Testimony in Support of HR 518
By Richard S. Denning, PhD

I am submitting this testimony in support of HR518. Low cost energy from fossil fuels underpins the enormous improvement in the standard of living in the U.S. and worldwide that has developed over the past century. There are two major issues that will constrain future use of fossil fuels: greenhouse gas production and resource depletion. The purpose of this testimony, however, is not to discuss these issues but rather to recognize opportunities for the State of Ohio associated with the bill. Within the past month, MIT issued a report of a prestigious committee of scientists on The Future of Nuclear Energy in a Carbon-Constrained World. Although nuclear power plants were rapidly introduced in the 1970s and 1980s and have historically been the primary source of carbon-free energy in the U.S. (including Ohio), the cost reductions that have occurred in electricity production with natural gas and in renewable energy supply (although they are still far from competitive with natural gas in an unsubsidized market) have not been realized in the most recently constructed nuclear power plants. The MIT study identifies the issues that have arisen in implementing new designs and makes recommendations for how the approach to construction and licensing of new plants must be improved. It is now well-recognized that small modular reactors that are largely constructed in manufacturing facilities rather than on-site is the path for the future. There are basically four different design types for which concepts are under development. Each concept has inherent safety characteristics that have less reliance on engineered safety features than existing nuclear plants and it is not yet clear which type will ultimately prevail in the market place.

The MIT study makes six high level recommendations. Two of these recommendations directly relate to HR518:
Recommendation 5: Governments should establish reactor sites where companies can deploy prototype reactors for testing and operation oriented to regulatory licensing.
Recommendation 6: Governments should establish funding programs around prototype testing and commercial deployment of advanced reactor design using four levers: (a) funding to share regulatory licensing costs, (b) funding to share research and development costs, (c) funding for achievement of specific milestones and (d) funding for production credits reward successful demonstration of new designs.

Although changing how we produce energy in the future will have costs, there also will exist opportunities. For the State of Ohio, as proposed in HR518, I see an opportunity for Ohio to maintain and expand its historic role as a major supplier of nuclear power plant equipment. We have a number of sites at which demonstration plants could be located (including the current First Energy sites, Plumbrook Station and Piketon.) If the State of Ohio were to partner with a design organization and the U.S. Department of Energy, we would want assurance that a manufacturing facility would be located in Ohio at which nuclear units would be produced not only for plants in Ohio but across the U.S.

Richard S. Denning, PhD
Former Senior Research Leader, Battelle Columbus Laboratories
Former Professor of Nuclear Engineering, The Ohio State University
Former Member, Advisory Committee for Reactor Safeguards, U.S. NRC
Former Member, Advisory Committee for Nuclear Facility Safety, U.S. DOE
Consultant, Nuclear Safety and Risk Assessment