

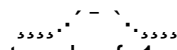
## Reading Whole System Trends in Energy Use & Efficiency

GreenBuild08 – 30min presentation, submission 225

The national and global rates of improving energy efficiency for buildings and for the economies as a whole have been regularly slowing for a considerable time in what might appear to be the natural pattern of maturing systems. Natural systems generally begin their development with a process displaying exponential growth and come to their final end with a process displaying exponential decay, perhaps with periods of stabilization and extended stability followed by decline in-between. Thus these trends to some degree predict the stage of development one is likely to find in physical systems that display them.

A growth trend indicates the likely beginning development of a complex system and a climax trend its likely stabilization. A decay trend might indicate a likelihood of finding a complex system in organizational decay. It might also indicate a complex system exhausting its resources and discovering an environment of ever smaller pockets of opportunity and diminishing returns. The question then, is how should we begin to look for the meaning of the decay curves in recent energy efficiency improvement in the performance of the economies and buildings?

It could mean a few different things, such as the demonstrated failure of the old ideas for using the earth. We are all engaged in replacing old ideas with quite different ones, and they might fare better at some time and cause an acceleration of efficiency improvement. It might also mean that the fundamental goods and services that are valuable to people are not going to change, and that natural efficiency limits are being approached for them. Either way there would appear to be a lag in the development of efficiencies predicted to resolve global warming. Those and other interpretations, and some of the data that might distinguish one possibility from another are discussed.

  
trends of: 1growth, 2stabilization, 3stability, 4decline and 5decay

### Learning objectives

- learn to recognize growth and decay as signs of beginning and ending in complex systems
- learn to consider complex system change over time spans matching their phases of development
- learn about some of the implications that may follow from the slowing trends in energy efficiency