

## U.S. Nuclear Energy Industry Operated at High Levels of Safety in 2010, WANO Results Show



New evidence of the safe, reliable operating performance that has made nuclear energy a provider of low-cost electricity for American families and businesses has come with the release of 2010 safety and operations data for the U.S. nuclear energy industry by the World Association of Nuclear Operators (WANO).

In 2010, U.S. nuclear power plants remained one of the safest industrial working environments and overall safety performance was sustained at historically high levels, according to performance indicators compiled by [WANO](#).

Among the notable results:

- For the 12th straight year, more than 90 percent of three important backup safety systems that the industry monitors at every reactor met their "near-100 percent availability" goals.
- Reactor capability factor, a measure of a plant's on-line electricity production time, exceeded 91 percent for the 10th straight year.
- The median value of unplanned automatic plant shutdowns per 7,000 hours of operation was the second lowest on record.

"The 2010 performance indicators provide measurable evidence of the nuclear energy industry's commitment to safe and efficient operations," said Marvin Fertel, [NEI's](#) president and chief executive officer.

"Understandably, the impact of the devastating earthquake and tsunami on the Fukushima Daiichi nuclear plant has generated concern about the safety of U.S. nuclear power plants. These indicators show that U.S. nuclear plants continue to operate at high levels of safety and with the reliability that makes them a cornerstone of an affordable, low-carbon energy portfolio for the American people."

WANO, headquartered in the United Kingdom, compiles nuclear energy industry performance data annually. Data for the U.S. industry is analyzed by the Atlanta-based [Institute of Nuclear Power Operations](#) to help set challenging benchmarks of excellence against which safety and plant operation can be measured. INPO was established by the U.S. nuclear energy industry in 1979 to promote excellence in safety and operating performance above and beyond federal regulatory requirements.

"Even though U.S. nuclear plants are operating at extremely high levels of safety and reliability, the events in Japan are a stark reminder that safety must be our top priority at every facility every hour of every day. We can never stop encouraging greater professional scrutiny and accountability," Fertel said.

"We always strive to achieve operational excellence, and a key to achieving it is incorporating lessons learned over several decades into our plant designs, our operating practices and our training. We must and will do the same with the lessons that will be derived from the Fukushima Daiichi accident."

Highlights of the nuclear energy industry's performance in 2010 include:

**Safety System Performance** . For the 12th straight year, key backup safety systems concurrently met their individual availability goals more than 90 percent of the time. Nuclear power plants are built with multiple safety systems and backup power supplies so these systems are available, if needed, even when maintenance is being performed on a similar system or component. The three principal backup safety systems are two main cooling systems and back-up power supplies used to respond in the event of unusual situations. Each system at every plant has an availability goal just shy of 100 percent, and 93 percent of these backup safety systems met their individual goal, assuring that multiple layers of safety were in place as

designed.

**Industrial Safety** . The nuclear industry is one of the nation's safest working environments. U.S. nuclear plants continued to post a low industrial accident rate in 2010 with 0.09 industrial accidents per 200,000 worker-hours, the lowest level in a decade and well below the 2010 goal of 0.2. Statistics from other industries through 2009, as compiled by the Bureau of Labor Statistics, show that it is safer to work at a nuclear power plant than in the manufacturing sector and even the real estate and financial sectors.

**Unplanned Automatic Reactor Shutdowns** . The 2010 median industry value was 0.21 unplanned automatic shutdowns per plant per 7,000 hours of reactor operation. This was the second-lowest level achieved in the past 10 years.

**Forced Capability Loss Rate** . The 2010 median value of 1.5 percent capability loss remained near historically best levels. Forced capability loss rate measures a plant's outage time and power reductions that result from unplanned equipment failures, human error or other conditions when the plant is expected to be generating electricity. The 2010 goal for this indicator is a median value of one percent. In the mid-1990s, the median value exceeded five percent, but it has been under two percent each year since 2001 and 1.5 percent or lower for six consecutive years.

**Reactor Capability** . America's 104 reactors continued to operate at high levels of efficiency -- far above other electricity sources. On average, U.S. reactors produced electricity 91.4 percent of the time around the clock. This was the 10th straight year the capability factor exceeded 91 percent. Capacity factor, a related metric that measures total electricity generated as a percentage of year-round potential generation, was 91.1 percent in 2010, according to data compiled by the Nuclear Energy Institute.

U.S. nuclear power plants produced 806.3 billion kilowatt-hours of electricity last year at low cost. In 2009 (final figures for 2010 are not available yet) the industry's average electricity production cost (encompassing fuel and operations and maintenance expenses) was 2.03 cents per kilowatt-hour, 31 percent lower than production costs at coal-fired power plants (2.97 cents/kwh) and 59 percent lower than natural gas-fired power plants (5 cents/kwh). Nuclear energy facilities produce one-fifth of U.S. electricity supplies.

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