Energy use is fundamental to modern societies and a primary way we humans interact with climate, ocean pH, and many other natural systems that provide essential services. It is time to change the energy mix to reduce those impacts. An important first step is to make our energy use much more efficient than it is currently. There is good evidence that considerable progress can be made here, with negative amortized costs in many cases. But efficiency alone is not enough. We will also need to change the way we convert primary energy resources into energy services, and there is a real need for energy innovation. Estimates of available energy resources indicate that there is no shortage of energy available for our use. The challenge is to convert it at costs that are within reason, with sources of supply that are secure, and with impacts that protect essential natural systems. Options for doing that, and the research required to make it possible, are considered in this talk.

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He and his students work on mathematical models used to calculate how fluids flow in the rocks in the Earth's crust. He and his colleagues at Precourt Institute for Energy are working to find ways to supply the energy the world needs to support modern societies and at the same time to limit the emission of greenhouse gases and other environmental impacts associated with energy supply and use.