

Focus Group Protocol for Space Weather Advisory Group User Survey

POWER GRID SECTOR

Focus Group Information

Focus Group time/date:

Moderator: [Add before focus group]

Focus Group Participants: [Make sure people complete the sign in sheet]

Focus Group Protocol

Welcome

Good [morning/afternoon] and thank you so much for agreeing to participate in this focus group.

Introduction

My name is [name] and I am a member of the Space Weather Advisory Group also known as the SWAG.

I am joined by [name] for today's conversation who is assisting by taking notes as we go along.

Our time is limited so rather than go around the group, please say your name and organization before you speak for the first time.

Purpose of The Focus Group

The purpose of this focus group is to understand how space weather affects your work and what forecasts, products, and services you would like to see.

The SWAG will use the information gathered to identify the space weather research, observations, forecasting, prediction, and modeling advances required to improve space weather products.

The PROSWIFT Act, which led to the SWAG's formation, also laid out the topics for the user survey. We will be asking you questions about current use and future needs for space weather information, technological systems, components, or elements affected by space weather, and current and future risk reduction and resilience activities.

Ground Rules

We want this to be a discussion so please feel free to respond to each other's

comments. That said, let's go over the ground rules for today's conversation.

1. We would like everyone to participate so I might call on you if I haven't heard from you in a while.
2. There are no right or wrong answers. Every person's experiences and opinions are valued and important. Speak up when you agree or respectfully, when you disagree. We want to hear a range of opinions.
3. What is said here today stays here. We want folks to be comfortable sharing information so please do not discuss who said what once you leave.
4. We want to capture everything you say so we will record the conversation. By participating today, you are consenting to being recorded. No one will be identified by name in our report. The recording will only be used for note taking. As required by the PROSWIFT Act, the results of the user need survey(s) including any recommendations will be compiled into a report that will be delivered to Congress as well as made public.

Thank you again for your time and cooperation. Before we begin, do you have any questions for me?

Let's begin with your current and future use of and need for space weather observations, information and forecasts:

1. How familiar are you with space weather products and services?
2. How do you consider space weather conditions in planning and operating the power system and equipment?
3. What space weather information do you use?
4. Where and how do you get the space weather information?
5. How satisfied are you with the quality and utility of current space weather observations, products, and services?
6. Based on your experience with current space weather products and services, what feedback do you have for providers to help them meet your needs?
[Examples if needed: content, format, data time resolution, regional granularity, and/or delivery, map or graphical products, exemplar products or services for users to address risk and improve resilience of the grid, either associated with space weather or other hazards]

7. What do engineers and operators within the power grid sector need in future space weather information? [Ask for an explanation of the need]

The next set of questions deal with sources for space weather information:

8. How do you use other environment or system data (e.g., GIC data, geomagnetic field variation) or information to support engineering design or operating actions?
[Prompts, if needed:

- How do you monitor, archive and use measurements of GIC in any equipment?
- How do you monitor, archive and use electrical system waveform harmonic distortion?
- How do you monitor, archive and use geomagnetic field variation?
- How do you monitor, archive and use Earth-surface impedance in the vicinity of your systems? If so, how do you use the data?
- What other parameters do you monitor and use to protect equipment from the effects of GIC?
- What modeling is used to determine GIC flows in your facilities based on the space weather forecast information?
- How do you monitor, archive and use other parameters as part of your operating mitigations or engineering mitigations to reduce the risk of GMD events?

9. How long is the information and/or data kept?

10. Can this information be shared outside of the application, company, or community?

Let's turn to technological systems, components, or elements affected by space weather:

11. How has space weather affected your systems and components?

Examples: Power transformers, Voltage support equipment, Relays, circuit breakers, and other protection and control equipment (including components using GPS-timing), Communications networks used for grid operations or emergencies, Generator fuel supplies, Other systems or components that could be affected by space weather and impact grid operations

- Based on how space weather has affected your systems, what are the requirements for your systems and components?

12. Are there any new technologies, research, instruments, and models that are needed to address space weather in the power sector?

Finally, let's talk about risk reduction and resilience activities:

13. How is space weather information used in operating procedures to reduce risk and improve resilience?
14. How is space weather information used for engineering designs that have been adopted to reduce risk and improve resilience?
15. What improvements or additional space weather products are needed to assist in increasing the resilience of the power system? Please consider both short-term (within next 1-2 years) and longer term (within 5-10 years).
16. What may be limiting the power sector's ability to take actions to reduce risk and improve resilience?
17. How could better education and training improve the sector's ability to take action?

Last Question

18. Are there any other things that we have not asked about that you wish to share?

Wrap Up

Those are all the questions we have for you. Let us know if you are interested in keeping in touch and please let us know who else to speak with as part of this effort. We hope to have initial results from the SWAG User Survey by AGU and AMS. Thank you once again for your time and energy.

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