effect for any number of cycles (for each $n > N$ thermodynamic cycle): it is possible a violation of the classical second law only for a finite time, and with a certain probability

Each composite particle generate an oscillation in the quantum space, so that each composite particle have a possible decay channel, for a quantum fluctuation, because of the impossibility of the perpetual motion.