

# Straight Talk on Nuclear

Nuclear energy must be part of our solution  
for a balanced and secure energy mix.



NAYGN provides opportunities for a young generation of nuclear enthusiasts to develop leadership and professional skills, create life-long connections, engage and inform the public, and inspire today's nuclear technology professionals to meet the challenges of the 21st century.

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## Nuclear energy is...

### Safe and Secure.

U.S. nuclear power plants are safe. Safety is the U.S. nuclear energy industry's top priority. U.S. nuclear plants are designed with multi-layered, redundant safety features that add layers of precaution on top of precaution to prepare for any unexpected event that could challenge a reactor. The entire industry adopted a strategy to ensure that lessons learned in Japan are applied quickly and effectively at America's reactors. U.S. reactors have demonstrated their ability to maintain safety through extreme conditions, including floods, hurricanes and other natural disasters. The U.S. nuclear energy industry has already taken proactive steps to verify and validate our readiness to manage extreme events.

The U.S. Nuclear Regulatory Commission holds nuclear power plants to the highest security standards of any American industry. U.S. nuclear plants are the most secure industrial facilities and have been so since before 9/11. Nuclear plant operators also work closely with local, state and federal law enforcement near each nuclear facility to ensure that all agencies are fully integrated and could protect the nearby communities in the event of an emergency.

### Clean.

Nuclear energy is one of the world's largest sources of emission-free energy. It accounts for nearly two-thirds of carbon-free energy in the United States. One uranium nuclear fuel pellet the size of the tip of your little finger can produce the equivalent amount of energy provided by 1,780 pounds of coal, 149 gallons of oil or 17,000 cubic feet of natural gas.

All the used nuclear fuel produced by the U.S. nuclear energy industry in 50 years of operation would, if stacked end to end, only cover an area the size of a football field to a depth of about 7 yards. The industry continues to safely and securely manage used fuel while advocating for an integrated system for used fuel management that would include centralized storage, research and development of advanced fuel cycles, and development of geologic disposal.

Worldwide and at home, ambitious goals for reducing carbon dioxide emissions have been set, and the U.S. simply cannot achieve these without nuclear energy.

### Jobs.

The average U.S. nuclear plant employs 400 to 700 people long-term at salaries typically 36 percent higher than average salaries in the local area. Currently, there are competitive opportunities for technicians, engineers and skilled trades workers ready to be filled.

The 99 nuclear units in 30 states generate substantial domestic economic value in electricity sales and revenue—\$40 billion to \$50 billion each year. From this revenue, nuclear companies procure more than \$14 billion each year in materials, fuel and services from domestic suppliers. Nuclear procurement takes place in 49 out of 50 states, and the average procurement per state each year is more than \$270 million. Materials, fuel and services are procured from more than 22,500 different vendors across the country.

The U.S. Department of Commerce estimates that the global nuclear energy market—including fuel and services—will expand to as much as \$740 billion over the next 10 years. It estimates that every \$1 billion of exports supports 5,000 to 10,000 American jobs.

Analysis shows that every dollar spent by the average nuclear plant results in the creation of \$1.04 in the local community, \$1.18 in the state economy and \$1.87 in the U.S. economy. Furthermore, the average nuclear plant pays about \$16 million in state and local taxes annually, benefitting schools, roads, and other state and local infrastructure.

## Electricity for the Future.

The U.S. Department of Energy projects a 28 percent increase in electricity demand by 2040. There are 99 nuclear reactors operating in the United States today, and the industry has submitted license applications for multiple new reactors. Several billion dollars have already been spent on building new nuclear plants, including the construction of five new reactors: two at South Carolina's V.C. Summer site, two at Georgia's Vogtle site and one at the Watts Bar site in Tennessee.

Fuel diversity is one of the great strengths of the U.S. electric supply system. Each source of electricity has unique advantages and disadvantages, and each has its place in a balanced electricity supply portfolio. Nuclear power plants are the lowest-cost producer of baseload electricity.

In the future, small-scale reactors can complement large nuclear plant projects by expanding potential markets in the United States and abroad for carbon-free energy production. Smaller reactors provide energy companies and other users with additional options that help achieve critical energy and environmental policies.

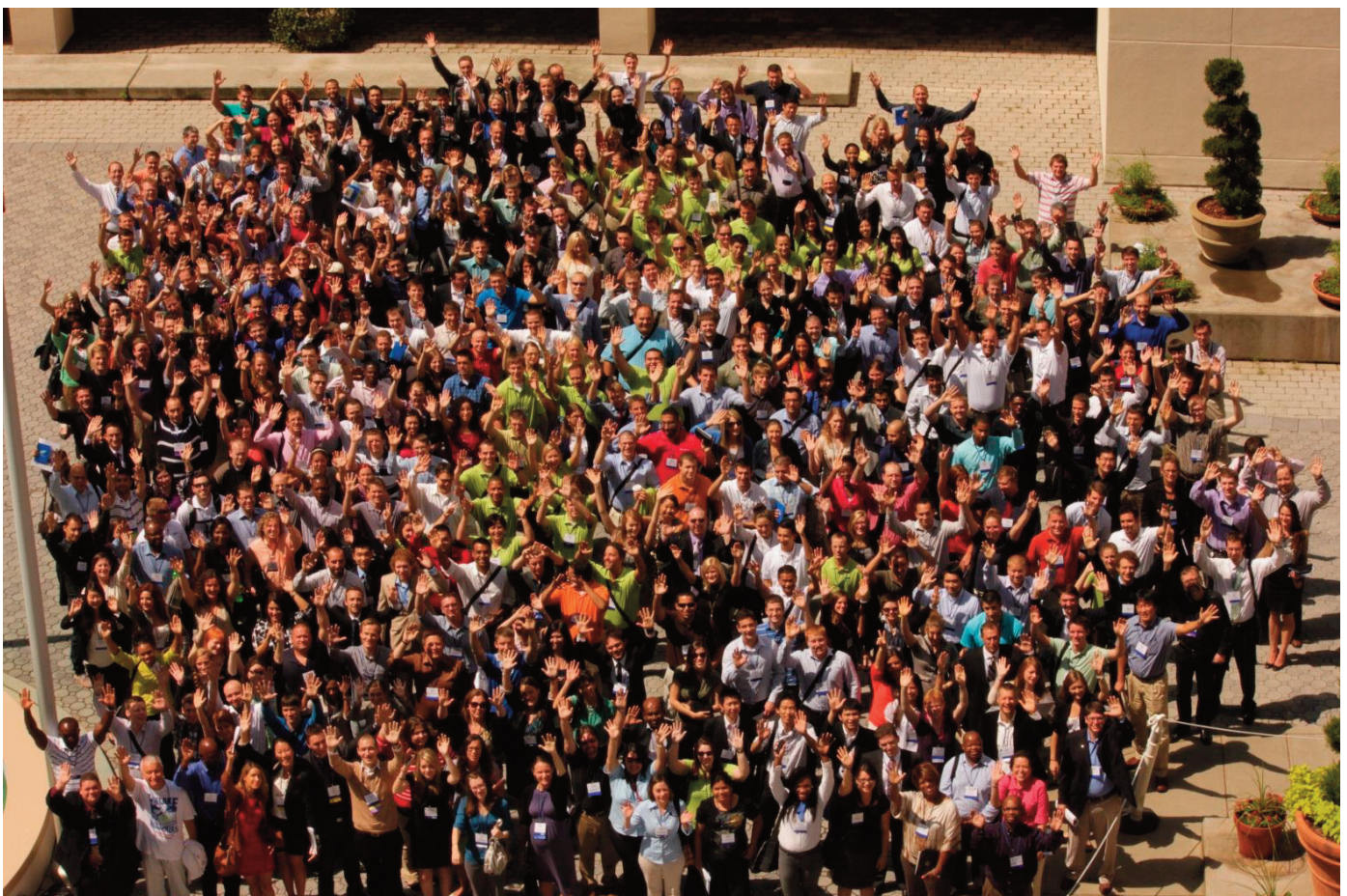
## Reliable.

Nuclear power plants are a key element in the stability of our country's electrical grid. Nuclear power accounts for nearly 20 percent of all power production in the United States and 14 percent of all power production in the world. Nuclear power plants produce electricity uninterrupted for extended periods—for as long as 24 months. They help supply the necessary level of baseload electricity for the electricity transmission network, or "grid," to operate. Nuclear energy is not subject to unreliable weather or climate conditions, unpredictable cost fluctuations, or dependence on foreign suppliers.

## Low and Stable Cost.

In 2013 the average electricity production cost for nuclear power was 2.30 cents per kilowatt-hour, versus 3.24 cents for coal-fired plants, 4.09 cents for natural gas and 20.65 cents for petroleum. Nuclear is the only energy industry that accounts for all of its byproducts and includes in its price the cost of waste management and plant decommissioning. Nuclear energy has tremendous price stability because fuel accounts for just 31 percent of production costs, whereas fuel costs are closer to 80 or 90 percent when electricity is produced by burning coal or natural gas.

The uranium fuel for U.S. nuclear plants is abundant, readily available from reliable allies, such as Canada and Australia, and low in cost. Coupled with industry success over the past 20 years in reducing operating costs, the low fuel cost makes America's 99 nuclear energy facilities among the lowest-cost sources of electricity available and keeps the U.S. independent from foreign resources.



*NAYGN members*