“Train the Trainer/Champion”

A DisTT Sync’d measurements promotion project

July ‘25 Task Teams Virtual Meeting

Panayiotis (Panos) Moutis

Assistant Professor,
City College (CCNY) of the University of New York (CUNY)

Thanks for hosting us EPRI!

Presentation Outline

- Rationale & aims of the project
- Material Outline with Development Notes
- Next Steps

Q&A and interjections open throughout this presentation!

“Train the Trainer/Champion”

- NASPI has previously trained senior engineers (trainers) in TSOs/RTOs with the aim to diffuse that training within the organizations
- After surveying cases of PMU adoption by utilities we concluded that engineers have not been the driver of said adoption
- PMU adoption in distribution stakeholders came from management or decision maker roles (“champions”)
- In Fall ‘23 NASPI WG meeting SRP, V&R and ComEd presented their experiences of PMU adoption
- ***Today we present & discuss the outline of this material***
  - Thank you Mariana & Farrokh (Aminifar)!

The City College of New York

IEEE PES Power & Energy Society®

NASPI

IET

Thanks for hosting us EPRI!

Why design "Train the Champions" material for distribution system stakeholders?

- NASPI's role in the space
- NASPI has done it with transmission; should do it for distribution, too
- Few utilities deploy PMUs sporadically & without standards in effect
- Invite more distribution stakeholders within NASPI & strengthen the initiative's role in a very fragmented space
- Strengthen the overall community and suite of applications/tech

Aims for this project

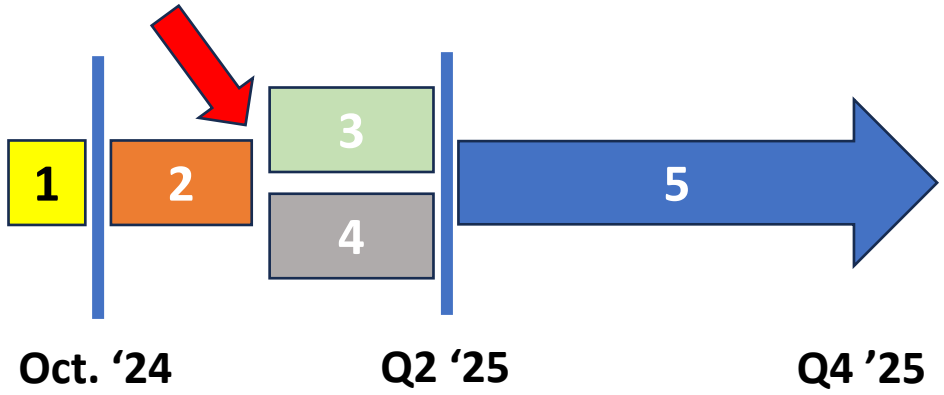
- Engage at least 20 utilities and/or other distribution stakeholders
- Combine with vendors' materials and…
- …engage with vendors, OEMs, advisors (at least 3)
- Attract at least 5 distribution stakeholders to NASPI activities
- Trigger at least 3 projects with sync'd measurements in distribution

Timeline: 1-2 years from publishing of material

Thanks for hosting us EPRI!

Implementation steps

1. Outline of “Train the Champion” material
2. Plans for a slide-deck & video
3. Produce actual material – 3-5 months (monthly DisTT meetings)
4. Design promotion strategy – parallel to 3 (monthly DisTT meetings)
5. Disseminate material and review – 5-8 months



The City College of New York

IEEE PES Power & Energy Society®

NASPI

IET

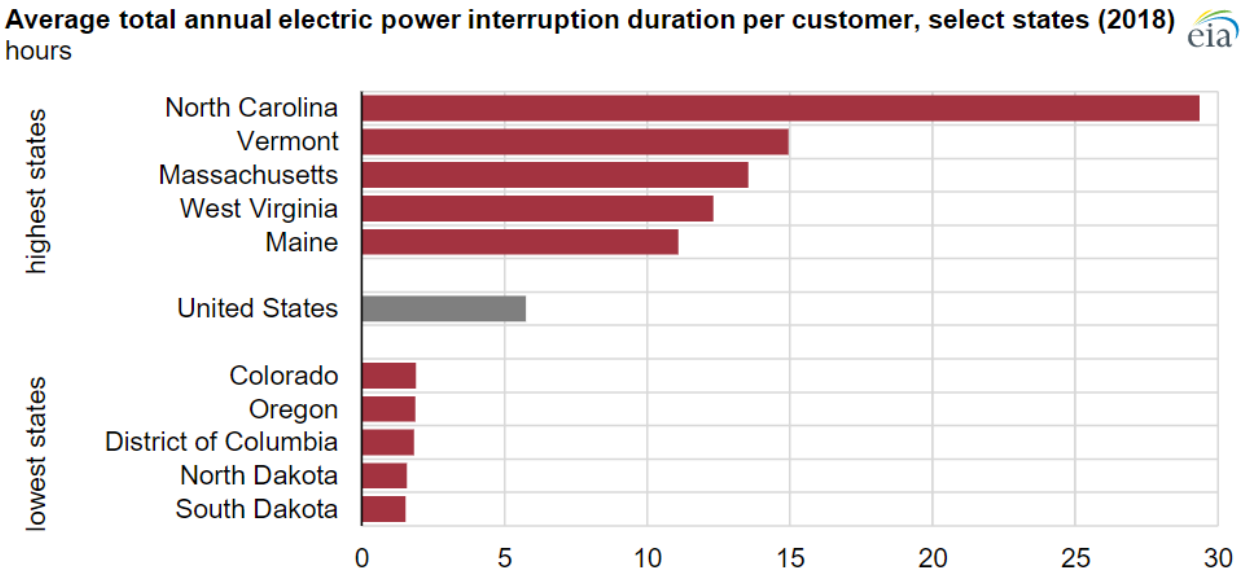
Thanks for hosting us EPRI!

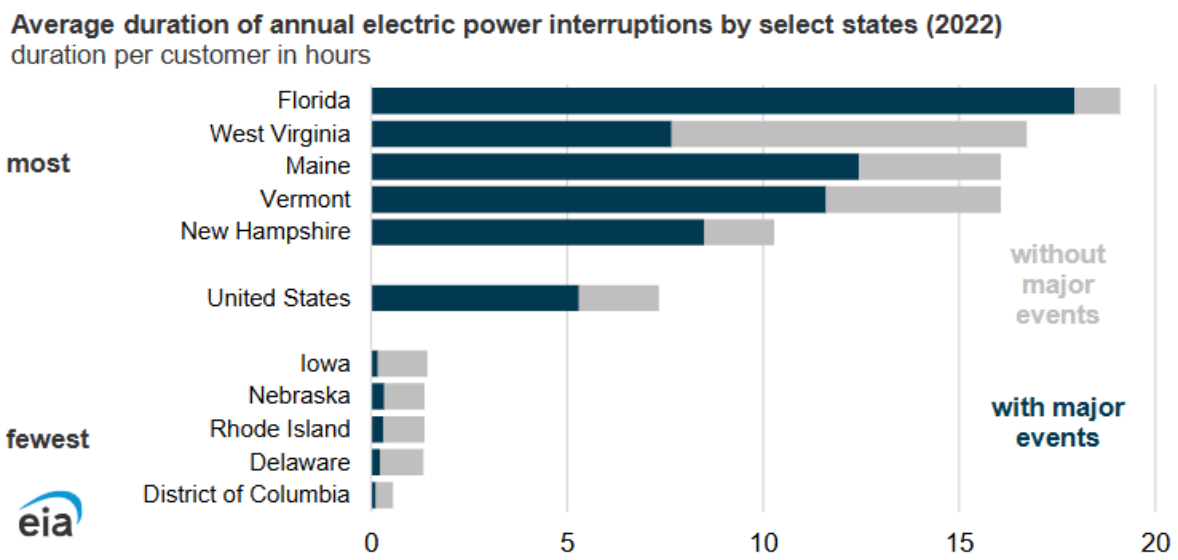
Video/Deck Outline

1. Opening: What, how, why and future of Challenges in Distribution?
2. Management Buy-In: Immediate & readily to implement applications
3. Management Champion: Engage Utility Leadership
4. NASPI Stewardship: Hub of Expertise & Experience

Opening – 1/4

- No such thing as distribution system without (costly) interruptions
- Black-outs infrequent, yet still interruptions as high as 15h/household





The City College of New York

IEEE PES Power & Energy Society®

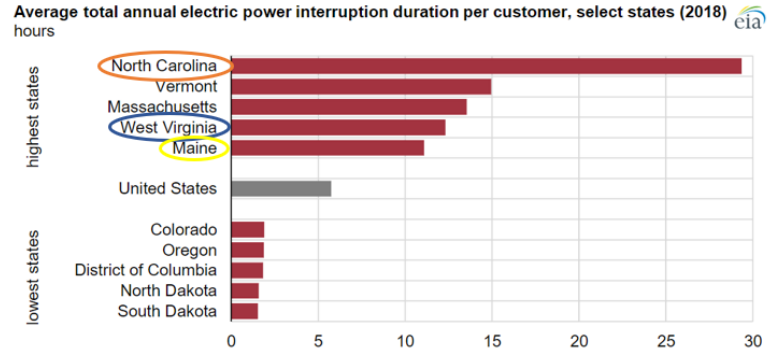
NASPI

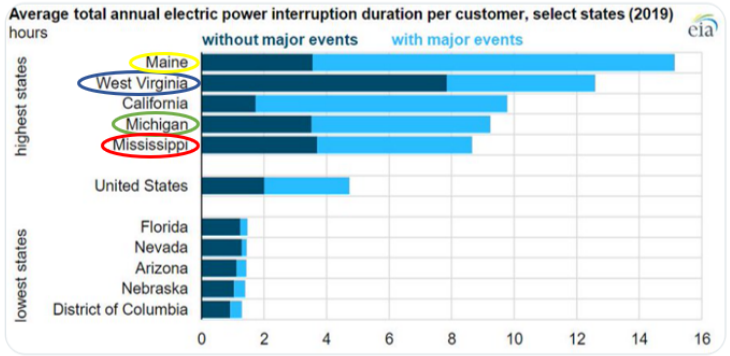
IET

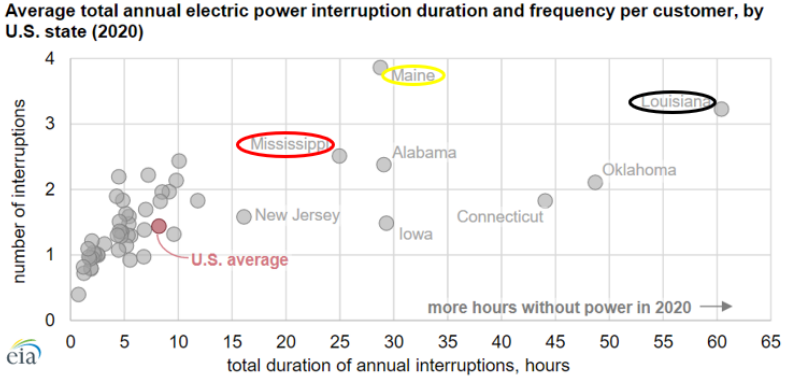
Thanks for hosting us EPRI!

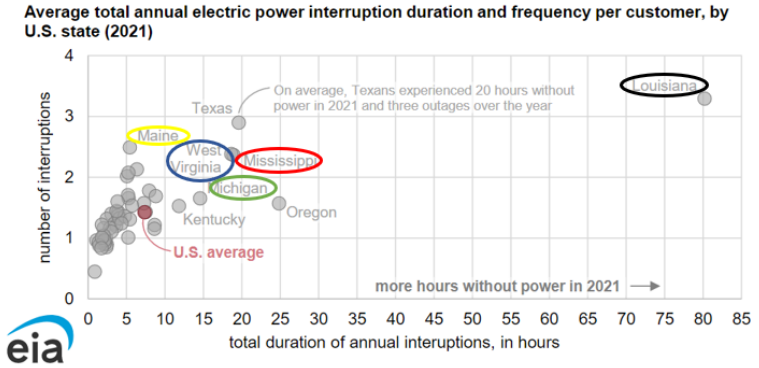
Opening – 2/4

- Two types of states persistently with high outage times
- <u>Type 1</u>: poorer States









Rank	STATE	Household Income (increasing)
1	MISSISSIPPI	$57,148
2	WEST VIRGINIA	$58,126
3	NEW MEXICO	$60,728
4	LOUISIANA	$61,042
5	ARKANSAS	$61,212
6	KENTUCKY	$61,790
7	ALABAMA	$63,401
8	OKLAHOMA	$66,786
9	TENNESSEE	$66,989
10	SOUTH CAROLINA	$67,922
11	IDAHO	$68,818
12	INDIANA	$69,505
13	MISSOURI	$69,614
14	FLORIDA	$69,884
15	NORTH CAROLINA	$70,000
16	MICHIGAN	$70,163
17	OHIO	$70,209
18	GEORGIA	$71,504
19	MONTANA	$71,836
20	MAINE	$72,988
21	NEVADA	$73,083
22	ARIZONA	$73,262
23	TEXAS	$74,636
24	PENNSYLVANIA	$74,805
25	SOUTH DAKOTA	$74,820

2022 US Census Bureau Median Family Income

The City College of New York

IEEE PES Power & Energy Society®

NASPI

IET

Thanks for hosting us EPRI!

Opening – 3/4

- Two types of states persistently with high outage times
- Type 2: States in the path of severe weather phenomena

POLITICO

CALIFORNIA

California has first rolling blackouts in 19 years — and everyone faces blame

A pedestrian looks at a sign posted on the door of a hardware store during a citywide power outage in San Francisco, Calif. | Justin Sullivan/Getty Images

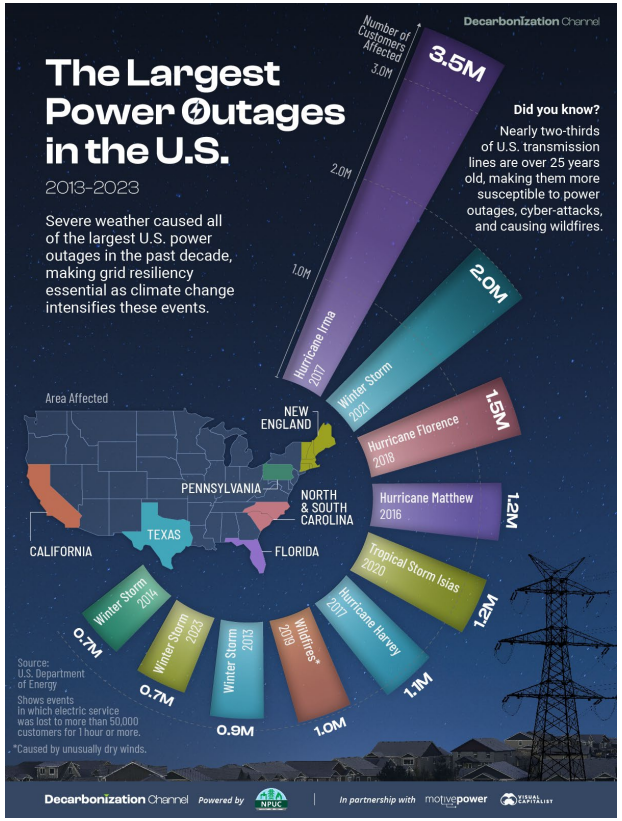
THE TEXAS TRIBUNE We want to hear from readers like you. Please take this quick survey to help us better understand our audience. TAKE THE SURVEY

Almost 70% of ERCOT customers lost power during winter storm, study finds

Texans in ERCOT's service area who lost electricity were without power for an average of 42 hours, according to the study. They had been told to prepare for short-term, rolling outages.

BY NEELAM BOHRA MARCH 29, 2021 5 AM CENTRAL SHARE REPUBLISH

As the updated death toll from February's winter storm reached 111 deaths last week, the severity of its full force has continued to come into focus. Food pantry manager Farrah Rivera maps out routes to residents' rooms at the Rebekah Baines Johnson Center, an assisted living facility in Austin, on Feb. 17. Montinique Monroe for The Texas Tribune



The City College of New York

IEEE PES Power & Energy Society®

NASPI

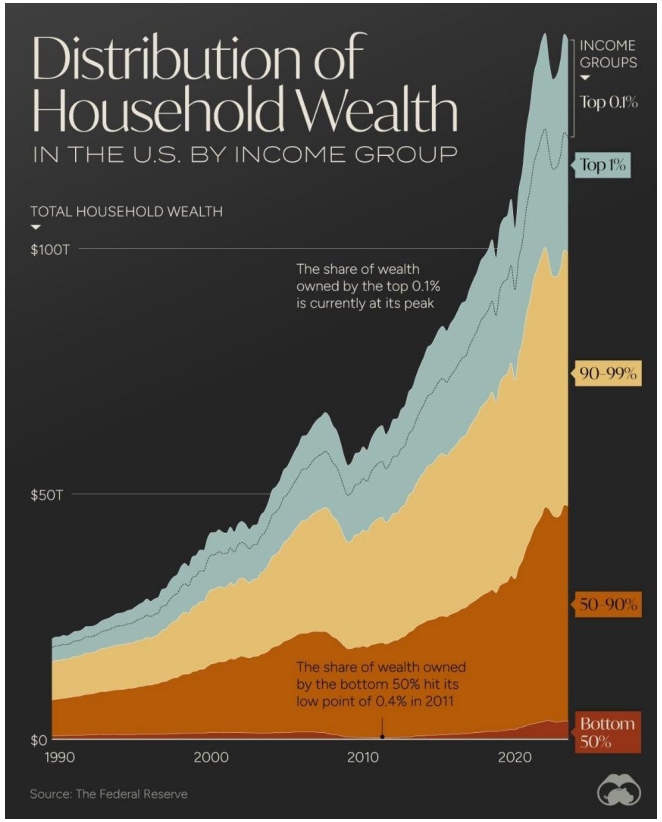
IET

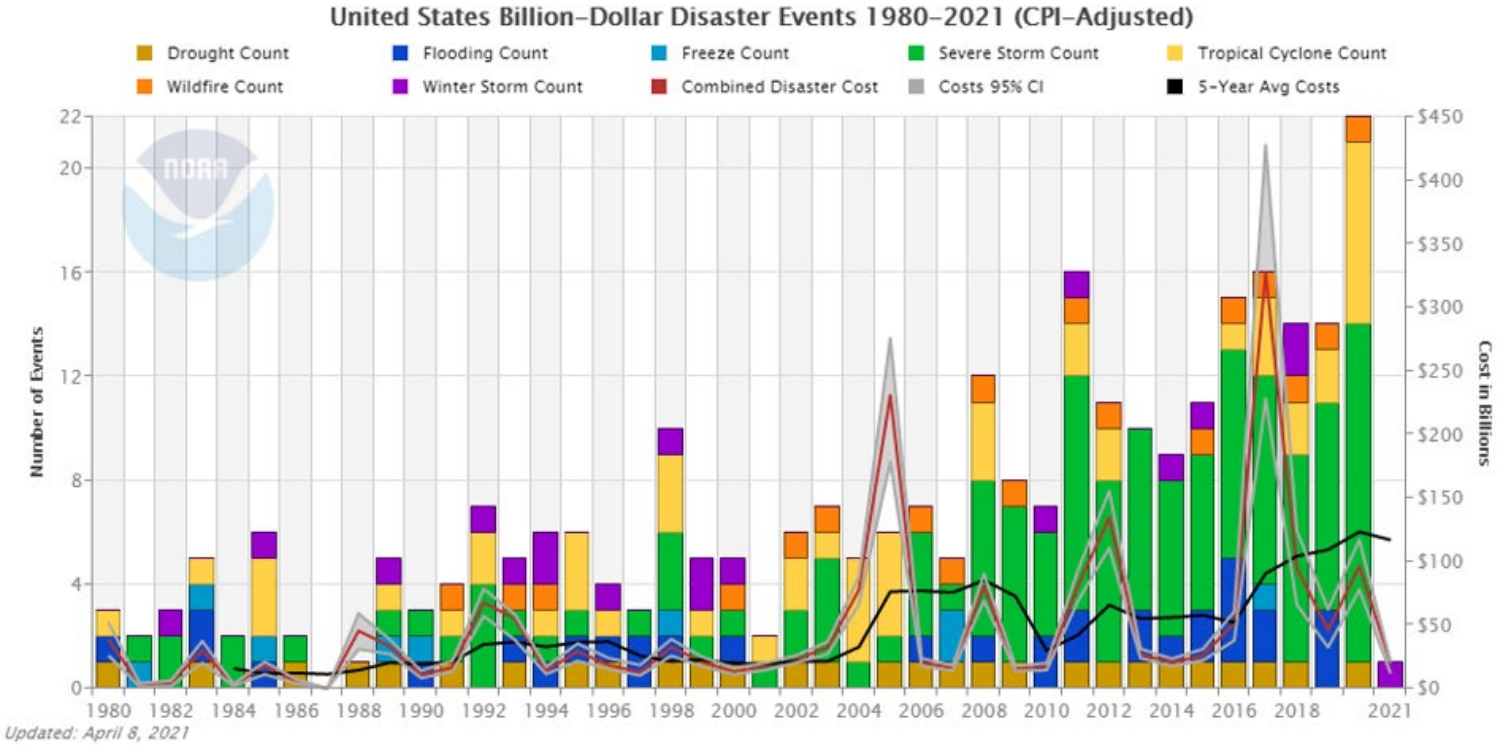
Thanks for hosting us EPRI!

EPRI

Opening – 4/4

- Income inequality worsens & more frequent extreme weather phenomena
- **Bottomline**: <u>More and longer disruptions are imminent</u>.





The City College of New York

IEEE PES Power & Energy Society®

NASPI

IET

Thanks for hosting us EPRI!

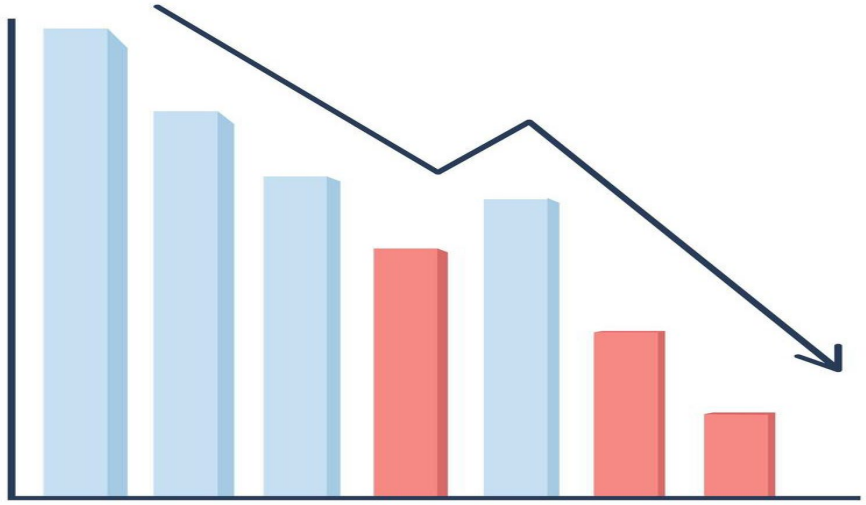
Opening – Director's Notes

- Narrator
- Show all (?) sync'd measurement vendors/stakeholders or ecosystem
- Clarify statements about interruptions from EIA data
- Even grid investments alone do not guarantee reliability (Yoav)
- Balance "risks" with opportunities thanks to sync'd measurements

The Management Buy-In – 1/3

Aiming for the "lowest & cheapest hanging fruit"

- List typical prices of Phasor Measurement Units (PMUs)
- Note integration of PMUs with protection devices



The Management Buy-In – 2/3

Aiming for the "lowest & cheapest hanging fruit"

- Error eventuality with signs (Don Russell's works)
- Prevent/reduce repair/intervention costs

Figure 2. Failing jumper, arcing but providing service, without customer complaint (case study 1)

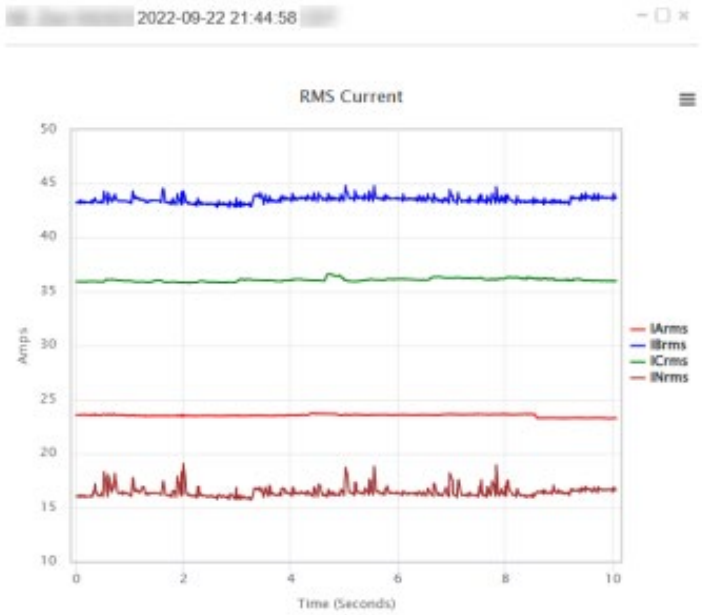


Figure 3. Substation-based RMS current during condition of Figure 2 (current = load + event)

The Management Buy-In – 2*/3

Significant Value proposition: Model Validation

- (in spite) broad monitoring needs…
- Several existing sync't measurement units (substation, switches)

The Management Buy-In – 3/3

Aiming for the "lowest & cheapest hanging fruit"

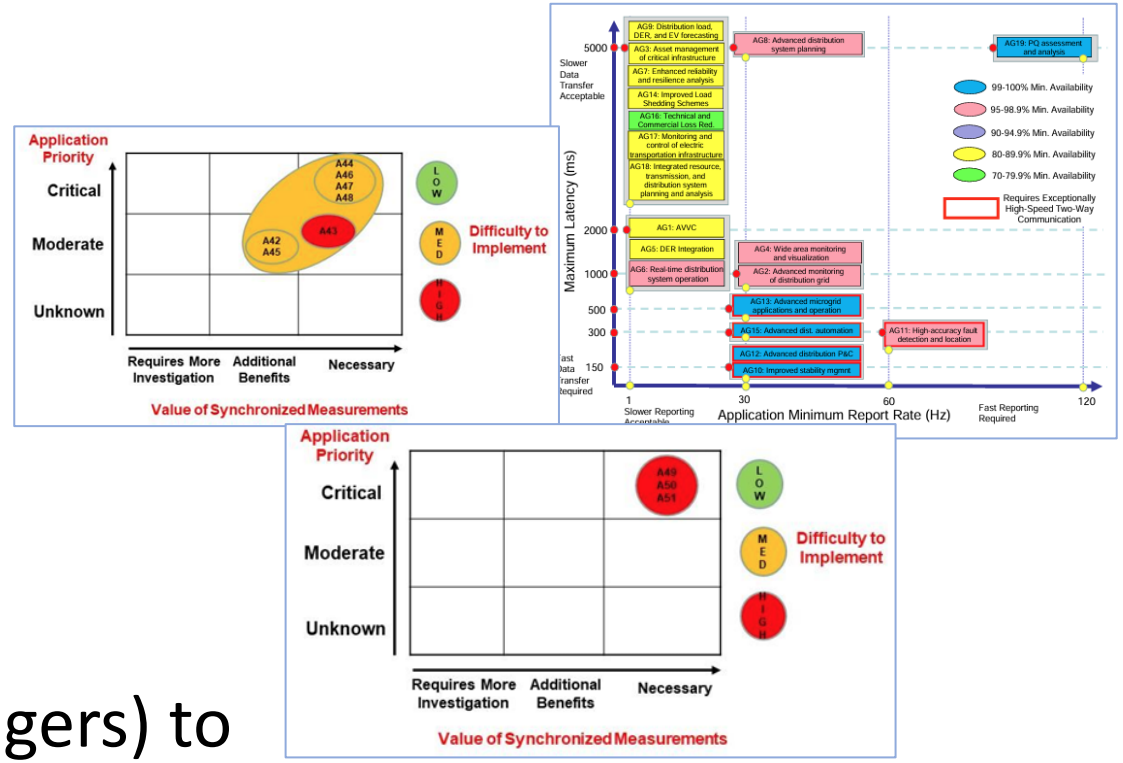
- More material and closing remark still "open" at this stage…

The Management Buy-In – Director's Notes

- Narrator
- Anti-trust laws
  - Discussions in aggregate (not picking "winners")
  - Instead of referring to prices referring to availability!
- Report historical price trends & technology/standard trends
- Issue with focus on the "hardware"
  - Installation expenses?
  - Supporting infrastructure for measurements?

Management Champion – Overview/TBD

- No two utilities have same priorities
- Distribution PMU review showed a messy landscape of value propositions
- Two alternatives for drafting roadmaps:
  - Objective internal survey
  - Work with a consultant
- Build a diverse team (engineers & managers) to draft and implement the roadmap, and join NASPI
- **Bottomline**: A *plan* & a *team* are necessary, and NASPI can help.



Management Champion – A People's Thing?

- Are we looking into the wrong lens?
- Identify innovative departments/groups?
- Identify people and "train" them through WG meetings?

Management Champion – Director's Notes

- Narrator
- Include a guide for potential "Champions"?
- Conflicts of Interest
  - Certain developers/utilities favored?
- Issue with focus on "existing projects"
  - Consider contribution from QuantaTech-SDG&E report Authors'?

NASPI Stewardship – Overview/TBD

- List NASPI members & contributors (maybe video/written testimonies)
  - Preferably in 2 categories (tech/project providers & users)
  - Incl. project examples/demos
- Existing materials, documents and webinars
- Organize knowledge/experience exchange events regularly
- Portion of DisTT yearly break-outs solely focused on industry updates

NASPI Stewardship – Director's Notes

- Who presents?
  - Jim/Jeff to introduce NASPI
  - Panos to introduce the DisTT
  - Long-standing members (Ken?) to point the value of NASPI/DisTT
  - Narrator for publications and others
- Photo dump animation
- Closing shot?
  - NASPI meeting photo?
  - NASPI logo?
  - PMU?
  - Other?

Overall Material – Director's Notes

- Time/focus distribution?
  - Opening (1') >
  - Management Buy-In (2') >
  - Management Champion (2') >
  - NASPI Stewardship (1.5').
- Experienced "In-House (EPRI, PNNL, DoE)" creator for guidance?

Next Steps

- Monthly DisTT calls to keep developing the material
- Invite volunteers & contributors
  - Get people to stand in front of cameras and mics
  - Get material to share on the video without ©
- Compile the material
- Demo it in 2025 ~~Spring~~ Fall WG meeting

Thanks for hosting us EPRI!

Mark your Calendars

June 1st-4th, 2026

Santiago, Chile

Technical Program Committee Chairs

Panagiotis Moutis, CCNY, USA

Sara Sulis, University of Cagliari, Italy

The City College of New York

IEEE PES Power & Energy Society®

NASPI

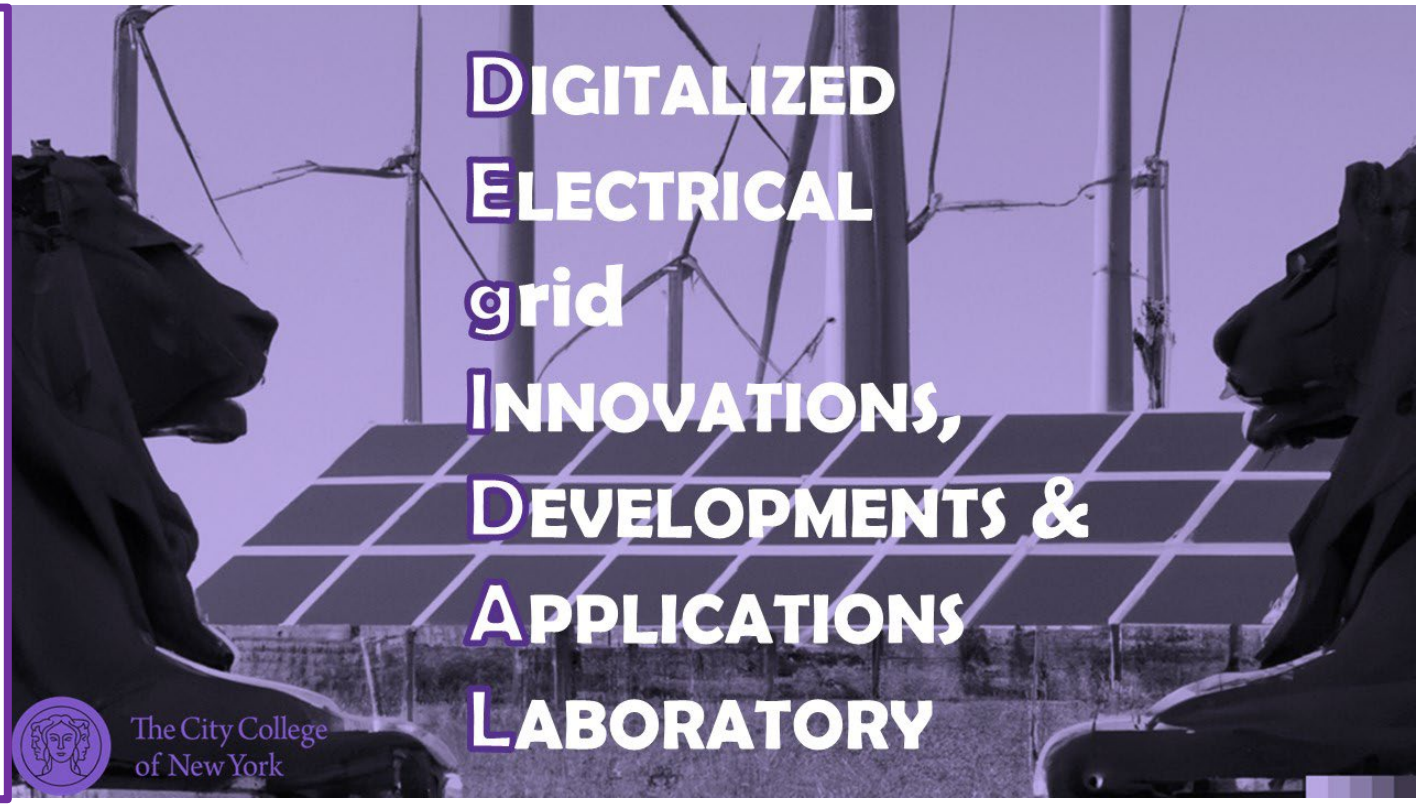
IET

Thanks for hosting us EPRI!

Thanks for your attention!

http://panay1ot1s.com

Twitter: @PMoutis
LinkedIn: Panayiotis Moutis



The City College of New York

IEEE PES Power & Energy Society®

NASPI

IET

Thanks for hosting us EPRI!