

# A Perspective on a Nuclear Future – The Plants and the Professionals

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**Abstract.** After 25 years of steadily improving safety and economic performance, nuclear energy has achieved unprecedented levels of safety and performance and is poised for a significant near-term expansion to meet the energy needs of the U.S. and the world.

National energy, economic, and environmental policies and priorities will call for that expansion. In particular, the growing societal demand to reduce the risk of global climate change by imposing limits on CO<sub>2</sub> will increase pressure on the power industry to shift the generation portfolio to more low or zero-emitting technologies. Nuclear technology, along with coordinated plans, resources, and infrastructure support, must all be ready. EPRI believes that government and industry must share in these responsibilities, and the vision and goals that will permit a collective realization of these imperatives.

Common themes shared among most countries that have fully embraced or are considering nuclear energy are:

- The safety and economic performance of currently operating nuclear energy plants, including license renewal as an essential strategy to maintain nuclear as the largest contributor to non-emitting generation,
- The fulfillment of existing government commitments on spent nuclear fuel (SNF) management,
- The expansion of nuclear energy as a major component of a national energy policy, focusing on advanced nuclear plants with improved safety and performance features are available or currently under licensing review,
- A more effective international safeguards regime to meet the security challenges of an expanding nuclear deployment scenario, including an advanced nuclear fuel cycle technologies, particularly ones that reduce waste streams and enhance proliferation resistance, and possibly
- A hydrogen fuel initiative to reverse the growing dependence on foreign oil, by developing the technology for commercially viable hydrogen-powered fuel cells to power cars, trucks, homes and businesses with no pollution or greenhouse gases.

## THE CHALLENGE

The themes noted above are internationally challenging and will stretch the industry infrastructure, both manufacturing and construction resources as well as people to be employed by the suppliers, vendors, constructors and utilities. The presentation will address steps that are or must be taken to resolve the gaps in each area and especially as it relates to the Non Destructive Evaluation enterprise.