**TESTIMONY OF AMY ERICSON,**
**PRESIDENT, ALSTOM INC.**
**BEFORE THE**
**SENATE COMMITTEE ON ENERGY AND NATURAL RESOURCES**
**HEARING ON ENERGY INFRASTRUCTURE LEGISLATION**
May 14, 2015

Good morning Chairwoman Murkowski, Ranking Member Cantwell and distinguished Members of this Committee. I am Amy Ericson, President of Alstom Inc. I appreciate the opportunity to testify at today's hearing. Alstom is a technology developer in power generation, transmission and distribution and passenger rail. We have 93,000 employees worldwide, with 7,000 in the United States.

Alstom has served the U.S. power industry for over 100 years; Alstom Grid has been active in the U.S. grid software technology sector for more than 35 years. Our Grid business employs approximately 1,100 people in the United States with over 500 of those at our Global Smart Grid Center of Excellence in Redmond, Washington.

Alstom Grid technology is widely deployed in the United States: 40 percent of the power flowing in the U.S. is managed by our advanced software. We have developed and deployed software managing four of the Nation's seven regional energy markets.

The U.S. electric industry is undergoing a transformation unlike anything we have experienced in the past 100 years. This transformation will create opportunities to enhance the reliability, efficiency, resiliency, and flexibility of the electric system, and strengthen our global competitive advantage.

In my brief remarks today, I would like to highlight the role we play as a technology provider and touch on key trends driving change in the industry. These include an aging grid

infrastructure which must respond to the challenges of a changing energy mix with the growing use of natural gas, renewable energy, and distributed energy resources, including energy storage, as well as the need for increased resiliency to respond to severe weather events.

The first step in developing technology is to listen carefully to our customers, which include America's electric utilities and regional transmission organizations (RTOs) and independent system operators (ISOs). We must thoroughly understand their needs, expectations and challenges.

When it comes to power supply, our customers consistently cite three must-have requirements: reliability, affordability, and sustainability. As we look forward, we also see a clear need for a more flexible and adaptable power system capable of meeting evolving requirements.

A number of technologies, including digital substations, high voltage direct current transmission, power electronics-based equipment, including the Flexible AC Transmission System (FACTS), are being deployed to achieve our customers' core objectives. But to be truly transformational and create an interconnected 21st century grid, public and private partnerships are essential to the continuation of extensive R&D and expansion of pilot projects to test and prove out cutting edge concepts. That's why Senator Cantwell's grid modernization legislation is so important.

However, I want to underscore we can make great strides in modernizing the grid today – and we see this from coast to coast.

We need to begin with the basics, for example upgrading from older analog systems to state-of-the-art digital technology. This will build the foundation for application of the advanced smart grid technology currently in demonstration. We should not wait to begin the upgrades, as this is an incremental process that will take time to implement.

The power industry is facing the difficult challenge of integrating new digital and sustainable technology into an aging, analog-based grid. The technology we provide enables our electric utility and RTO and ISO customers to manage this change, which in turn benefits the end user. By that I mean the new technology will allow energy providers to adopt new services that are mutually beneficial to the utilities and their customers.

There are myriad technical, financial, policy and consumer education issues at play, and it's clear this will be a multi-year undertaking. Deployment and advancement of smart grid technology should be our first priority. It represents a set of critical enabling technology that can reduce the challenges associated with modernizing the grid and optimizing our electricity systems. Smart grids facilitate two-way flows of both information and energy within the system and that's key. Smart grids also allow for greater Volt-VAR control - which improves grid efficiency - and the transfer of instantaneous, real-time data. This gives utility operators greater visibility, operational flexibility and reliability, allowing them to make rapid system responses to changing circumstances on their electric system; on the other side, it gives consumers real time information on their energy usage, allowing them to make informed decisions Smart grids open opportunities for greater customer choice, leading to greater efficiency.

Smart grids are also key to the seamless integration of distributed and renewable energy sources, perhaps the most significant trend we are seeing today. We have seen dramatic growth in distributed and renewable generation sources, which increases the need for integration of two-way power flows to keep the grid stable while incorporating more variable renewable generation, particularly wind and solar.

The DOE has noted that weather related grid disruptions have doubled between 2000 and 2014 highlighting the need for great resiliency. Smart grid and microgrid innovation can improve grid resilience and speed power restoration.

Strong federal leadership and support for grid modernization R&D through public-private partnerships involving utilities, technology suppliers, national labs, and universities is crucial.

We strongly support Senator Cantwell's proposal because it reinforces the strong partnership between the public and private sectors in delivering a more modern grid. In addition, the legislation provides tools for states to conduct analysis of their changing energy mix, performance metrics and distribution planning. We are pleased to support the key objectives of Senator Cantwell's grid modernization bill:

1. Greater visibility and situational awareness;
2. Increased operational flexibility and power flow efficiency; and
3. Improved resiliency, and reliability.

**In conclusion**, Congress has an important role to play in advancing the modernization of our Nation's electric grid.

The public-private technology collaborations that would be driven by Senator Cantwell's bill will help drive economic growth, strengthen our global competitiveness, and create highly-skilled jobs.

Chairwoman Murkowski, Ranking Member Cantwell, thank you for this opportunity to testify today. I look forward to answering any questions.