NEWS & UPDATES

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

In this Edition	Page(s)

Huge Thanks to the Hoveida Family Foundation

The BetterGrids Foundation was a recipient of a $10,000 Donation from the Hoveida Family Foundation in 2022. We are grateful for Bahman Hoveida and his Foundation's generosity that will allow for continued curation of the models on BetterGrids.org and support for educational webinars, newsletters, and other connections through the Community Engagement Coordinator.

HOVEIDA FAMILY FOUNDATION

The Hoveida Family Foundation is a philanthropic organization dedicated to the promotion of scientific and engineering education and research in order to make the world a better place for all humanity.

The Hoveida Family Foundation is a private philanthropic organization based in the State of Washington. It provides grants for scientific causes which would make people's lives better and those causes that positively impact the environment. The Family has prospered through science and engineering education and applying that education to entrepreneurial endeavors, creating world-class engineering businesses to create Family's wealth. In return, the Family has dedicated part of this wealth to support Sciences and Scientific philanthropic causes. You can learn more at https://hoveidafoundation.org

About Bahman Hoveida

Mr. Bahman Hoveida is a senior electrical engineer who has been applying his engineering and entrepreneurial skills to solve crucial problems for electrical utilities in the USA and Internationally. After working in varying capacities at Harris-GE, Control Data-Siemens and Energy Control and Consultants/KEMA, Mr. Hoveida founded Open Systems International, Inc. (OSI) in 1992. His drive for technical excellence, pragmatic and practical solutions, superb customer service, unwavering ethics, and integrity, and fostering a nurturing and technically challenging work environment for his company's employees has been imperative in the growth of OSI. Mr. Hoveida retired from OSI in 2021 and began this charitable foundation, as well as mentoring and investing in entrepreneurial startups related to science and engineering – especially those focused on power and energy. In addition to leading the Hoveida Family Foundation, he is also President and Founder of Accurant International, https://accurantllc.com/.

BetterGrids Connects with UC Riverside

We had the chance to work with an intern, Fatemeh Ahmadi-Gorjayi, from the University of California, Riverside, this fall who garnered some interesting information regarding the topic below. Her full report is posted on the BetterGrids Website here: PV Real-World Data, Challenges and Approaches to Generate Synthetic Data | BetterGrids.org

"Despite of the current trends in data-driven studies of power systems, and in particular renewable energy resources such as Photovoltaics (PVs), having access to real-world PV data still remains a difficult task. The goal of the first phase of my research was to summarize the existing challenges in accessing real-world PV generation data and accordingly, to recommend the potential approaches to synthetically generate the PV generation data from other publicly available databases like meteorological data and also to briefly discuss the pros and cons of the understudy methods. In addition, I introduced a classified PV related data sets that are publicly available." ~ Fatemeh Ahmadi-Gorjayi

This work was funded by an INTERN supplemental grant from National Science Foundation to the University of California, Riverside to Grant Number 1711944.

Researcher Bio:
Fatemeh Ahmadi-Gorjayi received the B.Sc. degree in electrical engineering from Sharif University of Technology, Tehran, Iran, in 2013, and the M.Sc. degree in MBA, Operation Management and Supply Chain from the department of Industrial Engineering at University of Tehran, Tehran, Iran in 2018. She is currently pursuing her Ph.D. degree at the University of California, Riverside, CA, U.S. Her research interests include state estimation, power system harmonics, power system planning, and applications of data-driven techniques in power system.

New Model Submissions (not a complete list)

Model	Source / Notes
SDET 4000 bus transmission model & scenarios	PNNL
SDET 3000 bus transmission model & scenarios	PNNL
SDET 563 bus transmission model & scenarios	PNNL
Simplified 14-Generator Australian Power System	Texas A&M, Synthetic, from 2016
New England 39 Bus and 68-Bus Test System	PTI, PowerWorld, "classic model"
Brazilian Seven Bus System	Texas A&M
IEEE 9500-Node Test Case	CIM, IEEE

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

Zac Canders is the Co-Founder of DataCapable. In this role, he supports DataCapable's worldwide delivery of the DataCapable Platform. He is passionate about the reliability of the global grid and technologies to promote a safer future for utility employees, customers, and assets. He has also authored numerous papers and extensively supports interoperability initiatives.

Zac has been a volunteer for BetterGrids since its inception in 2017, and as a Co-Founder of DataCapable he has been generous in offering financial donations to the BetterGrids Foundation throughout this time period. As a strong supporter, he has been continually engaged in the BetterGrids Tech Committee, participated in the Secure Grid Data Exchange Working Group, and has shared ideas to foster the growth of BetterGrids. Thank you, Zac, for your continued enthusiasm and support for the BetterGrids Foundation initiatives.

2022 Performance Goals – End of Year Update

We achieved and exceed all of our 2022 Performance Improvement Goals.

BetterGrids Foundation 2022 Performance Improvement Goals (PIGs)

Area	Metrics	Baseline (2016)	2017	2018	2019	2020	2021	2022 Threshold	2022 Goal	2022 As of Dec 31, 2022
Repository	Number of registered accounts	0	120	299	386	496	659	600	700	812
	Number of items in the repository	0	291	413	454	469	499	500	550	593
	Number of downloads per year	0	3900	143565	1464	1606	2352	1700	2000	2829
Marketing	Number of committee members (i.e., "Community Volunteers")	0	55	>56	60+	66	67	60	70	71
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	10000	15000	15000
	Annual expenses ($)	0	4268.35	585	298	2933	8538	35000	30000	16525
Strategic	% Strategic PIGs completed	NA	81	60	90	95	90	80	90	97
	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 December 12th, 2022, we hosted our Winter Technical Committee Meeting. Highlights included: Hoveida Family Foundation Donation, discussion of new models, updated usage statistics, review of goals and discussed action items needed to fulfill our 2022 goals. We also had some wonderful discussion on future webinar ideas! Thank you to all participants!

2022 Goal Progress

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

#	Performance on 2022 Strategic Goals
1	Create a BetterGrids Webinar Series and deliver six (6) educational webinars **Status: 5 Webinars in 2022 (See details for all 2022 webinars on BetterGrids.org)**
2	Increase community engagement in BetterGrids Forum to 25 Registered Users **Status: We have 26 registered users**
3	Conduct a formal Fundraising Campaign **Status: Received $10k funding from Hoveida Family Foundation, $1k from DataCapable and $5k from the Vojdani Trust (Thank you Donors!)**
4	Perform 6 new Outreach Events **Status: 7 total: 5 webinars, IEEE session, GridWise Alliance Publication**
5	Increase the number of BetterGrids Partners to Six (6) **Status: Six Partners including DataCapable, GridBright, the Hoveida Family Foundation, Opus One/GE, UC Riverside 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
Model Contributors	6	9	16	19	24	25	26	28	29	29
Registered Accounts	120	207	299	317	378	410	496	648	748	801
Model Collections	13	13	13	13	14	14	14	14	15	15
Distinct Models	291	314	413	441	448	454	469	504	567	591
Model Files	817	881	1015	1269	1289	1308	1395	1439	1567	1606
Models Total Sizes (Mb)	615	2988	4741	4787	6130	6670	10701	10703	11603	11858

Industry Outreach – Webinars

We ended 2022 by hosting 2 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.

PV Integration using a Virtual Airgap

> **Summary**: Sunshine or Shade—Do you know when or where? Most utilities are reticent to integrate BTM telemetry with control room systems because it violates the 'airgap' principle for mission-critical Operations Technology (OT). But acquiring real-time PV generation data and integrating it into utility and new energy aggregators operations is a critical need for the effective integration of DER into grid operations for flexibility and resilience. The 'Virtual Airgap' concept is a cloud-based integration layer that decouples PV data collection from OT systems like EMS or ADMS. You will find the link to the recording on the BetterGrids.org Website.

Demystifying the Common Information Model

> **Summary**: The Common Information Model (CIM) can serve as a key enabler of power system model exchange, data integration from multiple sources, and creation of data-rich application environments by providing an ontology and data exchange mechanism that is supported by an increasingly large community of vendors and utilities. The CIM is introduced in the context of creating standards-based platforms to reduce the time, cost, and difficulty of integrating advanced grid functionalities to create a more reliable and resilient grid. Key concepts related to adoption of the CIM (including selection of a CIM profile, creation of a data profile, and selection of a database schema) are outlined.You will find the link to the recording on the BetterGrids.org Website.

Thank you to our amazing panelists for sharing their incredible knowledge throughout this webinar series in 2022. We appreciate your support! We are excited to offer more webinars in the future, and look forward to hearing from more industry professionals as we work our way through 2023.

Thank you to all of you!

We hope that 2023 brings you great health and happiness. 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

Please reach out on the forum https://db.bettergrids.org/forum/forums/list.page if you'd like to discuss a particular topic in depth. We'd love to hear from you.

If you have any ideas for Webinars, Forums or continued engagement, please reach out to us at BetterGridsEngagement@BetterGrids.org

Stay Current

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