Bacteria Excel at Thermodynamics

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Bacteria excel at thermodynamics, according to a study reported in *Nature*, vol. 415, p454, 24 Jan 2002. Engineers and physicists constantly strive to build machines that waste as little energy as possible. Yet our observations of energy transmission (Laws of thermodynamics) tell us that whenever we convert energy from one form to another some is always much lost as waste heat. Microbiologists at the University of Oklahoma studied several anaerobic bacteria and found them to be extremely efficient at using energy in their biochemical processes with very little energy wasted. They concluded "that bacterial metabolism can proceed at near thermodynamic equilibrium - a condition that is often thought to be a biological impossibility."

Editorial Comment: Anaerobic bacteria can live without oxygen. They are considered to be primitive organisms that evolved before other forms of life. Yet they control energy transfer and heat loss much more efficiently than man's best engineers. Bacteria work at "near thermodynamic equilibrium" because they were designed by the same God, who ensured the shoes of the people of Israel did not wear out during 40 years of desert wandering. (Ref. bacteria, design, thermodynamics)