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**Keynote Remarks - Rumina Velshi**

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Canadian Nuclear  
Safety Commission

Commission canadienne  
de sûreté nucléaire

**Canada**

Good morning.

Thank you, Dr. Binder, merci beaucoup, for that very generous and kind introduction. I wish I had invited my parents to hear it.

C'est un plaisir d'être ici avec vous ce matin. It is indeed a privilege and honour for me to have this opportunity to address you this morning. Before I begin, I would like to recognize that we are on traditional Algonquin territory.

As Dr. Binder said, I have recently been appointed President and CEO of the Canadian Nuclear Safety Commission, a position I will assume next month. Le mois prochain, je serai présidente et première dirigeante de la CCSN. For almost 6 years, I have been a Commission member of the CNSC, and for over 30 years before that, a scientist and nuclear engineer. J'aimerais bien partager mes expériences avec vous aujourd'hui.

There are several topics I hope to address here today. First of all, I want to share some observations from my experience as a woman who has been in the Canadian nuclear energy industry since the 1980s, to show how far the industry has come since I first joined it. But I also want to discuss some of the challenges and opportunities that remain when it comes to increasing the number of women in the so-called STEM careers - science, technology, engineering and mathematics. Finally, I want to provide some initial thoughts, based on my years as a CNSC Commission member, about how the CNSC needs to evolve alongside major changes occurring in the nuclear sector.

As a scientist, engineer and manager, I have been part of the nuclear sector since I graduated from the University of Toronto in 1978. One of my first jobs was at Ontario Hydro's (now Ontario Power Generation's) Pickering Nuclear Generating Station. I was in the Health Physics department and part of the commissioning team at the Pickering B station. From that first job, I have witnessed this industry grow over the last 38 years. But I have also been something of a chance witness. I have been on the inside looking out, but also, as a woman working in a nuclear power plant, somewhat of an outsider looking in. I was one of the first female nuclear energy workers (or atomic radiation workers (ARW) in those days) in Canada, the first woman to perform radioactive work, the first female to go on shift and the first pregnant ARW to get authorization from the regulator to enter the radiation area, which I needed to do since I was the Supervisor of the Health Physics Lab, which in those days was located in Zone 2 – yes, go figure.

The work environment in a nuclear power plant was very different in those days, 38 years ago – especially for women. I do not believe the designers of Pickering thought there would be any female nuclear workers at the plant. For starters, the only change room available for women was not designed for that purpose - there was only one door to both enter and exit from the room - against the basic fundamentals of contamination control. The women's change room was also a very popular hiding spot on the midnight shift for workers to catch some sleep. After a couple of embarrassing encounters of stepping out of the shower only to find someone sleeping on a bench in the change area, I started to lock the door when I entered the change room.

About 8 years ago, I was visiting a nuclear power plant in Europe. It had **no** change rooms for women - for me to enter the radiation area, I had to use the

men's change room (after making sure no one was using it). I am hoping that is not the case in any nuclear power plant in any part of the world today.

At Pickering in the 1980s, women had to use the same radiation area clothing as men; men's underwear and men's undershirts. When Ontario Hydro started hiring more female service maintainers, there was a decision to stock the women's change room with women's underwear too. However, to get a sports bra, the procedure required that women had to go to the station stores and ask the storekeeper for a bra of their size. Now, to all the men in this room, you won't be surprised to know that most women guard their bra size even more closely than their age. I suspect not a single woman was involved in the development of this particular procedure. Fortunately, this procedure didn't last too long.

Pornography in the workplace was quite widespread in those days. Before I went on shift, the shift manager of the crew I was joining had sent out a note to all his staff that they "needed to clean up their act". In spite of that instruction, finding *Playboy* centrefolds or more explicit photographs posted in the operator coffee room or the laundry area, or even tucked in the manuals in the main control room, was common. For the sake of my career, I learned to become desensitized to the presence of porn in the workplace. I learned to make sure I showed no reaction when I came across these pictures – it was important that I pick my battles and not make the road harder for women following me by seeming over-sensitive or delicate. Having the change room layout modified and getting radiation-area clothing for women was a higher priority to me, and it was a battle I took on.

The Pickering B station was under construction in those days, and the construction workers behaved stereotypically – catcalls and wolf whistles as you walked by. While I never felt physically unsafe, I made sure that when going around the plant during the work week, I never went alone. It was only on Friday afternoons, when there were no construction workers around, that I would explore the plant on my own.

When I watch movies like *Hidden Figures* – where women in the early 1960s working at NASA had to run a kilometre just to get to a washroom – it really resonates with me. Our reality 20 years after that was only marginally better.

Later, in the 1990s, I went on the Senior Nuclear Plant Managers course – which in those days, at least, had participants from both Canada and the U.S.A. The dress code for the course, stipulated in the pre-course instructions, was a dress shirt and a tie. I complied: I wore a dress shirt and scarf every day. To survive – and especially to thrive – in this industry in the 1980s and 1990s, like in other male-dominated domains, required you to have a thick skin, not complain and be tough.

I share these observations so you can see how much progress the industry has already made. These sorts of incidents and conditions would be unfathomable today, and thank goodness for that. But we shouldn't rest on our laurels, since I also want to talk about what I see as the upcoming challenges and opportunities.

We still have a long, long way to go so that women can fully participate in the nuclear sector and other STEM fields. In Canada today, women make up less than a

quarter of those employed in STEM careers. The numbers are no different for the United States or Europe. In the Canadian nuclear sector, women make up less than 20% of the workforce – and this includes the administrative staff. I have asked for a breakdown of the 20% – how many of them are in administrative, technical, ops and maintenance functions, in management or senior leadership positions. I have yet to receive those statistics, which in itself is very telling. This just reinforces the old adage “what gets measured gets done”. Is it then any surprise that the representation of women in the nuclear industry in Canada has remained more or less unchanged for over a decade?

As a female nuclear engineer, I have had the privilege over the years to mentor other young female scientists and engineers to help them find their place in STEM fields. I want to share a few observations from these experiences so you can get a better sense of what even today, in 2018, reality is like for some of the women in STEM.

There is a young woman about 30 years old, a daughter of a friend of mine whom I have mentored over the years. She is a mechanical engineer and works in the automotive design business. Last summer, she came to me, very distraught, seeking advice. She had been working on an assignment for one of the big three auto companies, and needed to meet with the project manager, who was not making himself available. She had never met the man, but had spoken to him on the phone several times, and they had exchanged emails. She finally sent him an email that the project would come to a standstill unless they met to go over some issues that urgently needed a decision. He reluctantly agreed to meet. The young engineer was waiting in the reception area at the auto company’s offices in Detroit, when the project

manager came out to meet her. His first words to her were: “If I had known you were so good looking, I would have agreed to meet you right away.” The young woman was embarrassed at the remark, but just smiled sheepishly and said nothing. I suppose, like me, and like so many women, she didn’t want to come across as overly sensitive or delicate at what was likely intended as a compliment. Except that the man carried on - and said, “Let me give you some advice. Why don’t you put your picture in your signature block? Everyone will want to meet with you then.”

Now she was feeling downright uncomfortable, but after having tried so hard to arrange the meeting, she just carried on with the meeting and said nothing to him. When she got back to her home office, she mentioned to her manager what had happened and how demeaning the experience was. The manager’s response was: “Well, in the future, let Jeff (her colleague) meet with the client. You can prepare the report and slide deck and Jeff can present it.” She was absolutely dumbfounded, because her discomfort at remarks like this was potentially leading to missed opportunities for her and maybe stalling her career. She sought my advice on how she should handle the situation.

So my question to each one of you is, what would you have done if you were her, or the manager, or me as her mentor?

A few more encounters like these and would you be surprised if she changed her field of work?

At a recent meeting of the Canadian Nuclear Safety Commission, we had one of our licensees make a presentation to us. The leader of the organization spent a few minutes setting the stage on how committed, engaged and dedicated the workforce at this facility was to serve the people of the province of Ontario. The slide accompanying his remarks was that of about 20 workers in their coveralls, hard hats and safety glasses standing proudly in the facility. Not one of the 20 workers was a woman. Now I know that they have many women who work at the facility, including at very senior levels. What took me aback was that no one had noticed this lack of women in the image, though I am sure the presentation material would have gone through a number of reviews before being submitted to the Commission, and yet no one had picked this up.

These tone-deaf mistakes often happen because people are careless or oblivious to the effect their choice of representative imagery has on others.

I cannot emphasize enough how important it is that we pay attention to the images and words we use to project this industry. The nuclear sector is welcoming to people of all backgrounds. It has certainly been welcoming to me. But if the pictures the industry uses to project itself look like something out of the 1970s, the message it will send to the young woman making a career choice is that this may not be the right field for her, and that would be a great loss for the nuclear industry. As someone who has devoted a lot of time to trying to encourage other women to become nuclear scientists and engineers, I know this stuff matters, and I hope we all use greater care to ensure we accurately depict the reality of this sector.

I would like to challenge each and every one of us here today to make a concerted effort to encourage girls and women to take an interest in careers in STEM-related

fields and occupations, and within our respective spheres of influence, to see what we can personally do to make our processes, culture and work environment more conducive for women to succeed – an imperative to ensure a strong, innovative and sustainable industry.

As I mentioned earlier, I have been a regulator for over six years – both as a Commission member on the CNSC and a Board member of the Ontario Energy Board, an economic regulator that sets electricity and gas prices. So to close, I want to share my initial thoughts on how changes in the nuclear sector in turn are creating opportunities for the CNSC to continue evolving as a world-class regulator.

First, in Canada, one of the key opportunities facing the nuclear industry is to ensure ongoing refurbishment projects are delivered safely. The success of these refurbishments won't just generate clean energy and well-paying jobs for thousands of Canadians for several decades, but all of North America's nuclear industry will have the opportunity to draw on Canadian talent and technology as they too refurbish their ageing nuclear fleet.

Second, the CNSC has an important role in maintaining Canada's regulatory requirements as best-in-class globally, while being responsive to emerging technologies. There exists a critical opportunity for the CNSC if the Canadian nuclear industry is to be part of the global clean energy mix. The CNSC has a key role to play in positioning Canada to become a global leader in emerging nuclear technologies, such as the small modular reactor market. Additionally, the CNSC can help drive policy makers, government officials and industry to solutions to address regulatory challenges that will be front and centre for the sector in years to come. I am thinking here, for example, of long-term nuclear waste management.

The next area is improving public trust by increasing transparency. This is an issue that affects all regulators involved in major project approvals in this country.

The CNSC's public hearing and meeting processes are open to the public, are often held in the community and are live webcast. This is recognized internationally by nuclear regulators as a best practice to emulate. As well, in just the past few years, immense progress has been made by both the CNSC and the licensees to make documents and reports readily available to members of the public online.

A lot more, however, needs to be done. A recurring concern we still hear from many members of the public is that they need more information. There are two distinct audiences. The first is the expert non-government or civil society organizations, who want access to detailed raw data for them or their expert advisors to conduct their independent detailed analyses. The second is the general members of the public looking for current, easy-to-understand, easily accessible, concise information that efficiently summarizes and contextualizes large sets of technical data.

Another area for improving public trust is meaningful public participation. As a Commission member, I have found public participation provides a very valuable perspective and results in better regulatory decisions. Some of the more significant examples of thoughtful public interventions that contributed to us making better decisions include plans for potassium iodide (KI) pills pre-distribution, offsite

emergency management planning, development of site-wide risk assessment and the study of severe, beyond-design-basis accidents.

I am looking forward to consulting with our stakeholders and experts on how we can facilitate convenient access to information and more meaningful, productive participation by the public in the CNSC's processes.

Let me close here with one final thought. Nuclear isn't just an energy technology of the past. It's at the forefront of major technological advances today. It will remain an important part of our energy supply mixes in the decades to come, especially for countries that are focused on clean energy. Public trust and confidence in the nuclear sector depends, I believe, on the CNSC doing its part to remain a world-class regulator. I have no doubt that each and every one of you is just as committed to a safe, secure and transparent nuclear industry in Canada, a commitment that can be second to none, even as the next chapter for this sector is being written.