NEWS & UPDATES

Newsletter for the GRID DATA Repository
and BetterGrids Foundation, Inc.

In this Edition	Page(s)
Resiliency, Grid Models, and More . . .	1
2023 Fundraising Campaign	2
New Model Submissions	2
Volunteer Spotlight – Thank you, Peter Klauer!	3
2023 Performance Goals and Progress	3-4
Usage Statistics	4
Webinars	5

Resiliency, Grid Models, and More . . .

The organizational name BetterGrids has Grid in its name, but does that mean it is exclusively about grid models? Not at all.

Initially, that was the case, but we have been actively adding new data sets that include time series data to support research activities that need grid and associated time sequence data. We are currently adding and looking to add data sets that include load and associated renewable generation production time series data.

Last year, BetterGrids had a webinar about software that helps support societal resiliency, with support for specific utility scenarios such as hurricane and wildfire response and the electrical grid being critical elements of that software. Resiliency is a complicated subject; even the simple measurement of resiliency is difficult. Researching resiliency will not only need to study how the current grid behaves and supports different resiliency scenarios, but we are also making significant changes to the grid by introducing renewable resources, energy storage, microgrids, and new monitoring and control technologies.

BetterGrids was created to help bridge the gap between academia and the industry. Historically, grid researchers used the same small grid models repeatedly in their studies. Numerous new and improved grid optimization algorithms were developed in academic circles that were potentially promising but only tested and validated on a few commonly used, relatively simple and outdated grid models. We believe that to do meaningful research on resiliency, it is also essential to use relatively large and realistic grid models. Many of the large realistic models in the BetterGrids Repository initially added to support grid optimization algorithm development will also benefit new research topics related to reliability and resiliency.

Furthermore, it is also necessary to understand what could happen to societal and grid resiliency as our grid evolves with the changes to the resources, loads, storage, and associated technologies. This is one of the main reasons we felt it was necessary to expand the repository's scope to include more time series data related to grid models.

2023 Fundraising Campaign

BetterGrids is a public charity (501 (c) (3)) dedicated to grid education and research. Our vision is for grid researchers to have the essential test data they need to develop better grid solutions. Our mission is to operate the Grid Data Repository in a self-funding manner to support education and research in developing better solutions for grid resiliency, control, and optimization.

BetterGrids is an organization composed of volunteers. It operates entirely through the efforts and contributions of individuals and organizations. Over 70 organizations, including ARPA-E, have contributed to the creation of the Grid Data Repository, which provides free access to over 500 grid models to researchers worldwide.

Each year our goal is to raise funds to keep BetterGrids a self-funded non-profit. Any donations that are given in 2023 will go towards paying the hosting costs for the BetterGrids Website and Repository, and paying for the curation of models. We could use **YOUR** help to continue to fund BetterGrids.

Right now, we are thankful to have received $1,000 from DataCapable and $5,000 from the Vojdani Trust. However, we need more to refresh the repository modules and open-source components to be more current - all while keeping BetterGrids self-funding.

Thanks for considering the BetterGrids Foundation in your 2023 donation plan. If at any time you would to donate, please reach out to ali.vojdani@bettergrids.org and he will assist with this process.

New Model Submissions (not a complete list)

Model	Source/Notes
Electric Substations	ORNL
NERC Reliability Coordinators	ORNL
Power Plants	ORNL
Generating Units	ORNL
Electric Retail Service Territories	ORNL
Solar Power Data for Integration Studies	NREL
ARPA-E PERFORM datasets	NREL
Solar-to-Grid Public Data File for Photovoltaics Generation	Berkeley Lab

New Spotlight Feature!

The BetterGrids Foundation would like to spotlight the innovations and support of the BetterGrids Foundation going forth in each newsletter. These areas could include: Volunteer, User and Partner Spotlights. We look forward to sharing these unique contributions with the BetterGrids Community. Let us know if you are interested in being featured. Thank you for your interest and contributions to BetterGrids!

Volunteer Spotlight

Peter Klauer is a Senior Advisor, Smart Grid Technology, at the California Independent System Operator Corporation in Folsom California. Peter is responsible for facilitating research, development, and integration of emerging and promising smart grid technologies into the ISO's wholesale energy markets and operational systems. Peter also supports state energy policy development in emerging renewable and smart grid technology areas within the California Public Utilities Commission's Energy Division and the Governor's Office of Business and Economic Development.

Peter Klauer has been a volunteer for BetterGrids since 2020. He has always been an active member of the BetterGrids Technical Committee and willing to support new research proposals and share ideas with the Committee. He was a panelist for the Renewable Dispatch – In the Cloud Webinar, and provided his expertise for the "OpenCIP" whitepaper as he was a member of the SGDX Working Group. Thank you, Peter, for your continued enthusiasm, participation and support for the BetterGrids Foundation initiatives.

2023 Performance Goals – Mid-Year Update

We are working hard to achieve our goals. Here's an update!

BetterGrids Foundation 2023 Performance Improvement Goals (PIGs)

Area	Metrics	Baseline (2016)	2017	2018	2019	2020	2021	2022	2023 Threshold	2023 Goal	2023 As of July 31, 2023
Repository	Number of registered accounts	0	120	299	386	496	659	812	850	900	936
	Number of items in the repository	0	291	413	454	469	499	593	600	700	603
	Number of downloads per year	0	3900	143565	1464	1606	2352	2829	2900	3000	1322
Marketing	Number of committee members (i.e., "Community Volunteers")	0	55	>56	60+	66	67	71	71	72	70
Self-Funding	Annual revenue from value-added services ($)	0	0	0	0	5000	5000	0	0	0	
	Annual revenue from fundraising ($)	0	10000	10000	10000	5000	5000	15000	10000	15000	6000
	Annual expenses ($)	0	4268.35	585	298	2933	8538	16525	30000	25000	
Strategic	% Strategic PIGs completed	NA	81	60	90	95	90	97	80	90	51
	Not measured yet	Baseline							Below Threshold	Above Threshold	Goal Met

Our commitment to our goals has been strong, and we are proud of the BetterGrids Foundation's continued growth.

Technical Committee Meetings

On August 29, 2023, we hosted our Summer Technical Committee Meeting. Highlights included reviewing the success of the BetterGrids Strategic goals, reviewing the next steps from last year's PV Data Collection Project (accessible on BetterGrids.org), and discussing ideas for new collections that should be added to the repository. The members also discussed next steps for a "technology refresh" to the repository. The goal of serving the community and the need for grid models continues to be the primary focus of the BetterGrids Foundation.

2023 Goal Progress

We have had great success in working towards the completion of our goals. Here's our update:

#	Performance on 2023 Strategic Goals
1	Create a BetterGrids Webinar Series and deliver quarterly (4) educational webinars **Status: 2 Complete, the next one coming in September 7, 2023 (Register today at BetterGrids.org!)**
2	Conduct a formal Fundraising Campaign **Status: Received $1,000 from DataCapable, $5,000 from Vojdani Trust – THANK YOU!**
3	Perform 6 new Outreach Events **Status: 4 in 2023 (2 webinars, DistribuTech, IEEE PES GM**
4	Increase the number of BetterGrids Partners to 8 **Status: Five Partners including DataCapable, GridBright, the Hoveida Family Foundation, Opus One/GE, and the Vojdani Trust.**

BetterGrids Usage Statistics

We continue to grow as can be seen on the chart below. We are hopeful that we can add a Forum Usage statistic to this graphic by the next newsletter.

Metric	Q4/17	Q2/18	Q4/18	Q2/19	Q4/19	Q2/20	Q4/20	Q4/21	Q2/22	Q4/22	Q2/23
Model Contributors	6	9	16	19	24	25	26	28	29	30	30
Registered Accounts	120	207	299	317	378	410	496	648	748	801	936
Model Collections	13	13	13	13	14	14	14	14	15	15	17
Distinct Models	291	314	413	441	448	454	469	504	567	591	603
Model Files	817	881	1015	1269	1289	1308	1395	1439	1567	1606	1622
Models Total Sizes (Mb)	615	2988	4741	4787	6130	6670	10701	10703	11603	11858	12830

Industry Outreach – Webinars

By September 7th, 2023, we will have hosted 3 webinars featuring several industry experts. We plan to continue to offer webinars throughout the coming year and will continue to publicize on BetterGrids.org, PowerGlobe, LinkedIn, and other relevant channels. As a reminder, we continue to share BetterGrids' Webinar recordings online at BetterGrids.org. We hope you find the information both informative and useful.

Eye of the Storm: Outage Data in a Superstorm

Summary: When the power goes out, a utility's outage map is the go-to public-facing resource for storm response efforts. But unfortunately, many utility systems lack the real-time information customers need to keep themselves and community stakeholders in the loop on power restoration efforts. With extreme weather events increasing in severity and frequency worldwide, utilities are more at risk of experiencing outage events today than at any other point in history. Given limited staff and budgets, this often presents a challenge for utilities diligently working to maintain or restore service. Kissimmee Utility Authority (KUA) is a utility frequently in the "Eye of the Storm" (so to speak) and understands the challenge of leveraging real-time data for outage management. This motivated KUA to upgrade its outage map ahead of the 2022 Atlantic Hurricane Season. Strategic forethought positioned KUA to know how valuable an upgraded outage map would be for their team when Hurricane Ian impacted Florida in September of that year. In this WEBINAR, team members from Kissimmee Utility Authority and DataCapable will discuss how they were able to deploy an upgraded outage map ahead of Hurricane Ian swiftly and how that outage map, powered by the DataCapable Platform, helped them respond to the third-costliest weather disaster on record in the United States.

Locked in Gridlock

Summary: Deploying the level of renewable generation required to meet our national and global sustainability objectives is daunting. To successfully add new sustainable generation capacity, project developers must navigate the highly complex grid interconnection process, which includes initiating interconnection requests, conducting studies, negotiating agreements, & overcoming the possibility of project withdrawal at any point. The elephant in the room is this process is widely recognized as a bottleneck to renewable deployment. Leveraging the Berkeley Lab's rich analysis of the current Interconnection situation in "Queued Up v2", EE Informer's extensive coverage of transmission bottlenecks, and GridBright's experience with over 100 developer clients, these three panelists who see this elephant from different perspectives will share their insights into the challenges and potential solutions for grid interconnection **un-lock!**

GET(S) more! Accelerating the Energy Transition

Summary: An atomic—perhaps even quantum—truth of the energy transition is we need **MORE**. More clean energy, more transmission, more electric … just more. But more should not be confused with new. Grid Enhancing Technologies (GETS) have the potential to get more out of currently operating transmission infrastructure by one study enabling up to a 2x expansion in renewable integration. FERC 881 is going to accelerate GETS adoption. This WEBINAR will convene a panel of industry leaders in the GETS space focusing on the technology of Dynamic Line Ratings, spanning research, technology innovators, and utilities. Panelists will provide an overview of the technology and its potential, introduce innovative approaches to implementation, and discuss how a major utility is planning for DLR and 881 compliance. Register at BetterGrids.org for this webinar on September 7th.

Thank you to our amazing panelists for sharing their incredible knowledge throughout this webinar series in 2023. We appreciate your support!

Thank you to all of you!

We appreciate your continued support and connection with the BetterGrids Foundation. If you'd like to provide a charitable donation to the BetterGrids Foundation, please contact us at Ali.Vojdani@BetterGrids.org. If you have any ideas for Webinars, Forums or continued engagement, please reach out to us at BetterGridsEngagement@BetterGrids.org

---

Stay Current

Stay up to date on the Repository progress and BetterGrids
by following us at LinkedIn, Twitter, or at our website www.BetterGrids.org