When we switch off lights or lower home heating we might act in the belief that our actions conserve energy. We do this with little thought to the infrastructural and conceptual apparatus through which this action is understood to operate. On what basis is energy conserved? Is there a chain of causation through which our adjustment saves a relative amount of fuel from being consumed?

Physics tells us that energy tends toward absolute entropy, it becomes progressively less usable. As such, even activities that appear anti-entropic consume more energy than they save. In a similar way, economics argues that a reduction in demand will lower the price of energy, according to the principle of utility maximisation. According to the same principle, a lower price would encourage energy consumption elsewhere. Given the orthodoxy of these two positions, energy conservation seems exceptional. This paper outlines the theoretical basis upon which conservation is understood to occur.

My central argument is that simulation is vital to the measurement of, and evidence for, the ontic reality of conserved energy. Computer-based models are used to simulate a variety of energy-use scenarios. Drawing on graph theory and the mathematics of optimal allocation these simulations demonstrate how the tenets of physics and economics can be circumvented, and energy conserved. The different rates of energy use between a hypothetically profligate future and one of efficient use and allocation of energy is considered conserved. Conserved energy is a simulated resource.

Significantly, in order for these savings to be realised beyond the model, the socio-technical infrastructure of energy use, from appliances, the transmission grid, power-generation and resource extraction, to the market and regulation of energy, must be reconfigured to resemble the model. As such, the seemingly prosaic action of saving energy involves the manipulation of the present to achieve a simulated future.

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