Keynote for NARUC's Winter Conference Meetings
Senator Lisa Murkowski
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Thank you for the warm welcome. Last year I was honored to release my policy blueprint, *Energy 20/20,* during this conference. As I said then, my report was intended as a conversation starter, with the goal of developing policies that would make our energy abundant, affordable, clean, diverse, and secure. I'm grateful for the response it has received. And I'm particularly glad that after asking you to read its 120 pages, you were still willing to invite me back again.

The focus of my remarks this morning will be narrower than a new vision for our federal energy policy – I want to use this time to discuss what it means to protect the reliability of our electric grid. I've written a white paper on this subject entitled "*Powering the Future: Ensuring That Federal Policy Fully Supports Electric Reliability*." Any moment now it will be available on our Energy Committee website. You don't need to rush for the exits, though, as I will cover much of my thinking on this important topic here with you.

Let me start by noting that I was pleased to see that your agenda dovetails nicely with the subject of electric reliability. You have scheduled multiple sessions that focus on this issue, including the Polar Vortex debriefing, the value of the grid, and the European experience of integrating renewables.

I also want to explain why I care so much about this issue – why, out of all the challenges we face, this one stands out to me, and why I have given it so much attention in recent years. My reason is that, like all of you, I recognize the essential role that electricity plays in our lives. Too much of the developing world

is forced to live in energy poverty, but whether we are at home, at work, or just about anywhere else, we have an expectation that power will flow instantly.

Nearly always, that expectation is met. We flip a switch or push a button and electricity flows. That's no small feat; it's the result of countless hours of thinking, planning, engineering, construction, and maintenance. That work – often your work – makes our lives better, and it makes the world around us possible.

The grid's reliability has improved over the years, and it is now rare to incur an outage on the bulk power system of significant duration. But there are also new factors and forces at play that could fundamentally alter and even degrade our grid network.

There may always be threats to our grid – at some level, and in some form. There may always be squirrels and storms that can take out a line and cause an outage. Last year I spoke with you the morning after the Super Bowl, which lost power for 34 minutes. This year we had a blowout, not a blackout – and as a Seattle fan, I'm fine with that – but the experience of a year ago still remains quite vivid.

Something on our minds after the news of last week, about a coordinated attack in California last April, is sabotage – the possibility of a physical attack that disables key parts of the grid. Sabotage has always been a risk, and we must recognize the need to protect against it. As policymakers, we must include physical security as a key issue in our discussions. And, further, we must take measured steps to protect the grid – not merely sensationalize the threat.

Based on what I have been told, industry and regulators are appropriately applying new lessons to improve the physical security of electric infrastructure. More may need to be done. But we can't draw the wrong lesson here, either. It would be a shame if newly-realized fears about physical security drowned out a sober conversation about the broader risks that we now face. What we don't need to do is stoke the drama, educate bad actors, and make copycats more likely.

One of the key points I want to make today is that sabotage is not the only threat we face in protecting the grid. As we enter into an era of new environmental regulations on power plants, coupled with preference and subsidies for power generation and use, we must also recognize that grid reliability could well be impacted by the decisions of our own federal government.

I am concerned, as we all must be, with maintaining the stability of the grid as more and more baseload plants come off-line as a result of both market forces and regulatory constraints. Clearly price is a major factor that owners of electric generating units consider to determine fuel sources, but it is not the only one.

Our natural gas production is at record high levels and generally this has led to low domestic prices. The Energy Information Administration projects natural gas will become the dominant fuel source for energy production by 2040. In line with EIA's projection, we are already seeing a major shift. Approximately 150 coal-fired generators were retired between 2001 and 2010. During that same time period, more than 1,000 gas-fired generators came online.

As natural gas assumes a larger market share, we must be mindful of the need for additional infrastructure to accommodate its increased role in electricity

production. A more extensive gas pipeline network is needed to support the shift to gas. Thanks to Acting Chair Cheryl LaFleur and Commissioner Phil Moeller – who started the entire discussion in 2010 – FERC has been engaging stakeholders on this topic. As we rely more heavily on natural gas, better coordination between the electricity and gas sectors is necessary to protect grid reliability.

As we examine the issue of grid reliability and diversity of fuel, we must acknowledge that even record natural gas production may not be enough to avert price volatility at every moment of every day. For example, just last month we saw major swings in natural gas prices on the PJM system, which caused the RTO to seek price cap relief from FERC.

Keep in mind that not a decade ago, natural gas prices were high enough to prompt what many thought would be a very broad renaissance for emission free baseload nuclear power. The nuclear renaissance has obviously not been as strong as many of us had hoped. Low natural gas prices, high construction costs, and uncertainty surrounding regulations in the nuclear industry have all been factors. Just last year, four nuclear reactors were closed and a fifth unit is scheduled to shut down in 2014. At least two of these facilities will close as a result of economic factors. Despite receiving license renewals from the NRC, they were unable to generate power in an economically viable manner.

In addition to market factors, and vitally important for policy discussions because public officials have distinct responsibilities, we must also examine the cumulative effect on baseload capacity of federal regulations – particularly those from the Environmental Protection Agency. Now of course I recognize that EPA has an important job to do, but it does not regulate in a vacuum. In many instances EPA's

regulations will render generating units uneconomic, with compliance requiring retrofitting, the use of best available technology, and downtime for installation.

As state regulators, you are all too aware that to maintain grid reliability, there must be a level of certainty in the power supply. For example, if baseload coal and the ancillary services it provides account for almost 40 percent of our power, and EPA sets greenhouse gas emission limits without sufficiently considering whether technology is commercially available to meet the required standards, the impact on grid reliability could be severe. I am greatly concerned that federal policies could result in a grid that is less stable than even two years ago. And I am even more troubled that EPA – which has conceded that a single rule may have "localized" effects – has not sought from FERC or NERC an analysis of the cumulative impact its rules may have on grid reliability.

Already this year, much of the Lower 48 has had a taste of what life is like during an Alaskan winter – an event known as the Polar Vortex. It not only caused cold weather across the nation; it also caused 50,000 megawatts of power plant outages. The electric industry has an impressive history of learning and improving from these system challenges. Yet we also caught a glimpse of the challenge that lies ahead. What we learned from the Polar Vortex is that for one key system, 89 percent of the coal capacity that is slated for retirement next year because of an EPA rule was called upon to meet rising demand. That raises a very serious question – what happens when that capacity is gone?

Our reliance on installed, dispatchable power generation during extreme weather serves as a shining example of why diversity of baseload capacity is necessary to secure grid reliability. It should serve as a wake-up call for policymakers as well

as federal and state regulators. The same might be said for nuclear baseload that could be put at risk by rules intended to protect more fish from power plant cooling systems.

Today it is uncertain how many plants will retrofit to comply with various EPA regulations or simply close. It is uncertain if there will be enough time – to say nothing of sufficient capital available for investment – to build new facilities or other forms of generation needed to ensure the reliability of the grid.

Now I am very much in favor of clean energy, which I define as "cleaner" than the next most likely alternative. Various state and federal policies, such as renewable energy requirements and direct financial incentives, have compelled significant deployment of intermittent energy resources. And this has brought forth another unique set of challenges.

With the introduction of distributed generation, the concept of grid management is changing. Although it is commonly believed that additional power onto the grid at any time is helpful, if you pose this question to a grid operator, you will get the true story—the injection of electricity without regard to consistency presents challenges to grid management, and it imposes costs.

As you know better than I, many states have adopted net metering policies, which allow customers with rooftop solar or other distributed generation systems to accrue credit for any electricity they sell to the grid. Electric providers are often required to buy this power at the full retail rate. You are the experts, but as I see it, regulatory policy must not create windfalls.

The grid provides transmission, distribution, generation capacity, ancillary and balancing services to everyone throughout the day, to *every* customer fortunate enough to be connected. As I have considered electricity issues, I have considered how good it would be if my own state of Alaska had a more extensive grid. On the cover of my white paper is a picture of major transmission lines in the United States. From it, you can see the limited infrastructure in my home state. Power costs in rural Alaska averaged more than 55 cents a kilowatt hour in 2012.

Whether here, in Alaska, or anywhere in between, our goal must be a grid that is more reliable and more affordable. To achieve that, we need to recognize the central challenge of electric reliability in the coming decade: finding a way to replace retiring base load capacity, while managing an increasingly variable energy mix. While grid reliability is a difficult topic to tackle, it must be addressed.

In the Energy Policy Act of 2005, Congress properly gave the FERC-designated Electric Reliability Organization – NERC – the role of primary guardian of grid reliability. FERC also has its own role, which is not only to engage government agencies to ensure federal regulations do not increase the risk of disruptions to the grid, but more broadly to enable investments in robust and reasonably priced energy infrastructure.

I challenge the leaders in this room and beyond it across all sectors of the electric industry to speak out more consistently and more candidly about the challenges you see. My colleagues and I will be particularly interested in your critique of federal policy and what we can do to improve it. We must be mindful that the burdens of maintaining the grid are fairly borne, that complex and powerful regulatory laws are judiciously administered, and that a due regard for balance

prevents undue discrimination. And we must do all of this, as I stated, while we ensure that electric systems maintain and even improve their reliability.

Thank you for having me.

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