Modern energy systems are enormous, complex, dynamic and adaptive. Understanding them is crucial because access to inexpensive energy is key to development and is the basis of modern technological societies. At the same time, because of rising concern for energy security, associated environmental impacts and green house gas emissions contributing to climate change, transitioning to carbon-neutral and sustainable energy systems has become a global imperative. This talk will analyze different regions of the world and summarize the energy choices they have made and are making, and their implications for the environment and the climate. Energy security alone will require that most countries have a 20-30 year window to transition to renewable systems. This growing realization translates to many cross-disciplinary research opportunities—in science, technology, social sciences and policy. I will then explore how to build and fund a world class effort at GWU and the role physicists can play.

TIME: 4:00-4:50 pm, Thursday the 2\textsuperscript{th} of September 2010

PLACE: 101 Corcoran Hall, GWU

725 21st Street, N.W. (Between G and H Streets)

METRO STATION: GWU/FOGGY BOTTOM (BLUE & ORANGE LINES)