

## **Opening statement by**

**Mr. Per Sanderud**

Director General,

The Norwegian Water Resources and Energy Directorate (NVE)

[www.nve.no](http://www.nve.no)

### **Ladies and gentlemen!**

First of all I'm pleased to welcome you all to the land of Northern Lights. The Northern Lights are normally confined to the highest latitudes within the Arctic Circle, but some times we can see the shimmering curtains of light here in Oslo too. While the auroral displays can be a beautiful sight, we also know it can pose to a potential threat for critical infrastructure. This is probably the main reason that all of you have decided to be a part of this conference.

Storms and hurricanes have a potential to generate disturbances in the electrical power system. This is something we experience here in Norway from time to time. Disturbances due to solar storms we have not experienced to a greater extent in Norway. But this is not any guarantee that we forever we be resilient to direct or indirect consequence of a large solar storm.

We all know that critical infrastructure provide benefits, services, and opportunities on which we all rely, and at the same time we are very mindful of the risks to this infrastructures posed by all kind of threats; e.g terrorism, technical failure and many kinds of natural disasters. These threats can have severe effects, such as cutting populations off from power supply, telecommunication etc.

### **Black Swan**

Risk analysts often use the metaphor "Black Swan" when discussing low probability and high consequence. A Super Solar Storm striking Earth and generating technological breakdown is for sure a low probability scenario, but also for sure, a threat we can't close our eyes for. A true Black Swan!

Because the consequences of low probability/High Consequence events can be so drastic, our common sense tells us that we should put a great deal of effort into understand the threat. And look into mitigation and how to prepare.

### **The Norwegian Water Resources and Energy Directorate (NVE)**

The Norwegian Water Resources and Energy Directorate (NVE) is a directorate under the Ministry of Petroleum and Energy

NVE's mandate is to ensure an integrated and environmentally sound management of the country's water resources promote efficient energy markets and cost-effective energy systems and contribute to efficient energy use. The directorate plays a key role for maintaining national power supplies. NVE is also assigned responsibility for the prevention of damage caused by landslides in the national flood contingency planning. NVE is also the national center of

expertise for hydrology in Norway and are involved in a broad range of research and development.

NVEs are involved in different activities when it comes to space weather:

Following topics can be emphasised:

- increase knowledge about potential threats to the Norwegian energy sector
- increase risk awareness in the Norwegian energy sector
- assess potential risks and supervise the Norwegian energy sector

*Norwegian Water Resources and Energy Directorate* is not only responsible to carry out audits of approximately two hundred electric energy producers, grid companies and heating plants here in Norway, we're also responsible for the nation's emergency management when it comes to securing the supply and distribution of electric energy in every corner of the country. This function includes ensuring that within the energy sector we have focus on everything that can threaten an effective flow of energy to cover the society's needs.

### **Robustness**

The investment strategy in the Norwegian energy sector has been based on high robustness. This strategy is one of several reasons that have helped us to avoid major disruptions so far, but we are also painfully aware of the fact that we are responsible for a sector characterized by large and rapid technological change. More interactions and cross-boarder trade give opportunities and challenges, which calls for international cooperation's and solutions.

### **Motivation**

*Norwegian Water Resources and Energy Directorate* is one of the sponsors to this conference. The main motivation for our involvement is to create a place to bring many of the best experts on the topic together, to share knowledge and ideas among policymakers, government officials, researchers, service- provider agencies, media, and legislators. Together we can share best practice about how to prevent and how to prepare.

### **Protecting critical infrastructure**

There should not be any doubt that our common goal is to improve our ability to prepare for, avoid, mitigate, respond to, and recover from all kinds of threats, including the potentially destructive impacts of space weather events, on our critical infrastructures.

I sincerely hope that we all we have three educational days here in Oslo. And every one uses the opportunity to make new contacts' or renewing old ones.

I wish you all the best for the conference!