

# Meeting Minutes of the Subcommittee on Disaster Reduction

1 March 2012, 10:00 a.m. to 12:00 p.m., White House Conference Center Lincoln Room

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*Italics indicate absent members. "T" indicate members participating via teleconference.*

## Co-chairs

David Applegate (USGS)  
Margaret Davidson (NOAA)  
Dennis Wenger (NSF)

## OSTP Liaison

Tamara Dickinson (OSTP)

## Designated Representatives

**BLM** *Edwin Roberson*

*Daniel Lechefsky*

**CDC** Mark Keim

**DHS** Bruce Davis (T)

**DHS/FEMA** Sandra Knight

**DHS/USCG** *Austin Gould*

**DOD** *Al Johnson*

**DOT** Sheila Duwadi

**EOP/OMB** Grace Hu

**EOP/OSTP** Tamara Dickinson

**EPA** *Peter Jutro*

Stephen Clark

**FERC** Pamela Romano (T)

**HUD** *Dana Bres*

**NASA** Craig Dobson

**NGA** Paul Lewis (T)

**NGB** *TBD*

**NIH** Allen Dearry

**NIST** *William Grosshandler*

**NOAA** Margaret Davidson

Laura Furgione

**NPS** Marcy Rockman

**NSF** Dennis Wenger

**OPHS** *Sven Rodenbeck*

**State** *Nicholas Suntzeff*

Fernando Echavarria

**USACE** *Steven Cary*

*Dimitra Syriopoulou*

**USAID** Sezin Tokar

**USDA** *TBD*

**USFS** *Elizabeth Reinhardt*

*Carlos Rodriguez-Franco*

**USGS** David Applegate

**USNRC** Brian Sheron

## Other Attendees

**DOT** Phil Yen (T)

**DHS/FEMA** Rachel Sears

**FERC** Joseph McClelland

**NASA** Michael Goodman

Frank Lindsay

**NIST** Marc Levitan

**NSF** Gregory Anderson

Matthew Pines

Jacqueline Meszaros

**NOAA** Nell Codner (T)

David Green

Pamela Taylor

David Helms

Margaret McCalla

**OSTP** Jessica Woods-Vedeler

**USACE** Andrew Bruzewicz

**USGS** John Eichelberger

Lind Gee (T)

**USNRC** Brett Rini

Kenn Miller

**Secretariat** Bret Schothorst

Barbara Haines-Parmele

## Agenda

10:00 Welcome and Introductions

10:05 Presentation: Reliability and Resiliency of the Power Grid

10:35 Overview of Key Objectives for the Disasters Societal  
Benefit Area of the National Earth Observations Strategy

10:55 Agency Roundtable Budget Discussion

11:45 Report from the Co-Chairs and Approval of Minutes

11:50 Report from the OSTP Liaison

11:55 Close and Next Actions

## Handouts

- Agenda
- Draft February Meeting Minutes
- Invitation to Disasters Roundtable Workshop on March 9<sup>th</sup>
- Final IWG Charter

## **I. Welcome and Introductions**

Subcommittee on Disaster Reduction (SDR) Co-chair David Applegate (USGS) called the meeting to order at 10:02 a.m., and participants introduced themselves.

## **II. Presentation: Reliability and Resiliency of the Power Grid**

Applegate introduced Joseph McClelland of the Federal Energy Regulatory Commission (FERC), who serves as the Director of FERC's Office of Electric Reliability. McClelland provided the SDR with a brief overview of his organization and described the process that's involved with setting electric reliability standards. He also presented on the reliability and resiliency of the electric power grid, specifically against the threat that space weather disturbances such as electromagnetic pulse activity and geomagnetic storms pose to the consistent operation of the Nation's bulk power system.

McClelland began his presentation by discussing how FERC was tasked with regulatory powers over the country's electric reliability and grid cyber security. The authority was granted by the U.S. Congress after a major power outage on August 14, 2003 – the largest blackout in North American history – which left roughly 50 million people without power for several hours in the U.S. and Canada and caused upwards of \$10 billion in estimated damages. As a result of this disruption, Congress drafted language in the Energy Policy Act of 2005 that required mandatory and enforceable electric reliability standards to be set into place. President George W. Bush signed this mandate into law on August 8, 2005, concentrating reliability oversight for the Nation's electric power supply within FERC's Office of Electric Reliability. McClelland noted that the Office of Electric Reliability was focused primarily on economic regulation prior to Congress passing the Energy Policy Act of 2005, and, although FERC did possess reliability engineering expertise before the law was enacted, it was mainly directed to analyze energy utility markets in order to prevent price fixing and reliability manipulation.

The current structure of the Office of Electric Reliability is comprised of four divisions that share authority over parts of the reliability process, as highlighted by McClelland: 1) Standards, which engages with industry to develop reliability standards; 2) Logistics and Security, which concentrates on budget filings and the rules and procedures of reliability standards; 3) Compliance, which inspects industry's observance of reliability standards and aids in investigations and enforcement of regulations; and 4) Engineering Services, which analyzes the technical reliability and performance of the power grid. FERC's Office of Electric Reliability also delegates some authority over electric reliability to a non-governmental organization known as the Electric Reliability Organization (ERO). Under the ERO and in conjunction with FERC, eight regional entities assist with the development of reliability standards and enforcement of its regulations in a shared cooperative agreement that divides responsibility over the process. ERO's sole function is to draft, develop, and propose reliability standards to FERC for final approval. On its own, the ERO cannot implement or make any standard mandatory enforceable. FERC, in turn, cannot author or modify a standard proposal or control its content – it can only remand the standard back to the ERO for revision as needed and provide its approval. With this system of checks and balances in place, it currently takes FERC and its industry partners about two to three years to develop and enact a new electric reliability standard.

Although FERC provides the final approval of electric reliability standards but delegates the authority for their development to the ERO, it still can provide direction and raise issues of importance during the standard development process by conducting studies. By way of example, McClelland highlighted a recently published report analyzing the threat that space weather disturbances such as electromagnetic pulse activity and geomagnetic storms pose to the power supply and grid system. The joint study was funded by FERC, the Department of Energy (DOE), and the Department of Homeland Security (DHS) and was facilitated through Oak Ridge National Laboratory (ORNL) in September 2010 ([http://www.ornl.gov/sci/ees/etsd/pes/pubs/ferc\\_Meta-R-319.pdf](http://www.ornl.gov/sci/ees/etsd/pes/pubs/ferc_Meta-R-319.pdf)).

The ORNL study found that space weather disturbances of varying degrees happen with some amount of regularity, although it's difficult to predict exactly what their effects will be on the bulk power system. According to the report, the last major space weather storm on record occurred in 1921, and it was determined by researchers to be a rare, 100-year event. If a storm of this magnitude were to occur today in the U.S., McClelland stated that it could have disastrous effects on the power grid. Such an event could damage over 300 bulk power, extra high-voltage system transformers, cause nearly 130 million people to lose power, and produce an estimated \$1-2 trillion in damages. The report also outlined that if the transformers adversely affected by the storm were destroyed beyond repair, the recovery would take months – if not years – because bulk power system transformers can take in excess of one year to build and fully integrate into the power grid.

In addition to the joint study conducted at ORNL by FERC, DOE, and DHS, McClelland referenced a North American Electric Reliability Corporation (NERC) report released in March 2012 that looked at the same issue (<http://www.nerc.com/files/2012GMD.pdf>). NERC consulted with electric transformer manufacturers as well as other industry partners and concluded the opposite: even a large solar storm – such as the 100-year event that occurred in 1921 – would cause minimal disruption to the bulk power system. McClelland noted that this conclusion differs greatly from previous analyses conducted on the subject, with the NERC report predicting that only a small number of transformers would be seriously affected and underscoring that those assets could be restored in just a few hours or days as opposed to months or years as predicted by the ORNL study. The NERC report also diverges from prior studies by stating that the most likely worst-case impact to the bulk power system from severe electromagnetic pulse activity or an intense geomagnetic storm would be system overload due to voltage instability, not the more severe outcome of a failure of multiple transformers.

McClelland concluded his presentation by briefly highlighting FERC's role in cyber security – as additionally directed by Congress in the Energy Policy Act of 2005 – to protect the bulk power system from imminent virtual threats and vulnerabilities that could endanger the continuous operation of the electric grid. The cyber security of the bulk power system is regulated by a series of critical infrastructure protection reliability standards that are primarily concerned with the following areas laid out by McClelland:

- Virtual protection of assets;
- Management involvement;
- Security of sensitive information;
- Security training and personnel risks;
- Physical security of cyber assets;
- Change and access controls;
- Electronic security perimeters; and
- Incident response and recovery plans.

In response to questions regarding the anticipated global impact to the electric power grid of a space weather event similar to the one that occurred in the U.S. and Canada nearly a century ago, McClelland stated that some nations are very well protected against this issue, while others are not. Intense electromagnetic pulse activity or a severe geomagnetic storm on par with the 1921 event has the potential to be a global incident that could destroy transformers worldwide and could result in the failure of the most critical power supply infrastructure and services for many nations, including the U.S. According to McClelland, this threat is not something to be taken lightly, and there is little room for error in not choosing the prudent solution in whatever approach the Federal government decides is the best fit to mitigate this issue. McClelland highlighted that the U.S. mitigation strategy needs to have strong underpinnings to science, technology, research, and development in order to lessen any potential damage that a severe space weather event could cause to the Nation's bulk power system.

Tammy Dickinson (OSTP) added that an external analysis of the joint FERC, DOE, and DHS report conducted through ORNL was performed by the JASONs defense advisory group (<http://www.fas.org/irp/agency/dod/jason/spaceweather.pdf>).

According to Bruce Davis (DHS S&T), his agency has a significant effort underway in resilient power grid technology, with the effort primarily focused in DHS's Infrastructure Protection and Disaster Management Division. Davis passed along that Sarah Mahmood ([sarah.mahmood@hq.dhs.gov](mailto:sarah.mahmood@hq.dhs.gov)) is the Program Manager for the effort and is the point of contact for those SDR members interested in learning more about DHS S&T's initiative.

### **III. Overview of Key Objectives for the Disasters Societal Benefit Area of the National Earth Observations Strategy**

Dickinson introduced David Helms (NOAA), who serves as co-lead – along with Lind Gee (USGS) – for the disasters societal benefit area (SBA) of the 2012 assessment of national Earth-observing assets in support of the National Earth Observations (NEO) Strategy. The assessment of the disasters SBA is part of a broader effort covering 13 societal benefit areas, which will guide OSTP's creation of a 10-year strategic implementation plan, as required by Congress, to allocate and prioritize future resources to the development, deployment, and maintenance of critical Earth-observing systems.

Helms and his colleague Pamela Taylor (NOAA) briefed the Subcommittee on this initiative in order to generate interest from the SDR agencies to help contribute information to the assessment. Taylor kicked off the presentation by providing the SDR with a background on the assessment process, highlighting that OSTP formed a NEO Strategy Task Force in February 2011 to begin laying the initial groundwork for the 10-year strategic implementation plan. Within the NEO Strategy Task Force, Taylor Co-chairs the Assessment Working Group (AWG), which was formed in November 2011 and charged with coordinating the assessment effort and tapping Federal agency contributors and subject matter experts, or SMEs, for information. SBA assessments will occur broadly in two phases, according to Taylor:

- Phase one will focus on a high-level review of the current portfolio of Earth observation systems within each SBA to provide a baseline assessment of existing assets; and
- Phase two will examine each baseline SBA assessment for data gaps, alternatives, novel technologies, and additional research to maximize the societal benefit over the 10-year planning period, resulting in a 10-year portfolio for each SBA that will guide the development of the NEO Strategy's implementation plan and inform OMB of the most vital Earth-observing systems.

Taylor noted that the approach for the 2012 NEO Strategy assessment is based on NOAA's Observing System Integrated Analysis (NOSIA) Pilot Study conducted in 2011, which incorporated the following key elements into their analysis: 1) a value chain that traces the linkages between Earth observations and societal benefit; and 2) an impact-based, swing-weighted approach to assess relative performance and criticality of inputs at each level of the value chain. The value chain is a linked collection of activities that begins with an Earth observation asset. Value is then added to the asset to achieve a key objective or deliver a specific product or service, which, in turn, contributes to a societal benefit area.

Helms covered the disasters SBA in depth as it applies to the input and expertise needed from SDR agencies, focusing on three major sub-areas populated by key objectives, or hazards, which fall under each aspect:

- 1) Air – Severe Thunderstorms, Winter Storms, Hurricanes, Volcanoes (Ash), Technological (Air), Heat Waves, and Solar/Magnetic Storms;
- 2) Land – Wildfires, Volcanoes (Land), Landslides, Earthquakes, and Technological (Land); and
- 3) Water – Floods (Fresh), Technological (Water), Coastal Inundation (Storm Surge), Coastal Inundation (Tsunami), and Erosion (Bathymetry Change).

Helms and Taylor requested SDR members to nominate Federal colleagues and points of contact to participate on a team of SMEs that will conduct an inventory of their agency's existing observing assets related to disaster reduction and assess the Nation's collective Federal portfolio of observing assets against the key objective hazard areas within the disasters SBA. Due to the truncated schedule of the assessment process, this information was requested by Helms and Taylor on a fairly tight turnaround within the next few weeks.

Paul Lewis (NGA) suggested that the DHS National Response Plan (NRP) would be a good resource for the assessment team and the disasters SBA co-leads to use to identify Federal agencies that are designated as the lead for using specific observation and monitoring systems during disaster events. The NRP integrates domestic disaster prevention, preparedness, response, and recovery activities into a single all-discipline, all-hazards plan, which may be a helpful reference as the group moves forward.

#### **IV. Agency Budget Roundtable Discussion**

Dickinson led an agency roundtable budget discussion focused on the challenges and opportunities of the President's FY 2013 budget for the Federal disaster reduction S&T portfolio, both concerning programs within SDR agencies themselves and the impact on interagency work. SDR agencies who participated in this conversation at the meeting were NIST, NOAA, and EPA. Although the discussion was cut short due to time constraints – which precluded all members from participating – agencies were encouraged to send their budget outlook write-ups to Dickinson in order to provide OSTP with insight into any major changes in hazard-related S&T spending in agency budgets for the coming fiscal year.

#### **V. Report from the Co-Chairs and Approval of Minutes**

The February meeting minutes were approved with no changes.

Applegate mentioned an upcoming workshop of the Disasters Roundtable of the National Academies on Wednesday, March 21, 2012 at the Pew DC Conference Center (901 E Street NW, The Americas Room) in Washington, DC on “Integrating Disaster Recovery: What Should Long-Term Disaster Recovery Look Like?” SDR members who would like more information on the workshop should visit the following website: <http://dels.nas.edu/Upcoming-Event/Disasters-Roundtable-Workshop-Integrating-Disaster/AUTO-5-01-38-N>.

Applegate highlighted that the Japan Society for the Promotion of Science (JSPS) and the U.S.-Japan Research Institute (USJI) are hosting a joint symposium entitled “Risk Management – From Natural Disaster to Economy.” The event will be held on Friday, March 9, 2012 at the Cosmos Club (2121 Massachusetts Avenue NW) in Washington, DC. SDR members who would like more information about the symposium can go to: [http://www.us-jpri.org/en/week\\_201203.html#event7](http://www.us-jpri.org/en/week_201203.html#event7).

Dennis Wenger (NSF) announced that the Subcommittee's International Working Group finalized its charter, which was formally signed by the SDR Co-chairs and OSTP Liaison prior to the meeting and was included in the SDR meeting folders as a reference. Wenger also mentioned that the United Nations International Strategy for Disaster Reduction (UNISDR) has started the process of completing another global assessment on the vulnerability, response, and resilience capacity of each nation that will be released at the UNISDR Fourth Session of the Global Platform for Disaster Risk Reduction in May 2013.

Applegate noted that the SDR's next meeting, on April 5<sup>th</sup>, will feature presentations by: 1) Ann Bartuska (USDA) on the U.S. Global Change Research Program's climate change adaptation efforts; 2) Eliot Christian (USGS) on representation of the U.S. in the International Register of Alerting Authorities; and 3) Lauren Alexander Augustine from the National Academy of Sciences (NAS) on the after-action report from their recent NAS workshop on extreme events.

**VI. Report from the OSTP Liaison**

Dickinson indicated that she did not have any additional topics for discussion.

**VII. Adjournment**

The meeting adjourned at 11:56 a.m.

**VIII. Future Meetings**

SDR meetings will be held from 10:00 a.m. to 12:00 p.m. on the dates listed below in the Lincoln Room of the White House Conference Center.

**2012**

Thursday, January 5	Thursday, May 3	Thursday, September 6
Thursday, February 2	Thursday, June 7	Thursday, October 4
Thursday, March 1	*Thursday, July 12	Thursday, November 1
Thursday, April 5	**Thursday, August 2	Thursday, December 6

\*We are shifting the July meeting to the second Thursday of the month to avoid proximity to the July 4th holiday.

\*\*Subject to cancelation

**IX. Agenda Items and Other Communications with the Subcommittee**

Please send proposed agenda items and any other items intended for distribution to the full Subcommittee to Bret Schothorst (bret.schothorst@mantech.com).

**X. Contact Information**

**SDR Leadership**

David Applegate	Co-chair	703-648-6600	applegate@usgs.gov
Margaret Davidson	Co-chair	843-740-1220	margaret.davidson@noaa.gov
Dennis Wenger	Co-chair	703-292-8606	dwenger@nsf.gov
Tamara Dickinson	OSTP Liaison	202-456-6105	tdickinson@ostp.eop.gov

**Secretariat**

Bret Schothorst	703-388-0312	bret.schothorst@mantech.com
Barbara Haines-Parmelee	703-388-0309	barbara.haines-parmelee@mantech.com

**XI. Summary of February Actions**

Action	Lead	By When
Please send nominations of individuals to serve as SMEs for specific key objectives of the disasters SBA and provide an inventory of your agency’s observing assets against the cross-hazards listed in the circulated spreadsheet to David Helms and Pamela Taylor of NOAA (david.helms@noaa.gov and pamela.taylor@noaa.gov).	SDR Members and Federal Colleagues	ASAP

Action	Lead	By When
Send Tammy Dickinson (tdickinson@ostp.eop.gov) a brief write-up highlighting any major changes in hazard-related, disaster reduction S&T spending for your agency in the President's FY 2013 budget.	SDR Members	ASAP
Please consider supporting the work of the SDR and its Secretariat through a contribution from your agency. Let Dave (aplegate@usgs.gov) know if you need an agency-specific request letter.	SDR Members	Standing
Contact Fernando Echavarria (echavarriafr@state.gov) to engage on the EU-U.S. Dialogue on Space Cooperation.	SDR Members and Federal Colleagues	ASAP
Contact Tammy Dickinson (tdickinson@ostp.eop.gov) to pass along issues, concerns, and information from your agency to the White House Office of Science and Technology Policy.	SDR Members	Standing
Contact Tammy Dickinson (tdickinson@ostp.eop.gov) if it would be helpful for OSTP to issue a letter to your Department requesting new (or re-affirmed) designation of representatives. Ideas for other entities that should be represented on the SDR are also welcome.	SDR Members	Standing
Contact Dennis Wenger (dwenger@nsf.gov) if your agency is able to provide funding support to the University of Colorado-Boulder's Natural Hazards Center.	SDR Members and Federal Colleagues	Standing
Contact the Secretariat (bret.schothorst@mantech.com) if you are interested in participating in the SDR Coastal Inundation Working Group.	SDR Members and Federal Colleagues	Standing
Contact the Secretariat (bret.schothorst@mantech.com) if you are interested in participating in a task force that will be drafting a lessons learned report covering the earthquakes and tsunami in Japan, New Zealand, Chile, and Haiti.	SDR Members and Federal Colleagues	Standing
Send Sezin Tokar (stokar@usaid.gov) your ".gov" e-mail address to receive USG-only updates from USAID on global disaster response activities.	SDR Members and Federal Colleagues	Standing
Contact Bret (bret.schothorst@mantech.com) to receive copies of the Grand Challenges for Disaster Reduction Implementation Plan packets or CD.	SDR Members	Standing