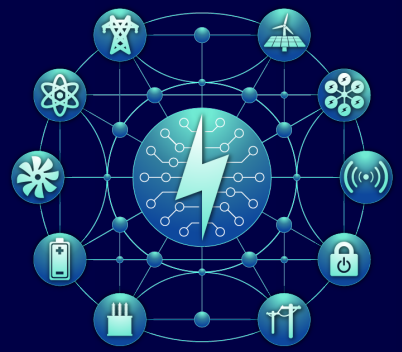
Open Power AI Consortium Member Representative Committee Meeting

November 2025

Agenda

Wednesday, November 19, 2025		
Time (EST)	Topic	Lead
11:00 am	Welcome & Key Updates • Meeting Overview • Work Group Updates • What's Coming?	Jeremy Renshaw, EPRI
11:10 am	Generative AI Integration into DNV Solutions	Dennis Washburn, DNV
11:30 am	Open Data Sharing via the IEEE DataPort	
11:50 am	Roundtable Discussion	All
12:00 pm	Adjourn	All



Powered by EPRI

OPEN POWER AI CONSORTIUM

Our Work Groups

Domain-specific model

Domain-specific model trained on energy-specific datasets

Use Case Sandbox

Identify, prioritize, and evaluate real-world applications

Implementation

Share methods & best practices for AI deployment and scaling

Harnessing AI's transformative potential for a resilient, cost-effective energy future through collaboration

Open-source data and AI models for industry-wide value

NVIDIA. Google databricks

Microsoft ORACLE aws

Learn More:
msites.epri.com/opai

Domain-Specific Model Includes Knowledge from

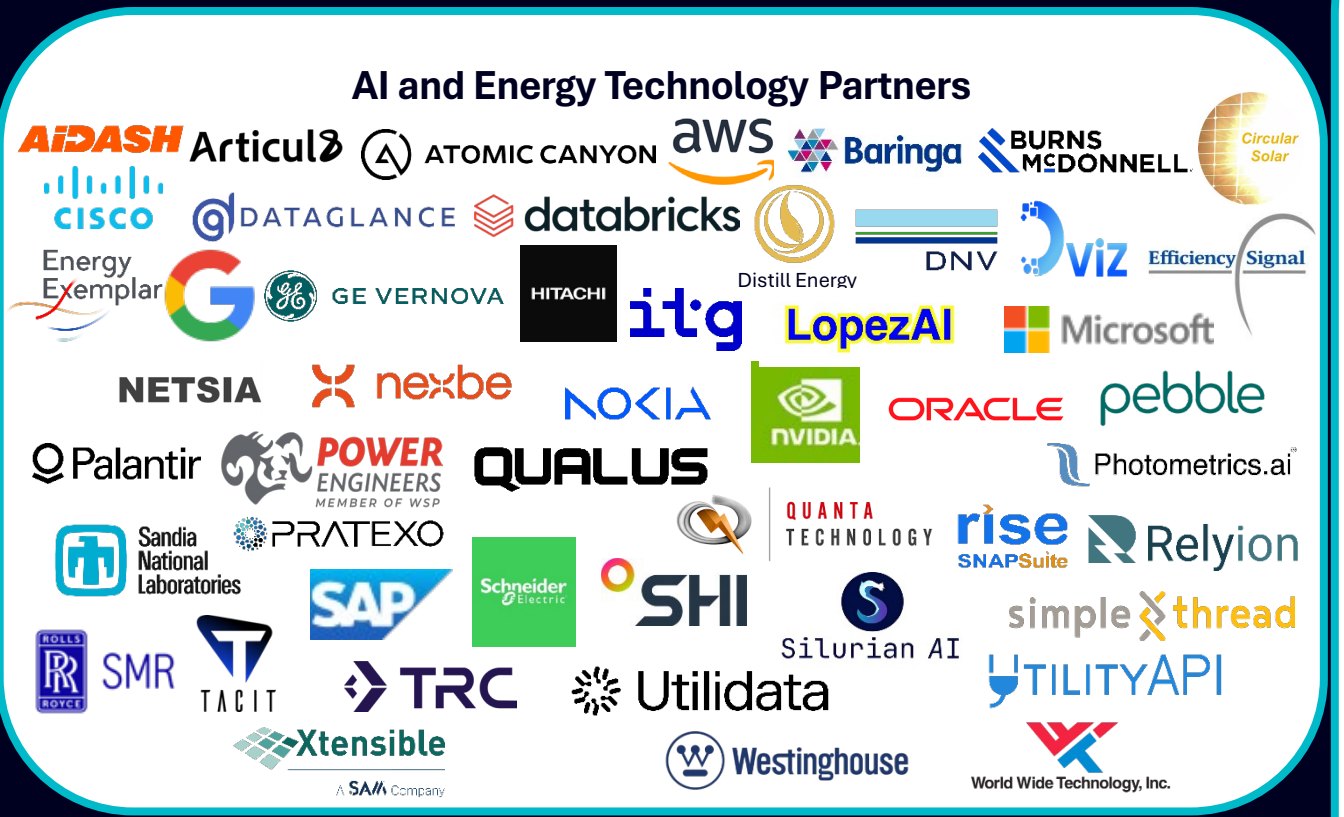
>10,000
EPRI reports

250+
use cases identified for consortium prioritization and development

Join us in Shaping the Future of AI and Energy

OPAI Participants

AI and Energy Technology Partners



Academia & Other Strategic Partners

Energy Partners

Data Readiness White Paper

How can we properly leverage data to support AI initiatives?

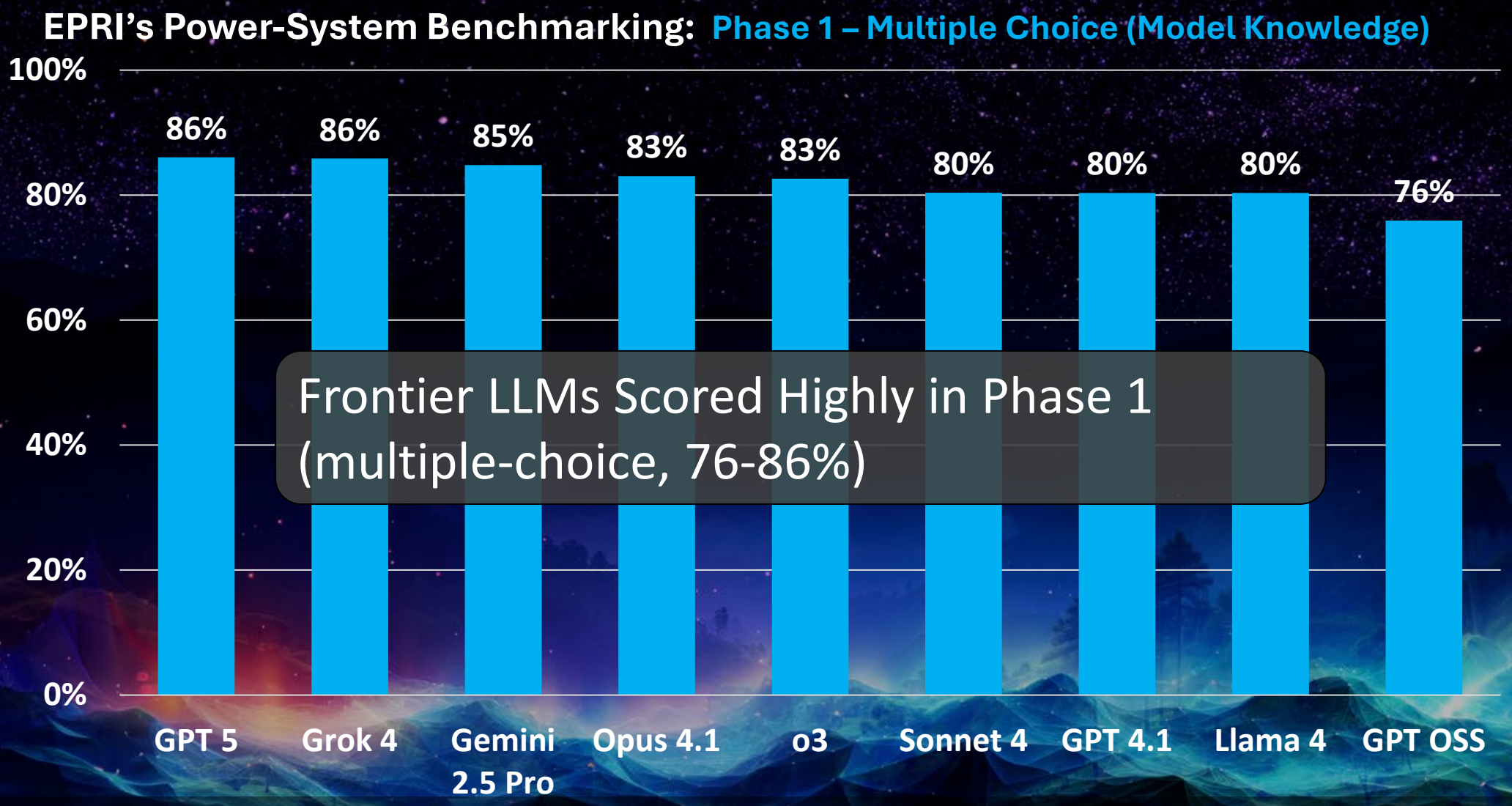
EPRI

2025 White Paper

AI Readiness in Utilities: Turning Data into Strategic Advantage

The first in a series of guidance documents to accelerate AI implementation

Benchmarking LLMs – Report in Publication



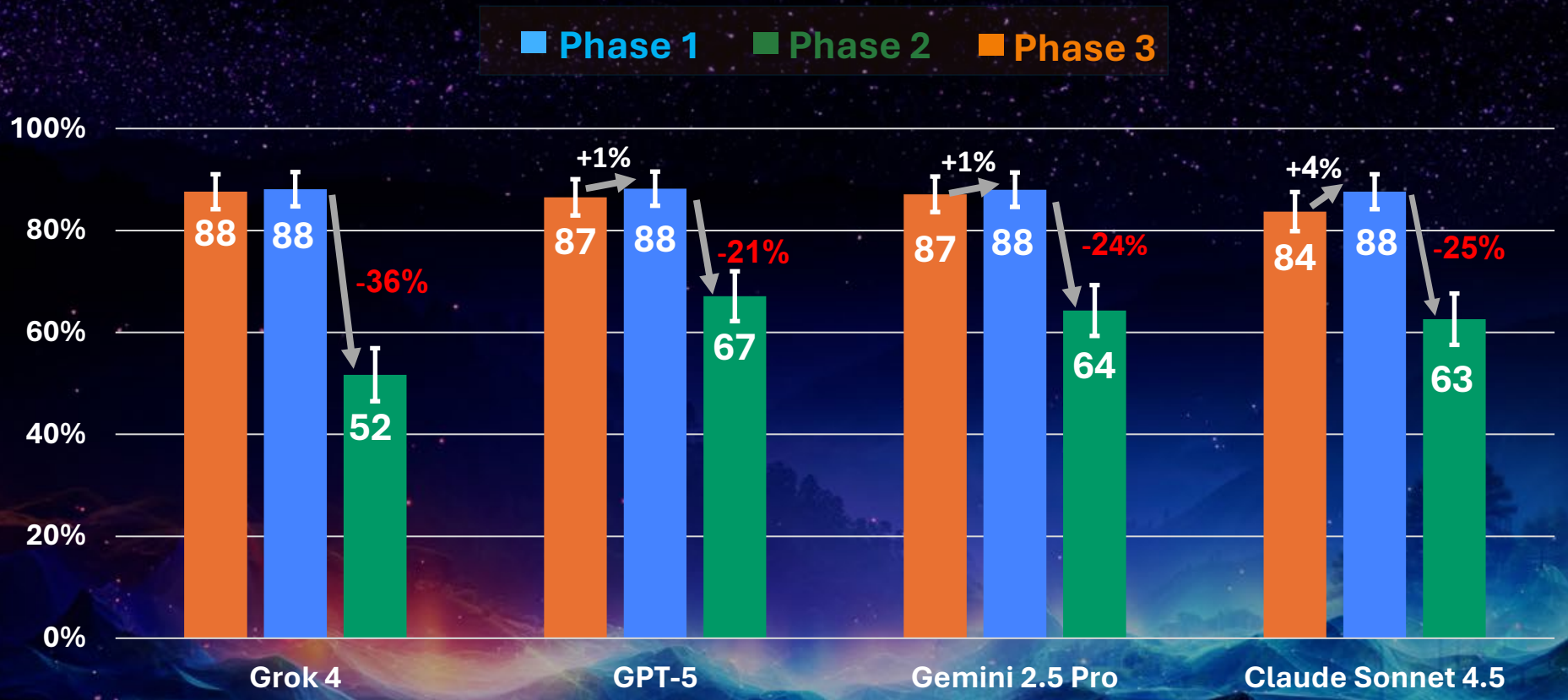
Additional LLM Details: **GPT 5**: openai/gpt-5-2025-08-07; **Grok 4:** grok/grok-4-0709 ; **Gemini 2.5 Pro**: google/gemini-2.5-pro; **Opus 4.1**: anthropic/claude-opus-4-1-20250805; **o3**: openai/o3-2025-04-16; **Sonnet 4**: anthropic/claude-sonnet-4-20250514; **Llama 4**: azureai/Llama-4-Maverick-17B-128E-Instruct-FP8; **GPT OSS 120b**: openai/openai/gpt-oss-120b

Model Accuracy depends on the model, available tools, and question type

Models score higher on multiple-choice versus open-ended questions

EPRI's Power-Systems Benchmarking – from multiple choice to open-ended questions

Phase 1 – MCQs (Model Knowledge) → Phase 2 – MCQs (Model + Web Search) → Phase 3 – Open-Ended (Model + Web Search)



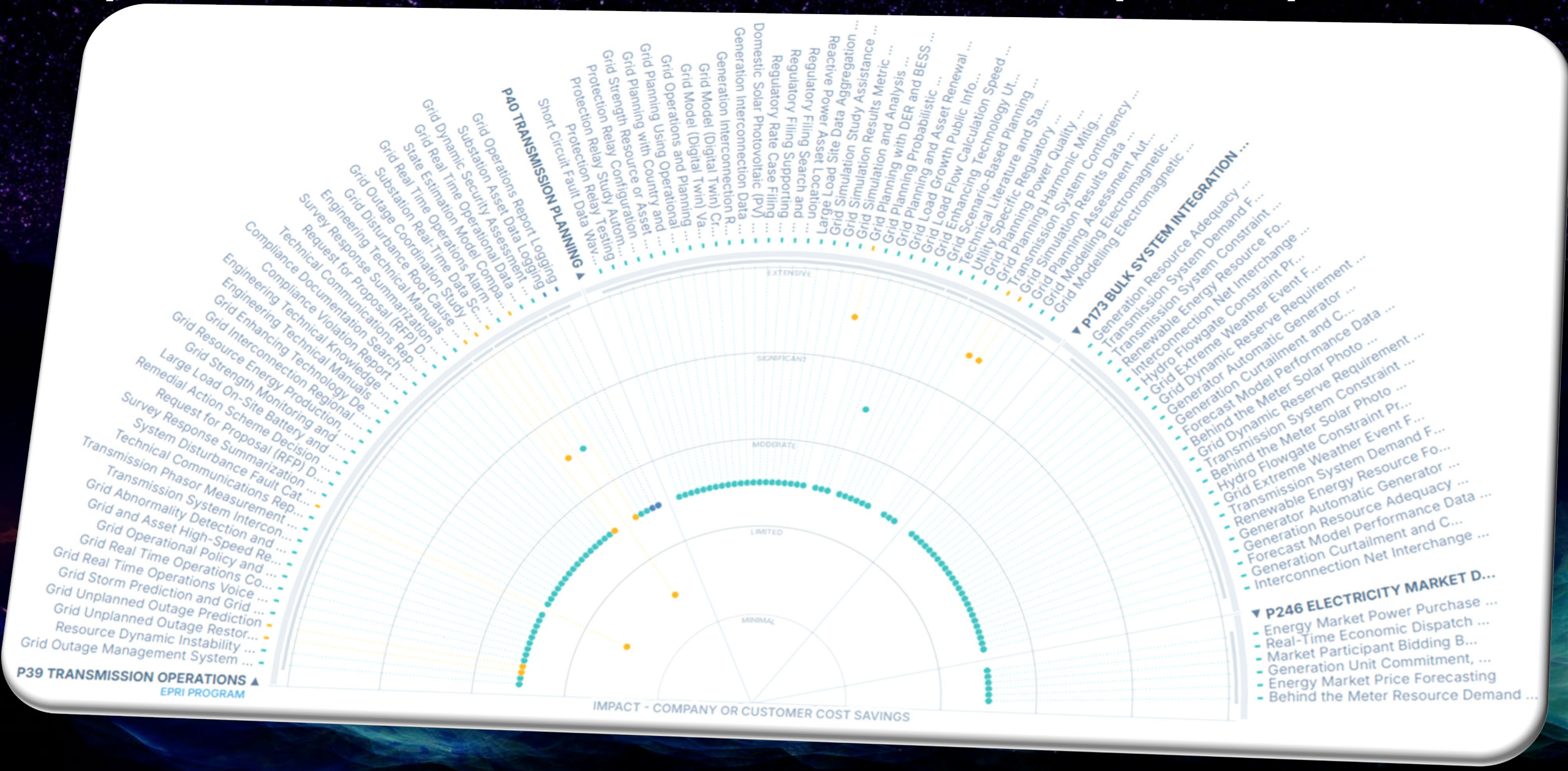
Web search had a small, mixed effect on model accuracy.

Phase 3's open-ended questions increased variability and reduced scores.

Difficulty-weighted scores reported to tighten dispersion across easy/medium/hard questions using weights of 1, 2, and 3 for easy/early-career, medium/experienced engineer, and hard/SME questions respectively. Each model was evaluated **three times** to measure run-to-run variability and ensure the results are statistically robust. **The median of the three is reported along with bars depicting the 95% confidence interval using the methodology here:** Data Analysis Toolkit 12: Weighted Averages and their Uncertainties, Adding Error Bars to Evals: A Statistical Approach to Language Model Evaluations

Additional LLM Details: **Grok 4:** grok/grok-4-0709; **GPT 5**: openai/gpt-5-2025-08-07; **Gemini 2.5 Pro**: google/gemini-2.5-pro; **Claude Sonnet 4.5**: anthropic/claude-sonnet-4-5-20250929

Open Power AI Consortium – Use Case Repository



OPAI Use Case Survey – Example Format

Utility Survey

Technology Provider Survey

Same Use Case – Different Response

4. Advanced Metering Infrastructure (AMI) Data Validation

AI validates smart meter data by detecting anomalies, missing values, or implausible readings. Models compare real-time data against historical patterns and neighboring meters. Errors are flagged and corrected or imputed before billing or analysis. This ensures accurate consumption records and strengthens customer trust.

	Limited	Minimal	Moderate	Signifcant	Extensive
Impact - Company or Customer Cost Saving	○	○	○	○	○
Impact - Reliability of Resilience	○	○	○	○	○
Impact - Safety or Security	○	○			○
Implementation Complexity	○	○			○
Data Availability	○	○			○
Risk of Misoperation	○	○			○

Do you have an existing project for this use case in your co

4. Advanced Metering Infrastructure (AMI) Data Validation

AI validates smart meter data by detecting anomalies, missing values, or implausible readings. Models compare real-time data against historical patterns and neighboring meters. Errors are flagged and corrected or imputed before billing or analysis. This ensures accurate consumption records and strengthens customer trust.

TRL 1: Basic principles observed and reported	TRL 2: Technology concept formulated	TRL 3: Proof of concept	TRL 4: Laboratory validation	TRL 5: Relevant environment validation	TRL 6: Demonstration in relevant environment	TRL 7: Prototype demonstration in operational environment	TRL 8: System completed and qualified	TRL 9: Actual system proven in operational environment
○	○	○	○	○	○	○	○	○

Is your e mo of your technology for this use case? If so please elaborate

Click or Scan

https://www.surveymonkey.com/r/OPAI-Use-Cases-Utilities

https://www.surveymonkey.com/r/OPAI-USe-Cases-Tech-Providers

Generative AI Integration into DNV Solutions (DNV)

Open Data Sharing via the IEEE DataPort (IEEE)

WHEN TRUST MATTERS

genAI adoption in DNV Digital Solutions

Open Power AI Consortium Meeting

November 2025

Kurt Swakhoven
CTO DNV Digital Solutions

Dennis Washburn
Principal Product Manager Electric Grid
DNV Digital Solutions

Aaron Reicher
Head of Software Engineering Electric Grid
DNV Digital Solutions

160+ years of experience handling industry data and information

Since 1864, DNV has enabled organizations to advance the safety and sustainability of their businesses.

Over the last 56 years DNV has also gained a solid position as a trusted third-party software and digital solutions vendor, solving technical and operational challenges related to industrial assets.

DNV

A global assurance and risk management company

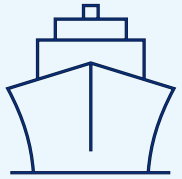
15,000+
employees

100,000+
customers

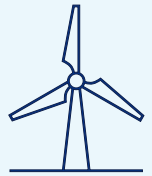
100+
countries

5%+
of revenue to R&D

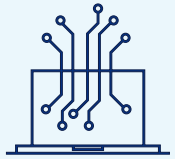
Ship and offshore classification and advisory



Energy advisory, certification, verification, inspection and monitoring



Software, cyber security, platforms and digital solutions



Management system certification, supply chain and product assurance

DNV

Digital Solutions

Leading software for a safe, efficient and sustainable energy supply

~ 56	1,000,000+	3,000+	20	~ 650
Years	Users	Companies	Product Brands	Employees

Electric Grid

Plant

Pipeline

Renewables &
Ocean Structures

QHSE

Assurance of Digital Assets

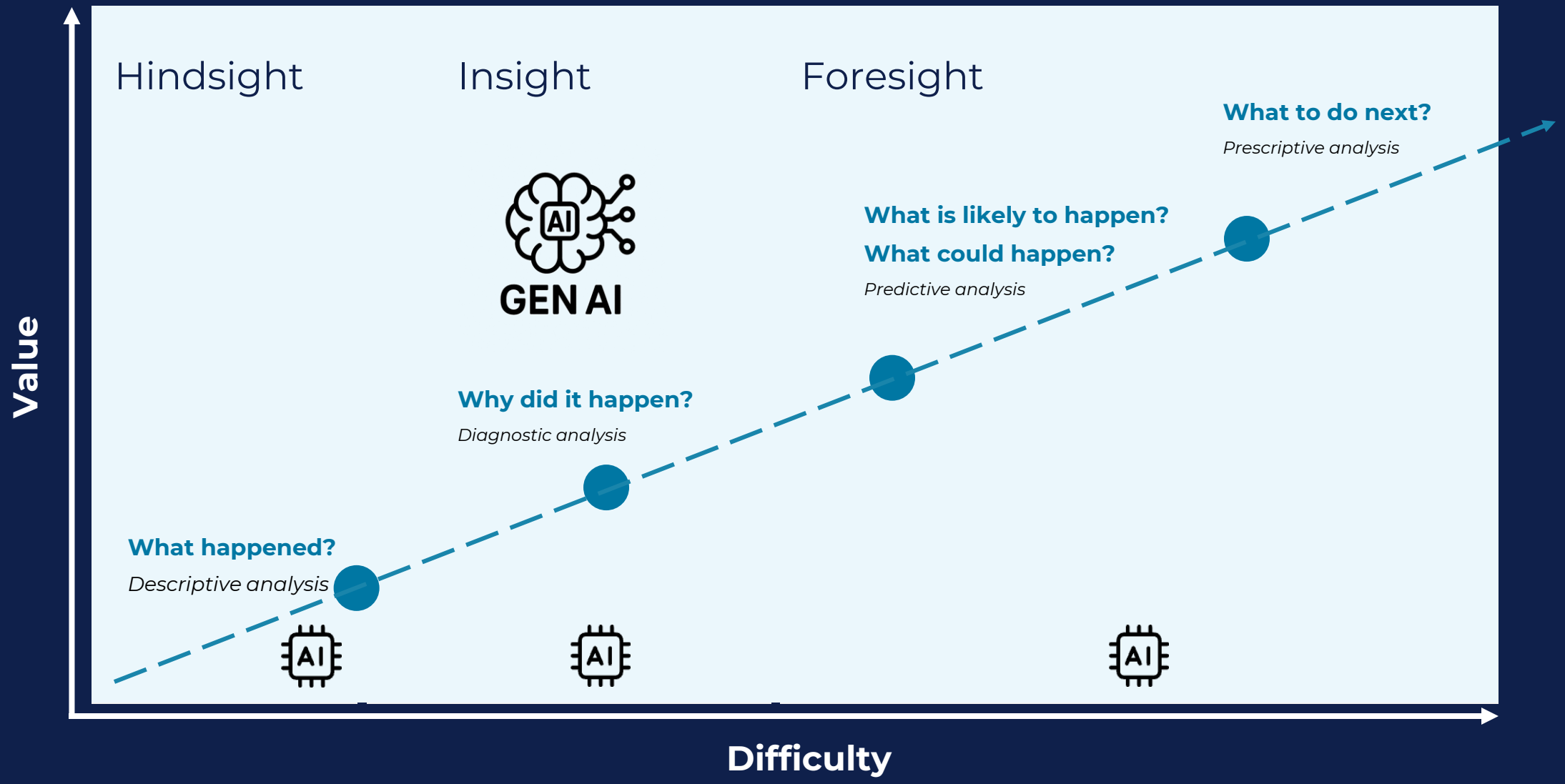
DNV

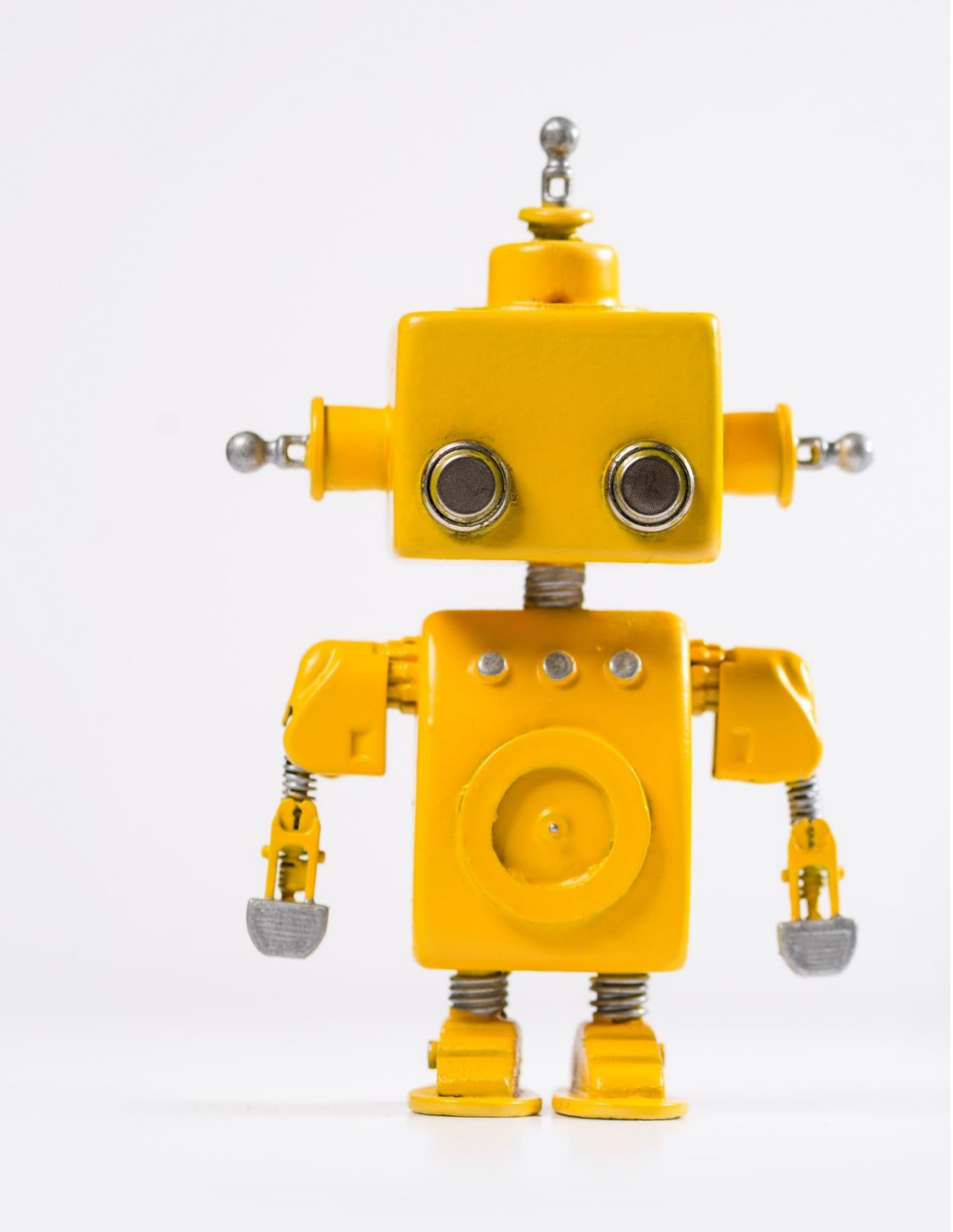
A trusted voice in global transformations

- Decarbonization
- Digitalization
- Sustainability
- Security

Managing growing system complexity

- Accelerating Technology Change
- Rising Regulatory Complexity
- Growing Stakeholder Expectations
- Increasingly complex business landscape


Hindsight
Insight
Foresight
GEN AI
What to do next?
Prescriptive analysis
What is likely to happen?
What could happen?
Predictive analysis
Why did it happen?
Diagnostic analysis
What happened?
Descriptive analysis
Value
Difficulty



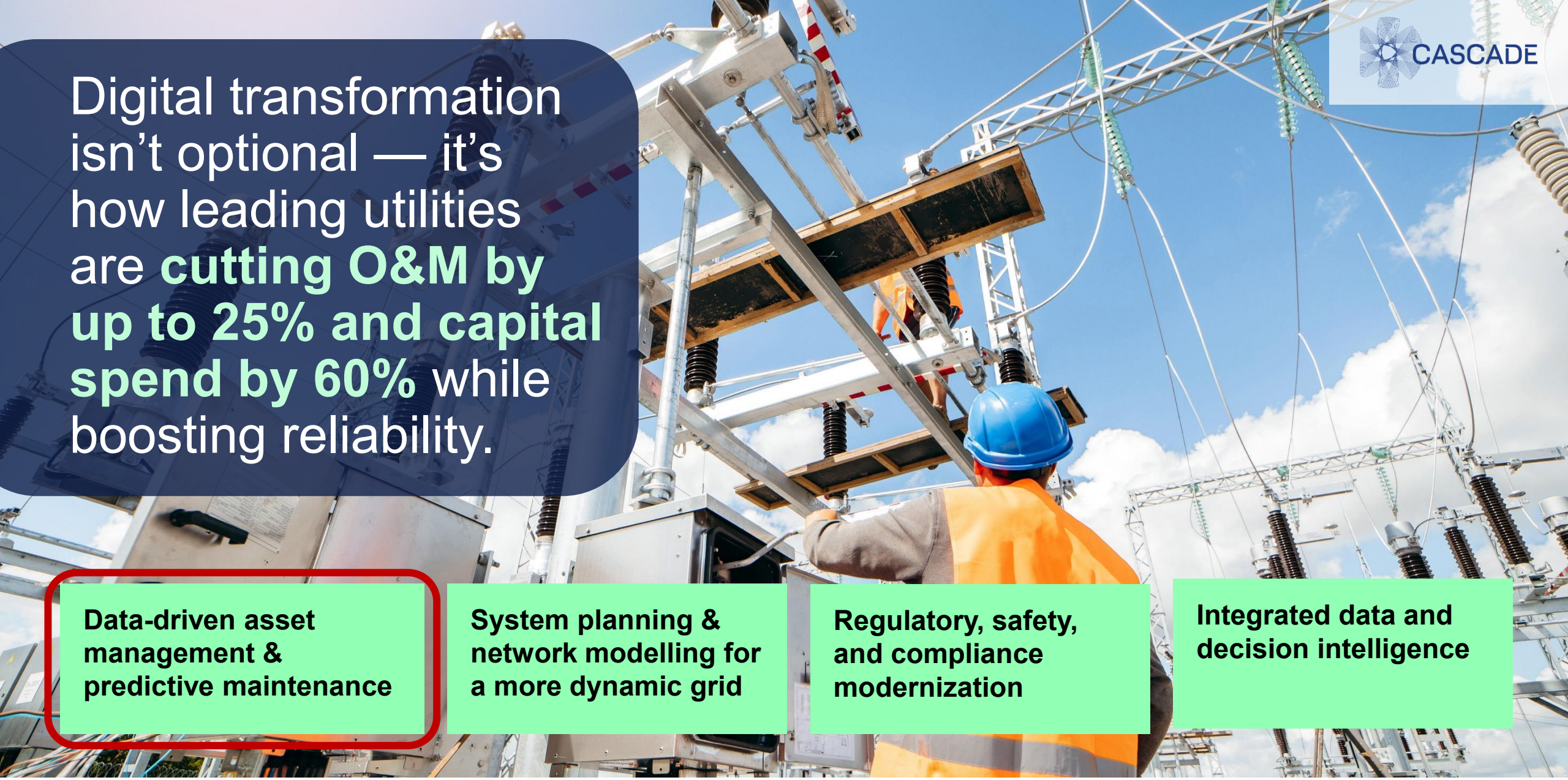
Current scenario for genAI

- Improve the existing user experience
- Navigate the growing amounts of data
- Improve quality of data
- Asking better questions
- Getting (better) answers faster
- Human in the loop

DNV

Cascade Asset Performance Management for Electric Grids

A **25% rise in U.S. power demand by 2030** means utilities must do more with the grid they have — through data, digitalization, and smarter decisions.



Digital transformation isn’t optional — it’s how leading utilities are **cutting O&M by up to 25% and capital spend by 60%** while boosting reliability.

Data-driven asset management & predictive maintenance

System planning & network modelling for a more dynamic grid

Regulatory, safety, and compliance modernization

Integrated data and decision intelligence

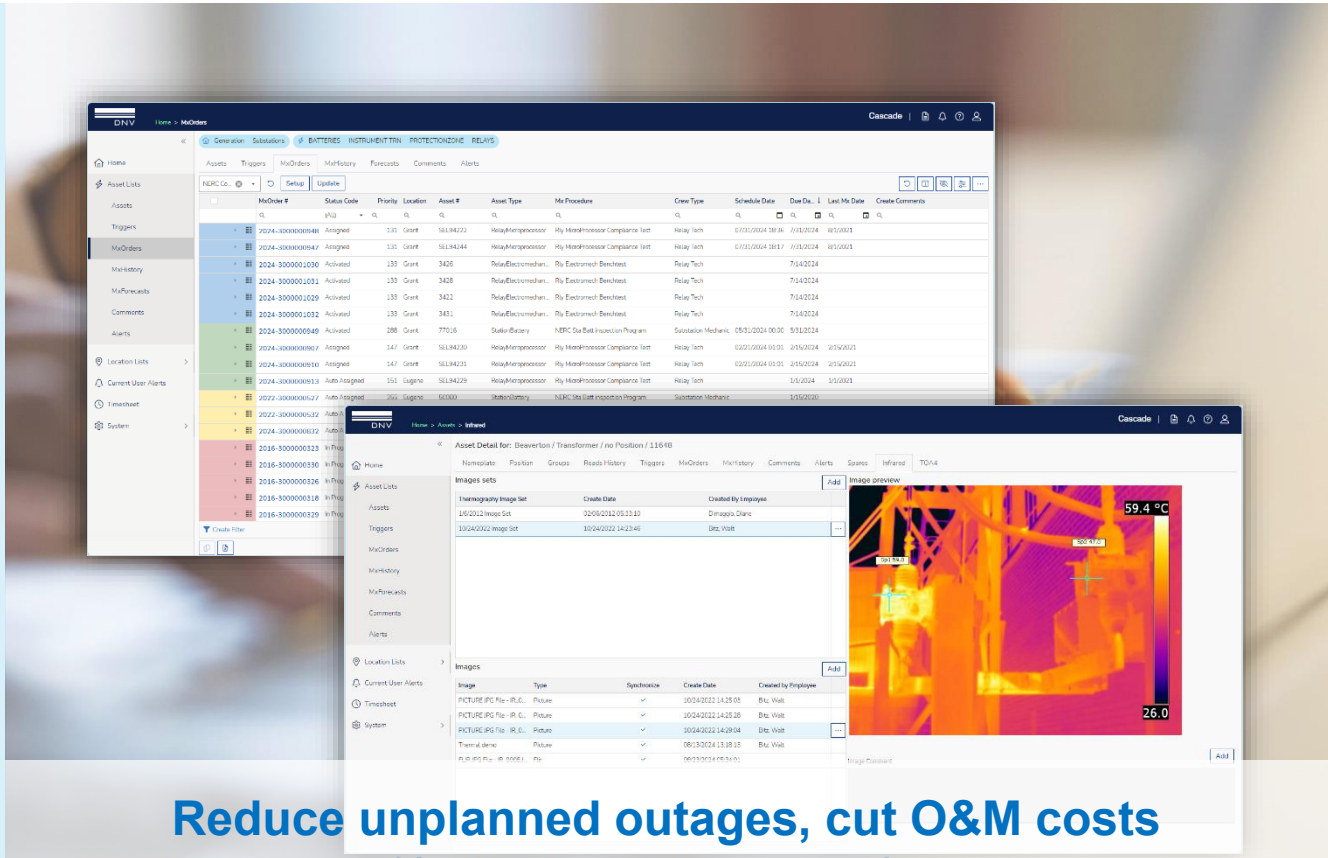
Enabling a data-driven approach to asset management & predictive maintenance

Moving from reactive or time-based maintenance to predictive, risk-based decisions demands data

Cascade delivers what utilities need for digital transformation and data-driven decisions

- Centralized asset health monitoring.
- Predictive analytics using condition, performance, and event data.
- Risk-based maintenance prioritization and lifecycle planning.
- Automated tracking of inspection, maintenance, and regulatory compliance records.

In what ways can AI be used to improve asset performance management in Cascade?



Reduce unplanned outages, cut O&M costs 20–25% and extend asset lifecycles.

Speak Easy AI for Cascade

Introducing AI to Cascade

Hypothesis

Address customer pain points

Start simply and evolve

Build trust

Experiment

Hackathon

AI Design Sprint

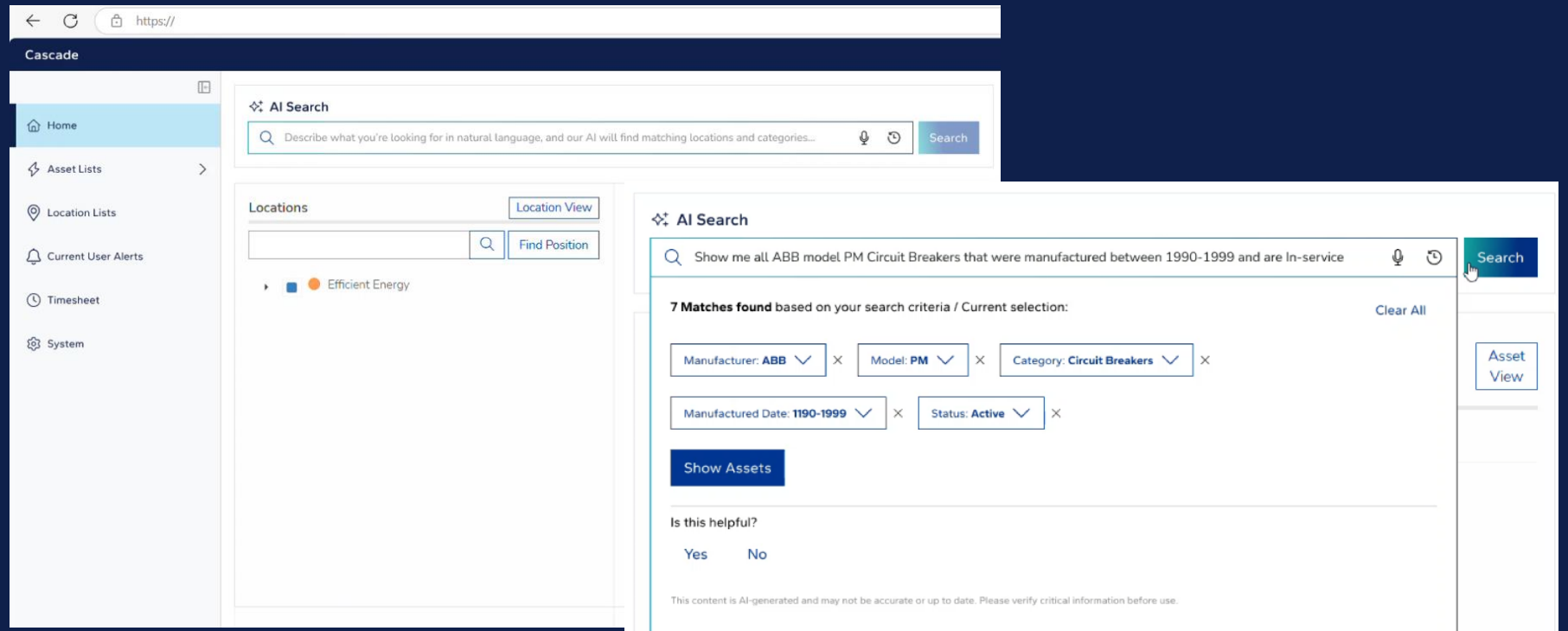
Fast feedback

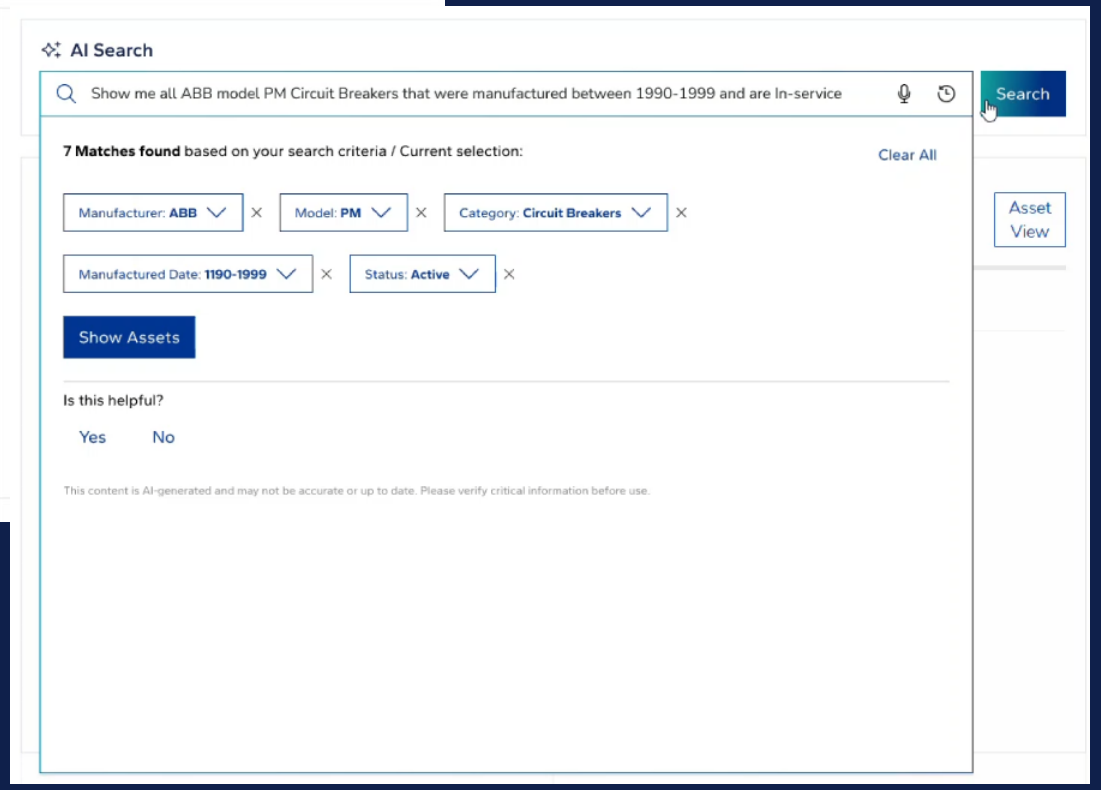
Working with customers

Cascade Speak Easy

- Objectives
  - Focus on simplifying complex UX
  - Build trust through transparency
  - Bridge to existing features
  - Leave room to evolve

Speak Easy Prototype

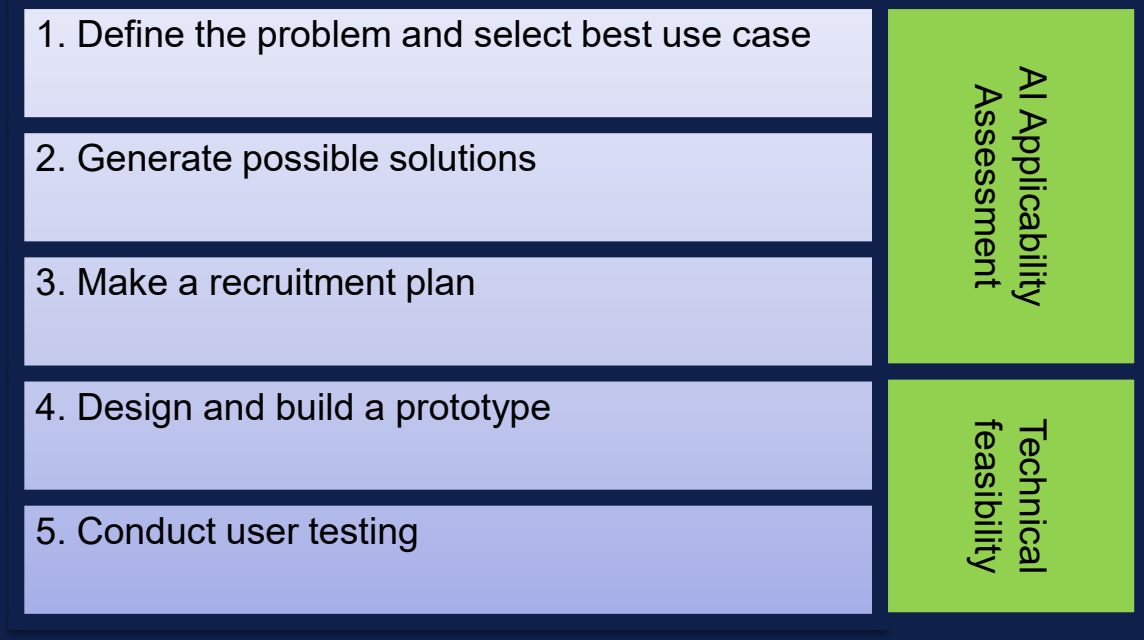




(Please see presentation recording for video.)

AI Design Sprint Week

Inspired by the Google Design Sprint, the AI Design Sprint is a step-by-step process for solving customer problems and testing new AI ideas in just 5 days.



Customer voice

- Design Sprint and usability testing
  - Users found AI search faster and more intuitive than traditional navigation
  - Scepticism transformed to enthusiasm
  - Majority favored AI interface for ease of use
- Empowers users to get value faster, with less friction
- Users from IOUs, large, and small utilities

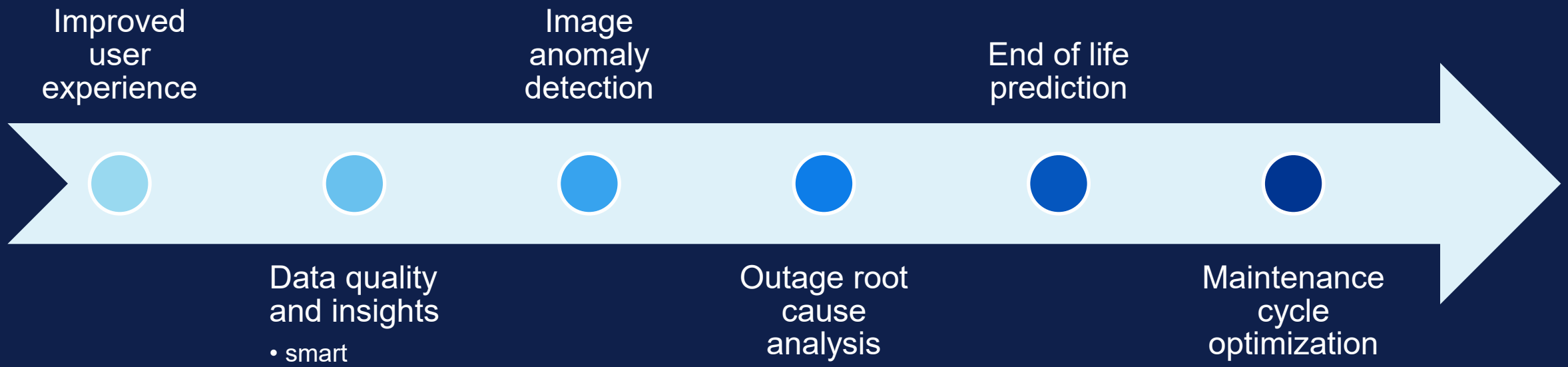
exelon℠

FORTIS INC.

WEC Energy Group

DNV

Cascade Speak Easy – what's next?



Thank you

www.dnv.com/software/services/cascade

www.dnv.com

IEEE DataPort™ www.ieee-dataport.org

- A Data repository for Storing, Sharing and Managing Data
- Mostly scientific research data
- DataPort has >20M users, >10,500 datasets, >100 Data Competitions…
- Data Competitions create Opportunities to help the AI industry

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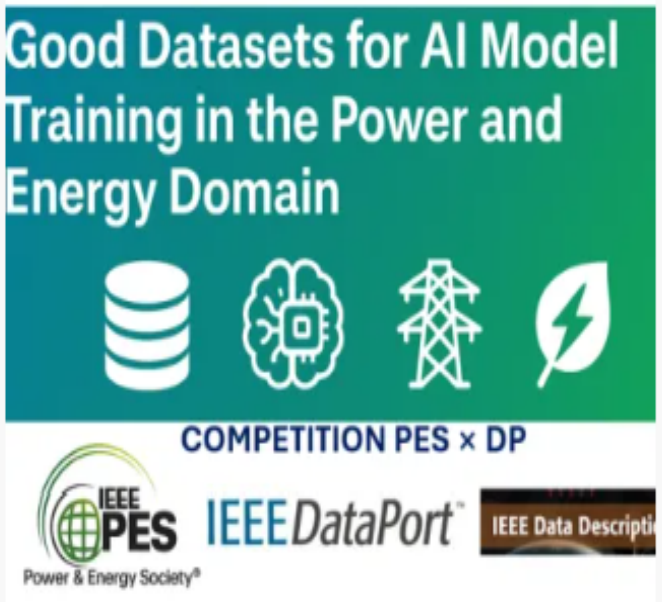
Good Datasets for AI Model Training in the Power and Energy Domain



Submission Dates:	10/15/2025 to 02/28/2026
Citation Author(s):	Jin Zhao
Submitted by:	Jin Zhao
Last updated:	Tue, 10/14/2025 - 10:11
DOI:	10.21227/qr2a-1m76

ACCESS DATASET | CITE | SHARE/EMBED | Enter a Submission

ABSTRACT

Application and development of advanced AI models provide pivotal solutions for various power and energy system (PES) issues and challenges. The performance of AI models is heavily dependent on the availability of high-quality datasets. However, such datasets are often insufficiently documented. To address this challenge, we are launching the competition "Good Datasets for AI Model Training in the Power and Energy Domain", which aims to identify, curate, and promote exemplary datasets that can accelerate research and development in PES. The competition is open to the public, inviting students and researchers at all levels to showcase datasets that demonstrate excellence in quality, relevance, accessibility, and impact on AI-driven solutions for power systems, renewable integration, energy efficiency and security, grid resilience, and sustainability.

EPRI Open AI Partner Opportunities

- EPRI AI Consortium Partners are invited to participate in the current competition

https://ieee-dataport.org/competitions/good-datasets-ai-model-training-power-and-energy-domain

https://dppescomp.github.io/pesdpcompetition.github.io/

- EPRI AI Consortium Partners are invited to suggest and sponsor additional Data competitions

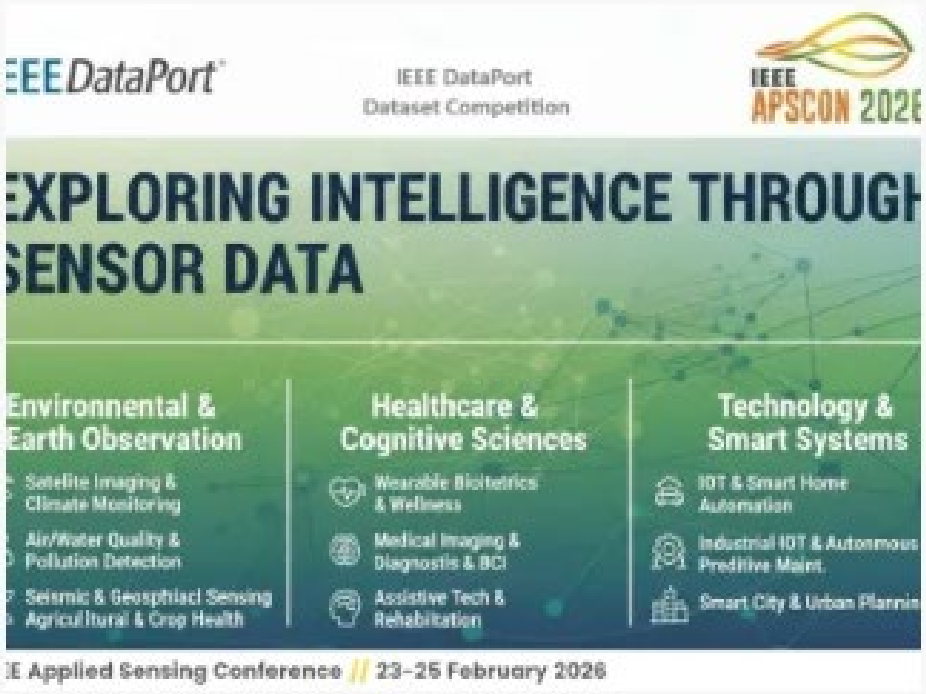
Contacts: rakeshk@ieee.org
Melissa.Handa@ieee.org

Backup

- Some Data Competition Examples

- Details of the current PES competition

Exploring Intelligence through Sensor Data - IEEE APSCON



Submission Dates:	11/17/2025 to 12/15/2025
Citation Author(s):	Alok Tibrewala
Submitted by:	Alok Tibrewala
Last updated:	Wed, 11/05/2025 - 14:59
DOI:	10.21227/vkxm-nm48
Links:	https://2026.ieee-apscon.org

The Bengaluru Last Mile Challenge, 2025

Submission Dates:	08/22/2025 to 10/14/2025
Citation Author(s):	Bengaluru Metropolitan Transport Corporation and Namma Yatri
Submitted by:	Raghuram Krishnapuram
Last updated:	Wed, 10/08/2025 - 06:48
DOI:	10.21227/eak8-rp78
Data Format:	*.csv; *.parquet

Categories:	Transportation Machine Learning Artificial Intelligence
Keywords:	AI-driven traffic prediction, Intelligent Transportation Systems, GPS trajectory; Spatio-temporal data, analytical prediction

ACCESS DATASET | CITE | SHARE/EMBED

ABSTRACT

Bengaluru has been figuring in the top ten most congested cities in the world in terms of traffic for several years now. One of the ways to address this issue is to provide an easily-accessible, affordable, efficient, and sustainable multi-modal public transport system. This hackathon is aimed at creating broad awareness about multimodal transportation options leading to innovative solutions to the mobility problem in Bengaluru. This hackathon is being co-sponsored by the **Bengaluru Metropolitan Transport Corporation (BMTC), Namma Yatri, the Centre of Data for Public Good (CDPG), and the Centre for Infrastructure, Sustainable Transportation & Urban Planning (*CiSTUP*) of the Indian Institute of Science (IISc).** It will be hosted by IEEE DataPort. **The prizes are sponsored by Maruti Suzuki.**

The hackathon will start in the last week of August 2025 and the submissions will be evaluated in the first week of October 2025. The participants will be provided with live location data of a large subset of Bengaluru Metropolitan Transport Corporation (BMTC) bus routes for a period of three weeks, the corresponding bus stops along with their locations, as well as information related to Namma Yatri autorickshaw availability and road-segment speed information for the same period. The participants are allowed to use additional sources of publicly-available data (such as weather) as well. The task consists of three problems:

Problem 1: Given the live location of buses of a set of routes up to time '*t* on a particular day, predict the arrival time of these buses at various bus stops along their routes up to the end of the route.

Problem 2: Predict the time required to travel between specified pairs of locations in an autorickshaw for departures falling between time *t* and time *t* +1 hour.

Problem 3: Predict the total time required to complete a multi-modal journey, which may use a combination of bus and autorickshaw travel.

The Bengaluru Mobility Challenge, 2024

Submission Dates:	06/10/2024 to 09/19/2024
Citation Author(s):	Bengaluru Traffic Police
Submitted by:	Raghuram Krishnapuram
Last updated:	Sun, 04/27/2025 - 12:23
DOI:	10.21227/8ey0-sw97
Data Format:	CSV mp4

ACCESS DATASET | CITE | SHARE/EMBED

ABSTRACT

Bengaluru has been ranked the most congested city in India in terms of traffic for several years now. This hackathon is aimed at creating innovative solutions to the traffic management problem in Bengaluru, and is being co-organised by the Bengaluru Traffic Police, the Centre for Data for Public Good, and the Indian Institute of Science (IISc). The prizes are being sponsored by the IEEE Foundation.

The hackathon will have two phases. The first phase will be about short-term traffic volume prediction, given video feeds from cameras installed at junctions. The second phase will be about vehicle re-identification.

Phase 1: This phase will start in the second week of June and the submissions will be evaluated in the last week of August, 2024. A leaderboard will be launched in a special session at the CyberPhysical Systems Symposium (CyPhySS) 2024, which will be held on July 25-27, 2024 at IISc.

The participants in this phase will be provided with camera feeds from 23 Safe City cameras in northern Bengaluru, around the IISc campus. The task will be to provide short-term (e.g., 30 minutes into the future) predictions of the vehicle counts (by vehicle type) as well as vehicle turning patterns at certain points and junctions of the road network. The predictions may be at different points different from the locations where the camera feeds are available.

Phase 2: In this phase, the participants will be asked to re-identify vehicles seen at some locations of the network at other locations of the network. The ideas is to get a sense for the origin-destination (O-D) flows for this part of the network for a particular time period. The O-D flow estimates are critical for transportation planning, what-if analysis, etc. This phase will conclude with demos by finalists and announcement of winners on September 20, 2024 in conjunction with the Symposium of Data for Public Good at IISc.

The hackathon will be conducted by an organising committee with members from the Centre of Data for Public Good (CDPG), FSID, IISc, and the Centre for infrastructure, Sustainable Transportation and Urban Planning (CiSTUP), IISc, with help and advice from the Bengaluru Traffic Police, and other industry partners. The organising committee may interact with the participants via periodic virtual meetings or an online forum to address any questions or concerns they might have regarding the detailed description of the hackathon and the rules and regulations.

For both phases, ten teams with the highest accuracy scores (based on the final submissions) will be considered as finalists. The finalists will be invited to make presentations at the Symposium on Data for Public Good at IISc on September 19-20. A panel of judges will rank the entries based on certain criteria (please see the hackathon description document) and award the prizes mentioned below.

IEEE PES, IEEE DataPort and IEEE Dats Descriptions have collaborated to launch a **Data Competition** to generate

“Good Datasets for AI model training in the Power and Energy Domain”

AI models depend strongly on the Quality of the datasets used to train and validate the models

The competition Objectives:

- Identify, curate and promote exemplary datasets to accelerate AI research and development
- Open to all

Participants are asked to submit

- Dataset(s) related to any subject in this domain

Assessments will be based on:

- The problem’s importance
- The Dataset Quality, Representativeness, Reproducibility and Compliance for AI model training/learning
- Performance of the AI models trained on the dataset

❑ IEEE DataPort & PES Dataset Competition

The performance of AI models is heavily dependent on the availability of **high-quality datasets**. However, such datasets are often **insufficiently documented**.

We are launching the competition, which aims to identify, curate, and promote exemplary datasets that can accelerate AI research and development in PES.

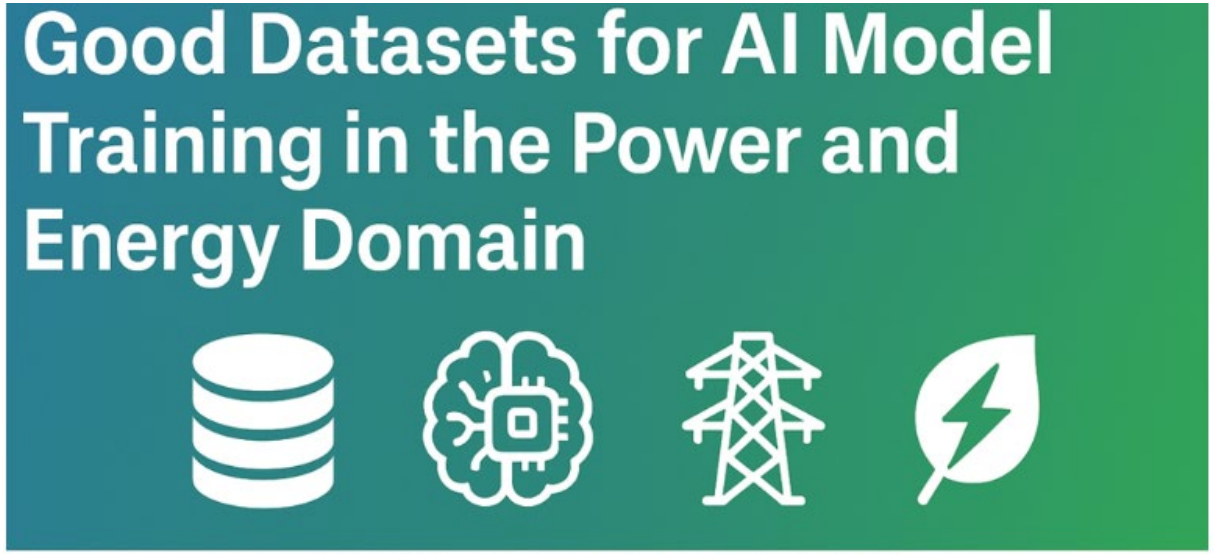
Open to All:

- No topic limits: any subject within the broad PES field is welcome
- No participant limits: individuals or teams of any education level

Highlights:

- The importance of the addressed problem and the technical difficulty of applying AI;
- The dataset's quality, representativeness, reproducibility, and compliance for AI model training/learning;
- Performance of the AI models trained on the dataset(s).

❑ IEEE DataPort & PES Dataset Competition



https://ieee-dataport.org/competitions/good-datasets-ai-model-training-power-and-energy-domain

https://dppescomp.github.io/pesdpcompetition.github.io/

Award & Prizes

- Certifications for winners.
- Winner datasets promotion.
- Invited publication and APC waiver in the IEEE Data Descriptions journal for the Top 3 places.
- The following cash prize will be awarded:

Rank	Number	Prize
1st	1	$ 4000
2nd	2	$ 2000
3rd	2	$ 1000

Date (GMT+0)	Description
Oct.15, 2025	Competition launch
Oct.15, 2025	Expressions of Interest (EoI)
Dec.15, 2025	EoI deadline (Bonus score for participants submitting EoI before the deadline)
Dec.25, 2025	Submission opens
Feb.28, 2026	Submission deadline
Mar.14, 2026	Administrative/compliance screening
Mar.15~May.14, 2026	Review period
June, 2026 (TBD)	Online defense
June, 2026 (TBD)	Result announcement