



United Association Position Statement

***U.S. Nuclear Energy Policy Following the Emergency
at Japan's Fukushima Daiichi Nuclear Plant***

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I. Introduction

On March 11, 2011, the world watched with grave concern as Japan suffered one of the worst earthquakes in recorded history, followed by a devastating tsunami. The United Association, on behalf of its more than 340,000 members, extends its deepest sympathies to the people of Japan, especially those who have been injured or lost loved ones. We would also like to express our support for Japan's emergency responders who are working to contain the incident at the Fukushima Daiichi Nuclear Plant and for all those assisting them.

II. Background on the Japanese Nuclear Emergency

It is well-known that one of the immediate challenges facing Japan is the safety of Fukushima Daiichi Nuclear Power Plant, which sustained damage to its reactor cooling systems. The U.S. government, which commands tremendous expertise on nuclear energy and plant technologies, has been in close contact with Japanese officials and dispatched experts from the Department of Energy, the Nuclear Regulatory Commission, and other agencies to provide assistance. The U.S. nuclear energy industry has also offered support to Japan while immediately taking steps at home to ensure that U.S. nuclear plants can withstand similar disasters and that the U.S. is prepared to respond in the event of future contingencies.¹

Although the circumstances surrounding the situation at the Fukushima Daiichi plant will become better understood in the weeks ahead, it is already clear that this facility had significant shortcomings prior to this incident that distinguish it from plants operating in the U.S. First, the plant itself is old and continues to rely on outdated technology.² Second, it was reportedly designed to withstand only a 7.9 earthquake and a 5.7 meter tsunami even though Japan had suffered larger earthquakes and tsunamis before.³ Third, Bloomberg and other media outlets are reporting that the "disaster at the Fukushima nuclear plant follows decades of falsified safety reports, fatal accidents and underestimated earthquake risk in Japan's atomic power industry."⁴ These problems appear to have significantly contributed to the current emergency.⁵

¹ Nuclear Energy Institute, *Fact Sheet: Industry Taking Action to Ensure Continued Safety at U.S. Nuclear Energy Plants*, Updated Mar. 16, 2011, available at http://resources.nei.org/documents/japan/Industry_Taking_Action_to_Ensure_Continued_Safety_Fact_Sheet.pdf.

² See Editorial, *The Nuclear Option: Despite Japan's Disaster, An Energy Source That Can't Be Written Off*, Washington Post, Mar. 17, 2011, available at http://www.washingtonpost.com/opinions/too-soon-to-write-off-nuclear-power/2011/03/16/ABZ64Eh_story.html.

³ See Kevin Rafferty, *Japan's Immense Challenge*, The Japan Times, Mar. 17, 2011, available at <http://search.japantimes.co.jp/cgi-bin/ea20110317a1.html>; Makiko Kitamura and Maki Shiraki, *Tepco Ignored Warnings About Tsunami Risk, Ex-Lawmaker Says*, Mar. 18, 2011, available at <http://www.bloomberg.com/news/2011-03-18/tepcu-ignored-warnings-about-tsunami-risk-ex-lawmaker-says.html>.

⁴ Jason Clenfield, *Japan Nuclear Disaster Caps Decades of Faked Reports, Accidents*, Bloomberg, Mar. 17, 2011, available at <http://www.businessweek.com/news/2011-03-17/japan-nuclear-disaster-caps-decades-of-faked-reports-accidents.html>; see also Kevin Rafferty Report, *supra*, note 3.

⁵ Specifically, the Bloomberg report stressed that these problems included, among other things, the failure of the plant operator to heed U.S. and Japanese government-issued warnings questioning the integrity of the cooling systems in the event of earthquake-induced generator failures. *Id.*

There is no question that lessons, potentially highly valuable lessons, will be learned from the Fukushima Daiichi incident. The U.S. nuclear energy industry, however, must ultimately be judged on its own record. As discussed below, this record is excellent. Indeed, the U.S. nuclear energy industry's safety record is among the key reasons the Obama administration has stood firmly behind the U.S. nuclear energy industry, including its planned expansion, even as events continue to unfold in Japan.⁶

III. Nuclear Power is Already a Critical and Safe Component of America's Energy Mix

A. U.S. Nuclear Power: A Solid Track Record

Nuclear energy has long been, and remains today, a critical and safe component of America's energy mix. U.S. nuclear power plants provide 20 percent of our electricity, including 70 percent of our carbon-free electricity.⁷ Energy production from other carbon-free sources pales in comparison, as nuclear power contributes double the amount of electricity as wind, solar and hydro power combined.⁸ Other Western industrialized countries are even more reliant on nuclear energy. France, for example, relies on nuclear power for approximately 80 percent of its electricity production, which is among the key reasons its per capita carbon output is one-third the per capita carbon output of the U.S.⁹

While Americans are right to ask questions in light of Fukushima Daiichi, they should, as U.S. Energy Secretary Steven Chu recently stated, "have full confidence that the United States has rigorous safety regulations in place to ensure that our nuclear power is generated safely and responsibly."¹⁰ In contrast to the Fukushima Daiichi plant, every U.S. nuclear plant must be designed to withstand the maximum projected seismic event in the area in which it is located in addition to being able to safely shut down in the event of an earthquake or other natural disaster.¹¹

⁶ See Peter Wallsten and Dan Eggen, *Obama Officials Defend Nuclear Program*, Washington Post, Mar. 17, 2011, at A15.

⁷ Scott Horsley, *U.S. Power Plants Should Withstand Natural Disasters*, National Public Radio, Mar. 15, 2010, at <http://www.npr.org/2011/03/15/134556528/Japans-Disaster-Doesnt-Deter-Obama-From-Nuclear-Power>.

⁸ *Id.*

⁹ See Alysen Miller, *Going to the Heart of France's Nuclear Ambitions*, CNN, Apr. 15, 2010, available at http://articles.cnn.com/2010-04-15/tech/nuclear.powerstation_1_nuclear-reactor-nuclear-energy-radiation?_s=PM:TECH; U.S. Department of Energy – Energy Information Administration, International Energy Statistics, Chart: Per Capita Carbon Dioxide Emissions From the Consumption of Energy (2005-2009) (French per capita emissions were roughly one-third of U.S. per capita emissions for each of the five years from 2005 to 2009), available at <http://www.eia.gov/cfapps/ipdbproject/IEDIndex3.cfm?tid=90&pid=44&aid=8>.

¹⁰ U.S. Department of Energy, Press Release, Oral Testimony of Energy Secretary Steven Chu at the House Energy and Commerce Committee - As Prepared for Delivery, Mar. 16, 2011, at <http://www.energy.gov/news/10178.htm>.

¹¹ Nuclear Energy Institute, Fact Sheet: Nuclear Plants Designed and Constructed to Withstand Earthquakes, Mar. 2011, at http://www.nei.org/filefolder/Nuclear_Plants_Designed_to_Withstand_Earthquake_March_2011.pdf; see U.S. Nuclear Regulatory Commission, Seismic Issues for Existing Nuclear Power Plants, Nov. 2010 ("Even those plants that are located outside of areas with extensive seismic activity are designed for safety in the event of such a natural disaster. The Nuclear Regulatory Commission (NRC) requires all of its licensees to take seismic activity into account when planning and maintaining its nuclear power plants."), available at <http://www.nrc.gov/reading-rm/doc-collections/fact-sheets/fs-seismic-issues.html>.

The Chairman of the U.S. Nuclear Regulatory Commission Greg Jaczko recently reiterated this point, explaining: “U.S. power plants are designed to very high standards for earthquake effects. All our plants are designed to withstand significant natural phenomena like earthquakes, tornadoes and tsunamis.”¹² While Chairman Jaczko indicated that the U.S. would of course be open to lessons learned from Japan, he stressed that “bottom line right now, we believe that the plants in this country continue to be designed to a very high standard for seismic and tsunami-type events.”¹³ Chairman Jaczko’s confidence in U.S.’s rigorous safety regulations and standards is supported by experience. In short, they have worked. They also explain why there has *never* been a radiation-related death or physical injury in the more than 50 years of the U.S. civilian nuclear program.¹⁴

B. Enhancing Plant Safety Through New Nuclear Technology

With substantial, recent advances in nuclear plant technology, the chances of a Fukushima Daiichi-like emergency occurring at a new U.S. nuclear plant are curtailed to an ever greater degree. Emphasizing this point in its March 17, 2011 editorial, the *Washington Post* expressed its continued support for nuclear power notwithstanding recent events.¹⁵ Specifically, the *Post* observed that “[n]ew plants would use more sophisticated technology, such as small-scale high-temperature reactors that use fuel in forms that shrink the risk of meltdown further still.”¹⁶

A report in *Popular Science* on modern nuclear technology likewise stressed that “it’s important to remember that the next generation of nuclear reactors are designed to prevent exactly what went wrong at the 40-year-old Fukushima Daiichi plant.”¹⁷ These next generation reactors keep nuclear plants safe by, among other things, “keeping it cool in *any* circumstances, including those in which man-made or natural disaster disables the usual cooling methods.”¹⁸

In addition, according to visiting MIT Professor Michael Podowski, new plants will not only keep nuclear plants cool in the wake of a severe disaster, but do so “without any external intervention.”¹⁹ Such advances, when coupled with the rigorous safety standards already in place in the U.S., means that a new nuclear renaissance in the U.S. will be a safe proposition.

¹² The White House, *supra* note 2.

¹³ *Id.*

¹⁴ U.S. Nuclear Regulatory Commission, Emergency Preparedness at Nuclear Power Plants, Jan. 2009, at <http://www.nrc.gov/reading-rm/doc-collections/fact-sheets/emerg-plan-prep-nuc-power-bg.html>; Patrick Moore, Op-Ed, *Going Nuclear: A Green Makes The Case*, *The Washington Post*, Apr. 16, 2006, available at <http://www.washingtonpost.com/wp-dyn/content/article/2006/04/14/AR2006041401209.html>.

¹⁵ Editorial, *supra* note 4.

¹⁶ *Id.*

¹⁷ Clay Dillow, *Can Next-Generation Reactors Power a Safe Nuclear Future?*, *Popular Science*, Mar. 17, 2011, available at <http://www.popsci.com/technology/article/2011-03/beyond-fukushima-daiichi-can-better-reactors-provide-safe-nuclear-powered-future>.

¹⁸ *Id.*

¹⁹ *Id.*

IV. Nuclear Power is Essential to America's Clean Energy Future

Recent advances in nuclear technology come as welcome news because nuclear power is needed now more than ever. The U.S. Department of Energy reports that U.S. electricity consumption is projected to increase 28 percent by 2035.²⁰ At the same time, the need to combat climate change is becoming ever more acute.²¹ Nuclear power is unique in its capacity to meet both of these challenges *now*. As told by Greenpeace co-founder Patrick Moore, "Nuclear energy is the only large-scale, cost-effective energy source that can reduce [CO₂] emissions while continuing to satisfy a growing demand for power."²²

Renewable sources of electricity such as wind, biomass, geothermal and solar can and should be part of the solution. However, these sources accounted for between 0.1 to 1.8 percent of U.S. electricity generation in 2009.²³ As such, it is simply unrealistic to expect them to be able to satisfy our growing energy needs in the near-term. Nuclear is the only solution that allows us to meet our energy demands, combat climate change *and* keep the lights on at the same time.

Finally, nuclear energy is also a cost-effective solution relative to competing sources. Improved plant operations have been a particularly significant contributor to nuclear energy's cost-competitiveness. In 1987, average operations and maintenance costs associated with producing nuclear energy stood at approximately 3.5 cents per kilowatt hour.²⁴ By 2009, this cost had fallen to about 2 cents per kilowatt hour, which is comparable to coal and significantly lower than natural gas and oil.²⁵ In addition, if a cap and trade regime were ever implemented in the U.S., nuclear power's cost-competitiveness relative to other sources would increase dramatically.²⁶

In addition to these key benefits, we must also recognize that the nuclear industry serves as a major engine for job growth. The operation of existing plants sustains thousands of good jobs across America, while the planned expansion of the industry offers to create tens of thousands of new jobs in plant construction and operations.²⁷ As our nation continues to struggle with the most

²⁰ U.S. Department of Energy, Annual Energy Outlook 2011, Early Release Overview: Electricity Generation, Released Dec. 16, 2010, available at http://www.eia.doe.gov/forecasts/aeo/early_elecgen.cfm.

²¹ See e.g., Pew Center for Global Climate Change, Climate Change 101 Overview, Feb. 2011, at <http://www.pewclimate.org/docUploads/climate101-overview.pdf>

²² Patrick Moore, *supra* note 16.

²³ U.S. Department of Energy - Energy Information Administration, Electric Power Industry 2009: Year in Review, Revised Jan. 4, 2011, available at http://www.eia.doe.gov/cneaf/electricity/epa/epa_sum.html.

²⁴ Congressional Research Service, Nuclear Power: Outlook for New Reactors, Updated Mar. 9, 2007, available at <http://www.fas.org/sgp/crs/misc/RL33442.pdf>.

²⁵ Nuclear Energy Institute, Graph: U.S. Electricity Production Costs (1995-2009), at http://www.nei.org/filefolder/US_Electricity_Production_Costs.ppt.

²⁶ See generally U.S. Environmental Protection Agency, Analysis of American Clean Energy and Security Act of 2009, June 2009, at http://www.epa.gov/climatechange/economics/pdfs/HR2454_Analysis_Appendix.pdf.

²⁷ Specifically, it is estimated that each new nuclear unit creates approximately 2,400 construction jobs at peak and hundreds of permanent jobs. Nuclear Energy Institute, Nuclear Power Plants Contribute Significantly to State and Local Economies, Aug. 2010, at <http://www.nei.org/resourcesandstats/documentlibrary/>

severe economic downturn since the Great Depression, the nuclear industry's ability to create and sustain good jobs cannot be ignored. This is especially true given the industry solid safety record in the U.S. and indisputable energy and environmental benefits it offers.

V. Apply Lessons Learned & Move Forward

The U.S. nuclear energy industry has an excellent safety record that will only be buttressed by advances in technology. This is critical because expanding nuclear power in the U.S. is the single most effective way -- perhaps the only effective way in the near-term -- to meet our country's energy demands while taking meaningful steps to combat climate change.

As we move forward, however, it is also important to study the circumstances that contributed to the Fukushima Daiichi plant emergency and apply all lessons learned to our industry here at home. As noted, the U.S. nuclear energy industry has wasted little time in this regard, almost immediately announcing new and additional steps, on top of existing procedures, to ensure the continued safety of U.S. nuclear plants. These steps include verifying the ability of each plant to withstand severe adverse events which may include the loss of operational and safety systems, a total loss of electrical power, flooding, and fires.²⁸

In addition, on March 17, 2011, President Obama announced that the U.S. National Regulatory Commission will conduct its own a comprehensive review of U.S. nuclear plants as well.²⁹ "When we see a crisis like the one in Japan, we have a responsibility to learn from this event and to draw from those lessons to ensure the safety and security of our people," the President said. The United Association could not agree more.

We fully support the efforts of the industry and the Obama Administration to ensure that safety remains the first and foremost priority for all U.S. nuclear plants, that existing plants have adequate and effective technology and procedures in place to guarantee safety and that plant operators and appropriate governmental authorities are fully prepared for all possible exigencies in the future.

Given the rigorous safety regulations and standards the U.S. nuclear energy industry is committed to, and its excellent safety record, we have no reason to believe that major problems will be found. However, in the field of nuclear power there is always room for improvement and we encourage the industry and Administration to look for any and all opportunities to make our already-safe nuclear energy program even safer.

reliableandaffordableenergy/factsheet/nuclearpowerplantcontributions/?print=true. In some cases these numbers are as high as 4,000 construction and 400 permanent jobs per unit. See e.g., Constellation Energy, Press Release, Maryland Chamber of Commerce Visits Calvert Cliffs Nuclear Power Plant, Jun. 19, 2009, available at <http://ir.constellation.com/releasedetail.cfm?releaseid=390906>. At a time of high unemployment, including 22 percent unemployment in the construction industry, these benefits cannot be ignored. See U.S. Bureau of Labor Statistics, Industries at a Glance: Construction: NAICS 23 (Feb. 2010), at <http://www.bls.gov/iag/tgs/iag23.htm>.

²⁸ Nuclear Energy Institute, *supra* note 3.

²⁹ Associated Press, *NRC to Review Safety of All US Nuclear Plants*, Mar. 18, 2011, available at http://news.yahoo.com/s/ap/20110318/ap_on_re_us/us_us_japan.