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**Before the U.S. Senate Committee on Energy and Natural Resources
Hearing on U.S. Leadership in Nuclear Energy and to Receive Testimony on NELA**

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My name is Mark McManus and I am the General President of the United Association of Journeymen and Apprentices of the United States and Canada (“UA”), which represents America’s union plumbers, pipefitters, welders, sprinkler fitters, and HVAC technicians. On behalf of the more than 350,000 members of the UA, I want to thank you, Chairwoman Murkowski, Ranking Member Manchin, and members of the Committee, for the opportunity to testify about the future of U.S. nuclear power and the Nuclear Energy Leadership Act (“NELA”). I was especially pleased to accept this invitation to testify because I believe that the kind of bipartisan leadership featured in today’s hearing and in the development of NELA is what is necessary to address the energy and environmental challenges facing our country.

Whether they are working on a job or volunteering in their communities, UA members—like the vast majority of Americans—take a fact-based, common sense approach to everyday problems. That is precisely the approach that our country needs when it comes to nuclear energy. Quite simply, any fact-based, common sense approach to meeting our future energy needs while addressing climate change must include major investments in nuclear energy. It is well past time that we turned the page on any lingering irrational fears of this carbon-free energy source that already provides 20 percent of our country’s electricity—50 percent of electricity in Illinois—and hasn’t injured or killed a single person in the more than a half century we’ve consumed it. And, for all of the discussion about where to store nuclear waste, the fact of the matter is that the amount of waste we are talking about is minimal¹ and our country knows how to store it.

The truth is that nuclear energy is already safe, cost-effective and reliable, and the development of advanced nuclear technologies made possible by NELA would make it even more so. The UA believes that proactive federal leadership in this area is critical and that the public-private partnerships facilitated by NELA—and the demonstration projects arising from those partnerships—will help to achieve the goal of reestablishing U.S. preeminence in nuclear energy.

In my view, the success of NELA and the nuclear industry as a whole depends not only on well-trained nuclear engineers and scientists, a focus of NELA, but also well-trained building trades craftspeople to build and maintain the nuclear facilities themselves. Indeed, a major reason for the nuclear industry’s excellent safety record is the top-notch training of the building trades craftspeople to whom these facilities are in large part entrusted. The UA is proud to represent many of the men and women who perform this work, and we spare no expense when it comes to their skills development. Through collectively bargained contributions to joint-trust funds, the UA and its signatory employers invest over 200 million private, non-taxpayer dollars each year in training—a sizable portion of which is devoted to UA members who work in the nuclear industry.

¹ U.S. Department of Energy Website, *3 Reasons Why Nuclear is Clean and Sustainable*, <https://www.energy.gov/ne/articles/3-reasons-why-nuclear-clean-and-sustainable> (last visited April 23, 2019).

In my experience, the U.S. nuclear utilities that employ members of the UA and other building trades unions share our passion for safety and training and have cultivated a culture of safety in the U.S. nuclear industry that is without equal anywhere in the world. Since the mid-1980s, we have worked closely with nuclear utilities to ensure that our members are trained to the specific needs of our nuclear plants. One of the ways in which we have accomplished this is through the Nuclear Mechanic Apprenticeship Process, or N-MAP, which was developed by a tripartite committee of international building trades unions, contractors and nuclear utilities.

There are three basic elements to N-MAP. First, the apprenticeship programs of the relevant crafts—*i.e.*, pipefitters, electricians, boilermakers, millwrights, ironworkers and sheet metal workers—are reviewed to ensure that individuals who complete our programs emerge with the fundamental knowledge and skills necessary to work in a nuclear facility. Second, the apprenticeship programs themselves perform annual self-assessments to identify and correct any deficiencies in the delivery of the requisite training. The nuclear utilities and contractors also have the chance at this stage to weigh in with any concerns arising from job site experiences. Third and finally, N-MAP includes an equivalency process to verify, through experience or examination, the knowledge and skills of craftspeople who did not complete a traditional apprenticeship. In these ways, N-MAP enables utilities to avoid unnecessary and costly investments in redundant training, and to plan maintenance and other work in their facilities with full knowledge of the capabilities that each building trades craftsperson brings to the table.

In addition to working with the UA and other building trades to ensure that our training is responsive to the needs of the nuclear industry, nuclear utilities use Project Labor Agreements, or PLAs, to protect their investments and secure reliable access to the best-trained skilled labor available. PLAs, which cover more than 80 percent of the 98 reactors currently in operation in the United States, leverage established referral systems administered by the building trades in the area to verify the qualifications of the men and women who are dispatched to nuclear facilities. In fact, PLAs can help to ensure local hire or that a project includes women, minorities or veterans. We're particularly proud of our UA Veterans in Piping (VIP) program, which trains active duty military personnel for a job in our industry, at no cost to the government, to ease the transition back into civilian life.

PLAs are also exceptionally valuable tools for planning and coordinating construction, modification and maintenance projects at nuclear plants. PLAs establish uniform terms and conditions for all of the trades and site contractors on the project. In other words, on a nuclear project involving several crafts and contractors, PLAs ensure that there are consistent rules and procedures concerning wages and benefits, work schedules, overtime, holidays, and other issues, thereby promoting stability and maximizing efficiency over the life of the project. Moreover, PLAs include no-strike clauses, uniform dispute resolution procedures and other provisions that are designed to ensure that projects are completed on-time and without any disruptions or delays. For these and other reasons, PLAs are a widely adopted best practice for nuclear construction, modification and maintenance projects, and the federal government would be well-served to protect its investments by demanding a PLA on any such project made possible by NELA.

Although the energy security and environmental benefits of investing in nuclear energy are appropriately front and center, the tremendous economic benefits generated by these investments

are equally impressive. The construction of a new nuclear plant is a career-defining opportunity for the men and women in this country who make a living in the trades. Building a new nuclear plant requires a broad array of crafts, along with various other project professionals, such as engineers, project managers, supervisors and superintendents. At its peak, construction of a new nuclear plant tends to employ upwards of 3,500 workers,² virtually all of whom are paid family-supporting wages and benefits. For a real-time example of the job-creating potential of nuclear power, look no further than the ongoing work on the two new nuclear reactors at Plant Vogtle in Georgia. At this very moment, there are 7,000 workers on the project, and when construction reaches its peak, the number of workers will rise to approximately 9,000.³ Senators, these are the kinds of well-paying clean energy jobs that Americans have been waiting for.

The spillover benefits on the surrounding communities are difficult to quantify but undeniably great. Any time several thousand workers descend on an area for a large-scale construction project, the people and businesses which call that area home are going to see an enormous economic impact. The visiting workers rent local rooms, patronize local restaurants, shop at local stores, fill up at local gas stations, purchase tickets to local movie theaters, and much more. These projects, of course, produce major benefits for the regional and national economy as well. Consider the fact, for example, that a single new nuclear plant requires hundreds of new plant components, along with 300 miles of electric wiring, 44 miles of piping, 400,000 cubic yards of concrete, 130,000 electric components and 66,000 tons of steel.⁴ Needless to say, orders of this scale are going to put a great many manufacturers to work—all hopefully in the United States of America—while requiring many of them to expand their operations and hire additional people.

Once a nuclear plant is up and running, several hundred direct permanent employees are required to operate it, and, again, these are well-paying jobs.⁵ The average 1,000-megawatt plant supports 504 direct local jobs, which compares favorably to other sources, such as coal—the second highest—which supports 187 direct local jobs on average, and wind—the lowest—which supports only four such jobs on average.⁶ And, each year the plant continues in operation, the local, regional and national economy will continue to reap direct and secondary economic rewards.

Let me close by offering one last recommendation to the Committee: don't stop at NELA. Nuclear energy carries the potential to substantially improve our energy security, dramatically reduce our carbon footprint, and deliver tremendous benefits to our economy. To fully realize that potential, I believe that we need to take a hard look at every reasonable opportunity to expand nuclear power, including by encouraging the development of projects through common sense reforms to permitting and more readily available loan guarantees, and by exploring all possible avenues to prevent unnecessary or premature closures of existing nuclear plants and units.

Thank you, again, for the opportunity to testify.

² Nuclear Energy Institute, *Nuclear Energy's Economic Benefits - Current and Future*, 4 (2014), available at http://workshop1.cases.yale.edu/sites/default/files/cases/the_future_of_nuclear_in_connecticut/NEI_Economic_Benefits_of_Nuclear.pdf

³ Celia Palermo, *Plant Vogtle Seeing New Jobs and Getting New Money*, WRDW-TV NEWS 12 (Mar. 22, 2019), <https://www.wrdw.com/content/news/Plant-Vogtle-seeing-new-jobs-and-getting-new-money-507542151.html>.

⁴ Nuclear Energy Institute, note 2, at 4.

⁵ *Id.*, at 2.

⁶ *Id.*