



Open Power AI Consortium Member Representative Committee Meeting

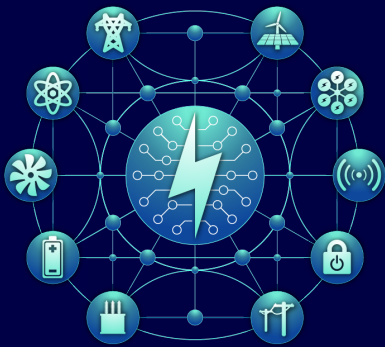


21 January 2026

Agenda

Wednesday, January 21, 2026

Time (EST)	Topic	Lead
11:00 am	Welcome & Key Updates <ul style="list-style-type: none">• Meeting Overview• Use Case Survey Update	Jeremy Renshaw, EPRI Adrian Kelly, EPRI
11:10 am	TVA AI Projects Update	Jessica Baker, TVA
11:30 am	Domain-Specific Model Development with Hydro Quebec	Jayesh Gupta, Silurian
11:50 pm	Roundtable	
12:00 pm	Adjourn	All



Powered by EPRI
**OPEN POWER
AI CONSORTIUM**



Learn More:
msites.epri.com/opai



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



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

Regional OPAI Consortium Events

Reuters Energy Live
Houston, December 2025

Enlit Europe
Bilbao, November 2025

EPRI-Microsoft Event
Munich, September 2025

EPRI Gulf Event
Kuwait, April 2025

DistribuTECH
San Diego, Feb. 2026

EPRI-Microsoft Event
Japan, September 2025

PowerGen International
San Antonio, January 2026

EPRI-Microsoft Event
Australia, November 2025



OPAI Use Case Survey



Utility Survey



Technology Provider Survey

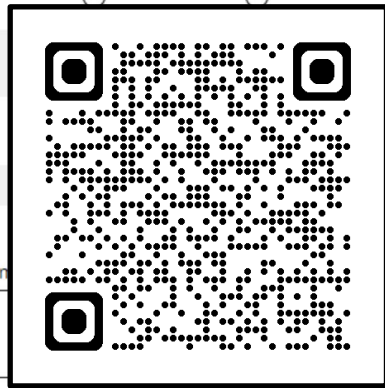
Same Use Case – Different Response

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	Significant	Extensive
Impact - Company or Customer Cost Saving	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Impact - Reliability of Resilience	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Impact - Safety or Security	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Implementation Complexity	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Data Availability	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Risk of Misoperation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

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

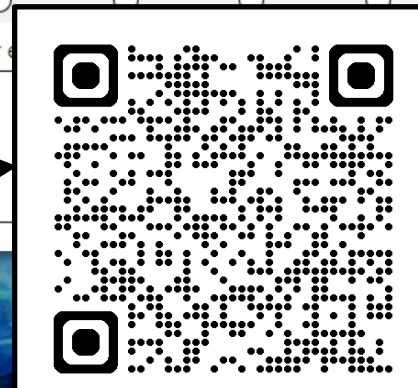


4. Advanced Metering Infrastructure (AMI) Data Validation

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
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Is your technology ready 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>

TVA Presentation

AI for Impact:

Building Tomorrow's AI Ready Workforce at TVA

January 2026


TVA TENNESSEE
VALLEY
AUTHORITY

AI For Impact

Accelerating the adoption and expansion of artificial intelligence across the enterprise to advance TVA's Mission

TVA's Goal

Foster a culture that develops talent and embraces AI. Empower the workforce through skills, knowledge, and community support by investing in AI Talent, promoting responsible AI use, and driving engagement and partnership to create value.



AI skills Development and Training Opportunities. TVA is expanding AI learning opportunities to empower its workforce with knowledge and skills.

Technology Guidance for AI Adoption. Equip the workforce with best practices, standards, and policies for AI technologies.

AI Development and Technology Support. Provide employees with hands-on support through consultations, office hours, and guidance for AI use cases.

Attract and Retain Top Talent TVA aims to build a culture of innovation and forward-thinking that attracts and retains top talent by offering opportunities for growth, creativity, and continuous learning.

Workforce Enablement Pillars

Our AI workforce strategy is built on five interconnected pillars that guide employees from initial awareness through confident, responsible adoption. Each goal area supports the next, creating a comprehensive framework that ensures our workforce is not only equipped with AI tools, but empowered to use them effectively, ethically, and in ways that drive measurable business value.

Pillar	What We're Driving	How it Shows Up
Awareness	Enterprise understanding of AI	Self-training offerings, AI Literacy, AI Change Agent Network and Enterprise AI Hub
Adoption	Use of AI tools in daily work	Tool usage, engagement metrics
Capability	Skill growth by role	AI Ninja Network; Data & AI Literacy Program
Confidence	Comfort using AI responsibly	Lunch & Learns, AI Change Agent Network , AI Change Strategy initiatives
Governance	Ethical and secure use	AI Operations and Governance

How We Enable Learning at Scale

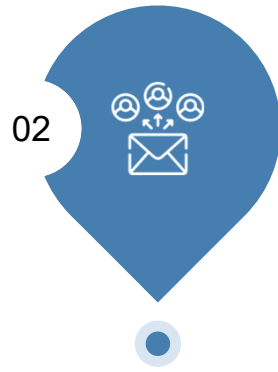
Reaching thousands of employees across diverse roles and skill levels requires a multi-channel approach tailored to distinct personas. We've built a learning ecosystem that meets people where they are - whether they prefer structured classroom settings, self-paced exploration, or learning from peers. This flexibility ensures that every employee has access to the resources they need, when they need them.

Grass-roots



Self-paced learning

Early Adopters



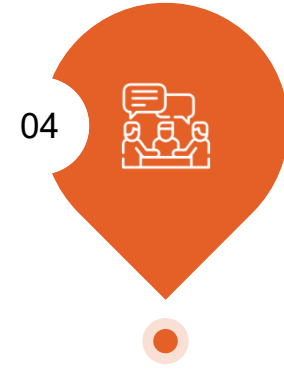
AI Change Agent Network +
Enterprise AI Hub

Targeted Communities of
Practice



Formalized role-based training
through AI Ninja Network

Additional Enterprise
Personas



Enterprise-wide Data &
AI Literacy

Enterprise AI Hub



5

Centralized Knowledge Repository:

Houses AI training, Prompt Buddy, playbooks, governance, and success stories in one accessible location.

Learning & Enablement

Designed to accelerate sharing of prompts and use cases



Connective Layer

It serves as the connective layer between business units, AI Change Agents, and AI Ninja Networks - enabling alignment, transparency, and self-service access to AI tools and knowledge

Idea & Feedback Pipeline

Enables employees to submit AI ideas, lessons learned, and improvement opportunities directly to the Enterprise AI Team.

Adopt and Maintain

Designed to accelerate adoption and maintain governance, the Hub integrates both SharePoint (knowledge repository) and Teams (collaboration workspace) to support enterprise-wide AI enablement

AI Ninja Network

AI Ninja Network a high-impact Community of Practice (CoP) designed to accelerate AI learning and adoption. Our mission is to train and equip an elite force to drive innovation, collaboration, and knowledge-sharing with speed, confidence, and intentionality.

Playbook

Provide clear strategy and actionable guidance for scaling AI engagements across the Enterprise.

01

Training

Fully equip teams with essential AI skills and knowledge proven through rigorous testing and demonstration

02



03

Facilitation

Enable effective collaboration with universities and strategic vendors to facilitate trainings.

04

Feedback

Gather insights to continuously improve and iterate on processes

05

Quick Wins

Deliver rapid, visible results that build momentum and add value to the Enterprise

AI Ninja Network | Organizing for **Impact**

Impact Area	AI Practitioner	AI Adoption Champions	Strategic Consultants	Enterprise AI Team
I – Investment	Estimate effort and resources for local pilots.	Advocate for resources and funding aligned to BU priorities.	Help build business cases for scaling use cases.	Own ROI, funding alignment, track adoption/value metrics.
M- Modeling	Support training/validation, ensure performance standards.	Ensure models are explainable and usable by their teams.	Translate business problems into model-ready use cases.	Provide reusable model components, pipelines, standards.
P - Prioritization	Provide input on technical feasibility and readiness.	Bring forward high-value use cases, validate impact/feasibility.	Validate use cases against business strategy.	Maintain centralized backlog, approve governance.
A - Adoption	Pilot tools in workflows, help resolve issues, reinforce adoption	Run demos, share success stories, answer questions, build credibility.	Deliver training sessions, ensure consistent language.	Ensure adoption aligns to strategy, measure outcomes.
C - Compliance	Ensure awareness and adherence to guardrails.	Promote responsible AI principles in daily workflows.	Apply guardrails in BUs, surface risks/issues.	Set and enforce guardrails, federal alignment, risk oversight.
T - Training	Build deeper skills, share best practices, train others.	Participate, mentor peers, and become future trainers.	Support delivery of literacy and enablement sessions.	Own literacy program, provide enterprise training and documentation.

Data & AI Literacy: Empowering Responsible AI Adoption

Equipping employees across TVA with the ability to understand, apply, and communicate AI concepts responsibly. This enterprise-wide initiative drives innovation and operational excellence while building confidence for all users to identify and apply AI use cases effectively.

Our Goal.

- **Increase Workforce Capability:** Improve proficiency in core AI skills and practical AI use.
- **Enable Data-Driven Decision-Making:** Drive smarter decisions with AI-powered insights and automated workflows built on trusted data
- **Responsible Adoption:** Ensure consistent use of AI aligned with TVA policies, governance, and ethical standards.
- **Foster Innovation:** Surface and scale business-unit use cases that improve productivity and stakeholder experience
- **Continuous Learning and Enablement:** Evolve from one-time training to ongoing learning

The Result.

- **Recognition and Certification:** Opportunities for badging and recognition for completion to encourage adoption.
- **Training through blended learning:** self-paced modules + live workshops
- **Workforce Empowerment:** Equip employees with practical AI skills to boost efficiency, innovation, and problem-solving.
- **Community Engagement:** Build a culture of collaboration through peer learning, forums, and shared success stories.

Looking Ahead

Deepen AI & Digital Fluency Across the Enterprise

Evolve AI capability from basic to applied through our Data & AI Literacy Program, expand hands-on learning and embed AI as a standard across the enterprise

Evolve Learning from One-Time Training to Continuous Enablement

Shift to ongoing learning pathways, offer progressive skill development and regularly refresh content as tools, policies, and use cases evolve

Expand Communities of Practice and Peer Learning

Advance enterprise communities of practice to foster collaboration, peer learning, and experimentation

Measure Impact and Adjust Based on Outcomes

Measure workforce development, adoption, applied usage, and value using metrics and feedback to refine enablement efforts

Questions

Silurian Presentation

A Weather Foundation Model for the Power Grid

Jayesh Gupta,
Silurian AI
Co-Founder & CEO (jayesh@silurian.ai)



Weather drives every Grid Dollar

From outage minutes to trading margins, every P&L line in a power company is written by the sky

Regulatory Compliance

Weather data supports sustainability reporting and compliance.

Reliability & Continuity

Accurate forecasts ensure consistent service and minimize disruptions.



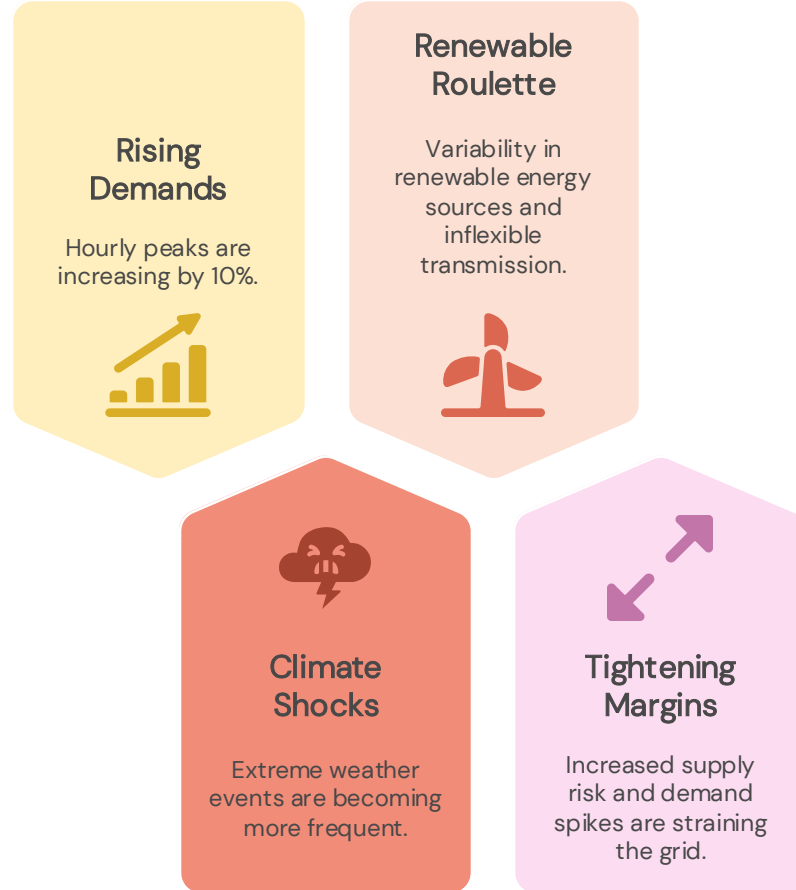
Trading Margins

Precise forecasts drive profitability in energy trading.

Risk Management

Weather data informs financial decisions and stability.

Power infrastructure under stress




Current world of grid weather solutions

Weather

Global/Regional
Numerical Weather
Model

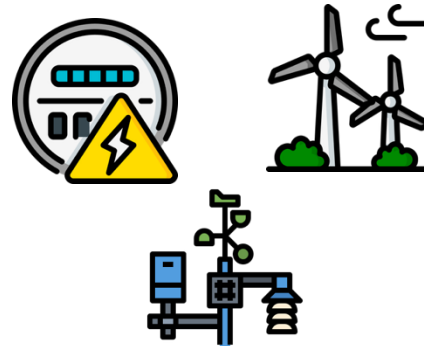


 Environment and
Climate Change Canada
Environnement et
Changement climatique Canada

Assets

Sensors
to monitor critical
infrastructure

Historical data
captures asset impact



Operations

Load forecasts
Storm response
Wildfire risk
Recovery time



Reactive ;
Each solution
development
takes years



Disconnected



The Cost of **Disconnection**

\$150B

Annual Weather Outages

Economic impact of weather-related power outages in the US

70%

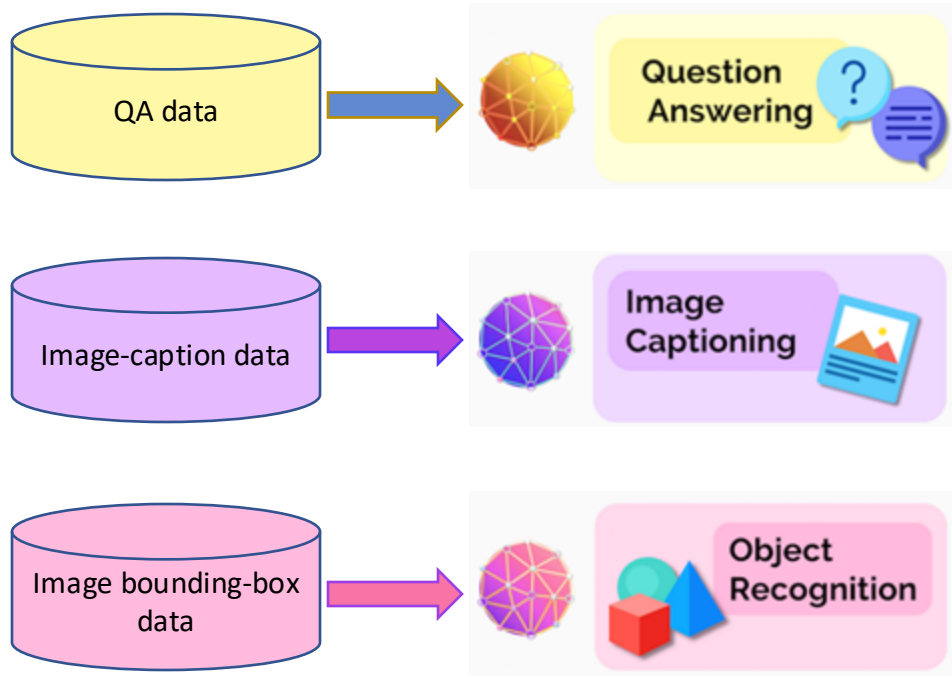
Weather-Related Outages

Percentage of all power outages caused by weather events



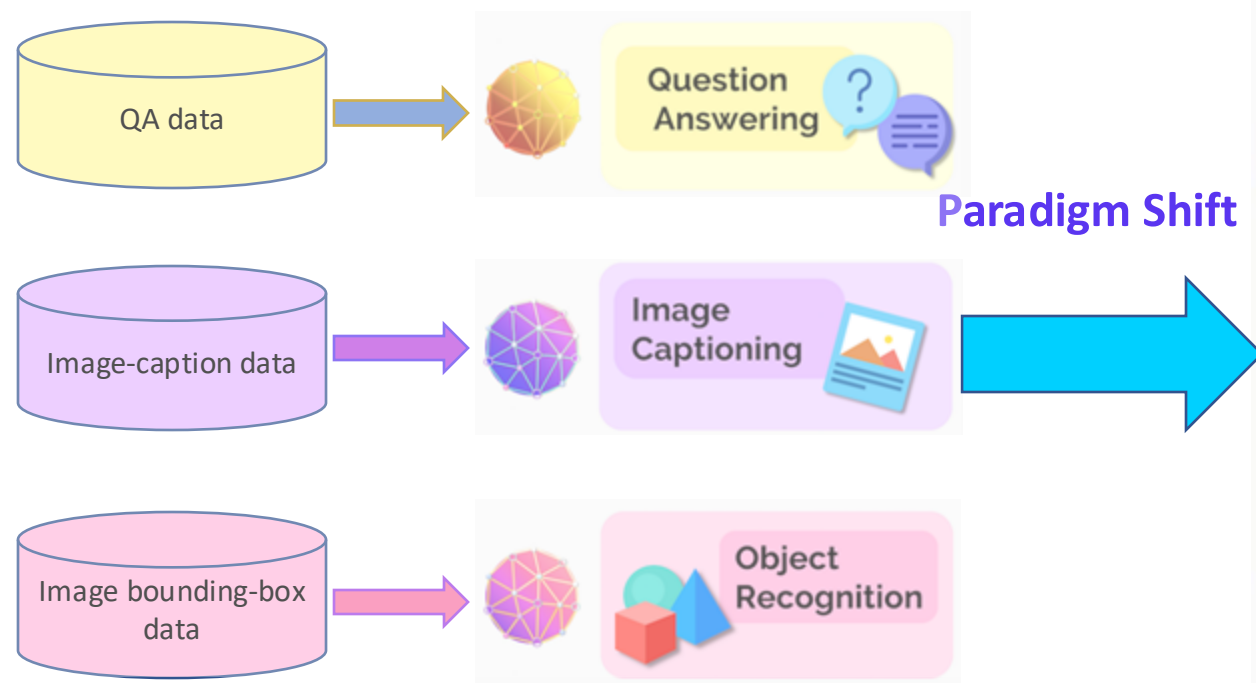
Meanwhile in the AI world...

Earlier: One model for every question

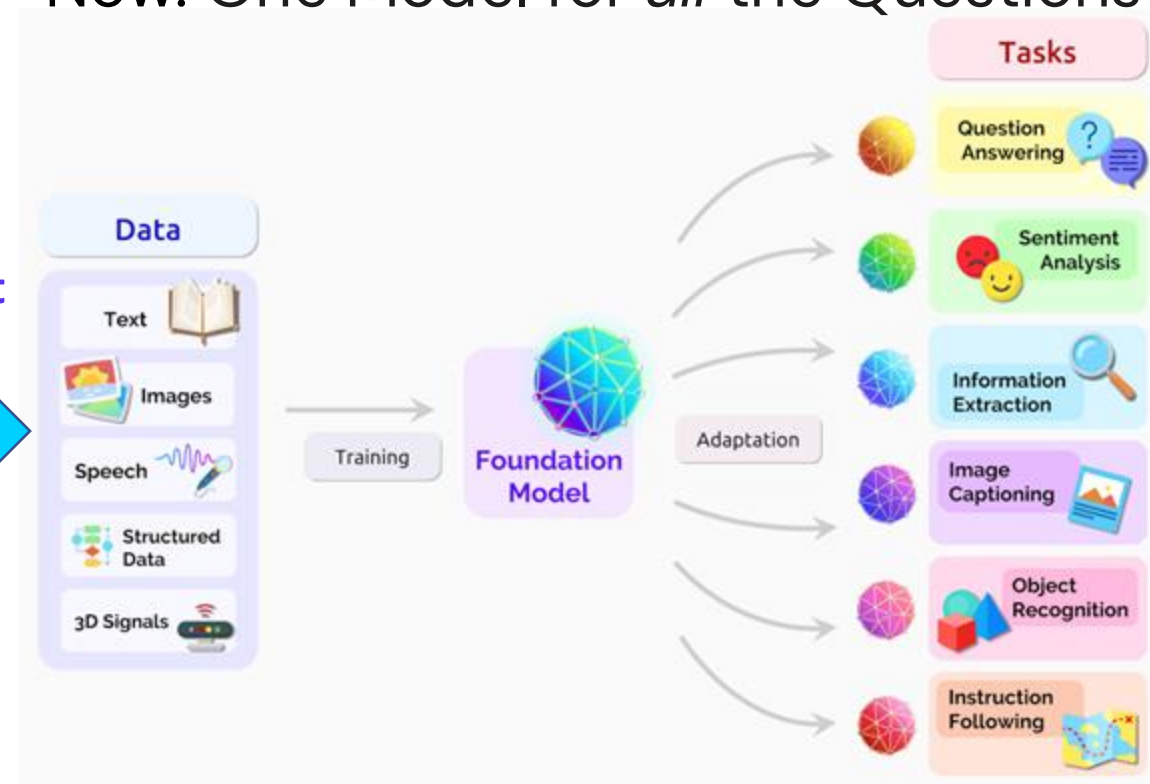


Bommasani, Rishi, et al. "On the opportunities and risks of foundation models." arXiv preprint arXiv:2108.07258 (2021).

Meanwhile in the AI world...



Now: One Model for *all* the Questions

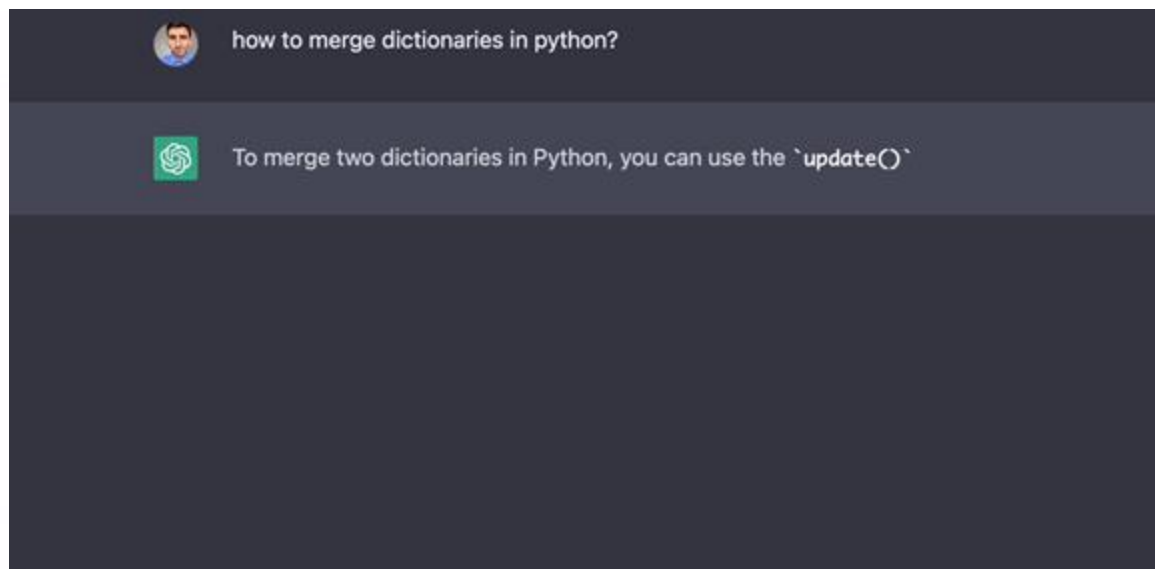
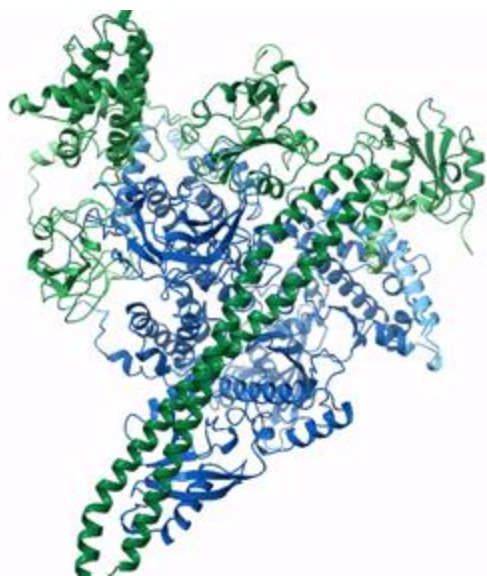


Bommasani, Rishi, et al. "On the opportunities and risks of foundation models." arXiv preprint arXiv:2108.07258 (2021).

The Foundation model revolution

How it works:

- *Pretrain* a very large model on a very large and diverse dataset.
- *Finetune* your model to excel on specialized tasks.



Building the ChatGPT for weather

ClimaX:

A foundation model for weather and climate

Tung Nguyen¹, Johannes Brandstetter², Ashish Kapoor³,
Jayesh K. Gupta^{*2}, and Aditya Grover^{*1}

¹UCLA, ²Microsoft, ³Scaled Foundations

ICML 2023

nature

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Article | [Open access](#) | Published: 21 May 2025

A foundation model for the Earth system

[Cristian Bodnar](#), [Wessel P. Bruinsma](#), [Ana Lucic](#), [Megan Stanley](#), [Anna Allen](#), [Johannes Brandstetter](#),
[Patrick Garvan](#), [Maik Riechert](#), [Jonathan A. Weyn](#), [Haiyu Dong](#), [Jayesh K. Gupta](#), [Kit Thambiratnam](#),
[Alexander T. Archibald](#), [Chun-Chieh Wu](#), [Elizabeth Heider](#), [Max Welling](#), [Richard E. Turner](#) & [Paris
Perdikaris](#) 

[Nature](#) **641**, 1180–1187 (2025) | [Cite this article](#)



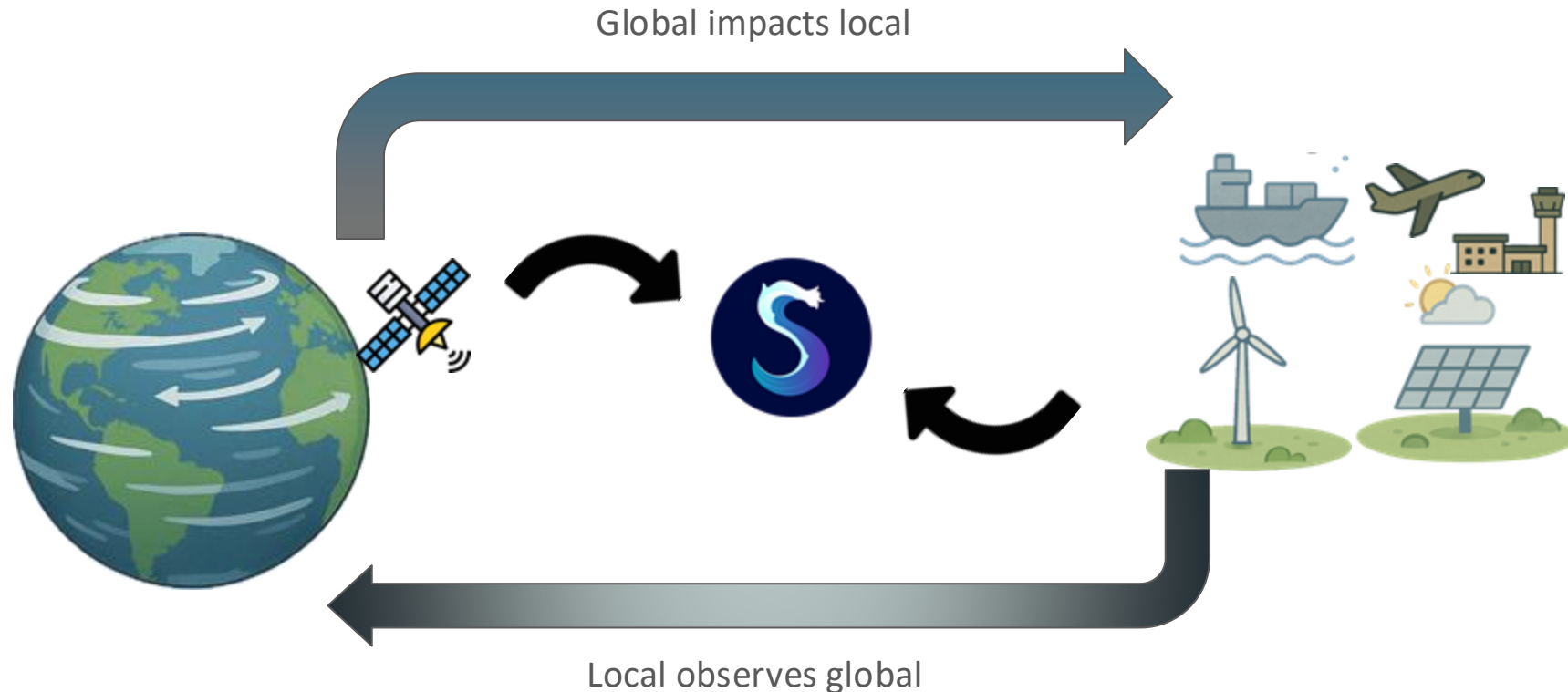


Each infrastructure asset is actively sensing weather and its local impact.

No numerical weather model ingests this data.

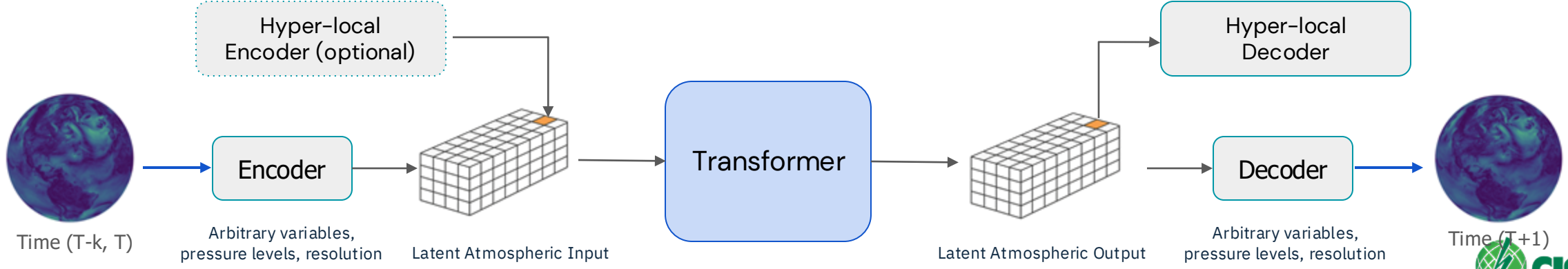
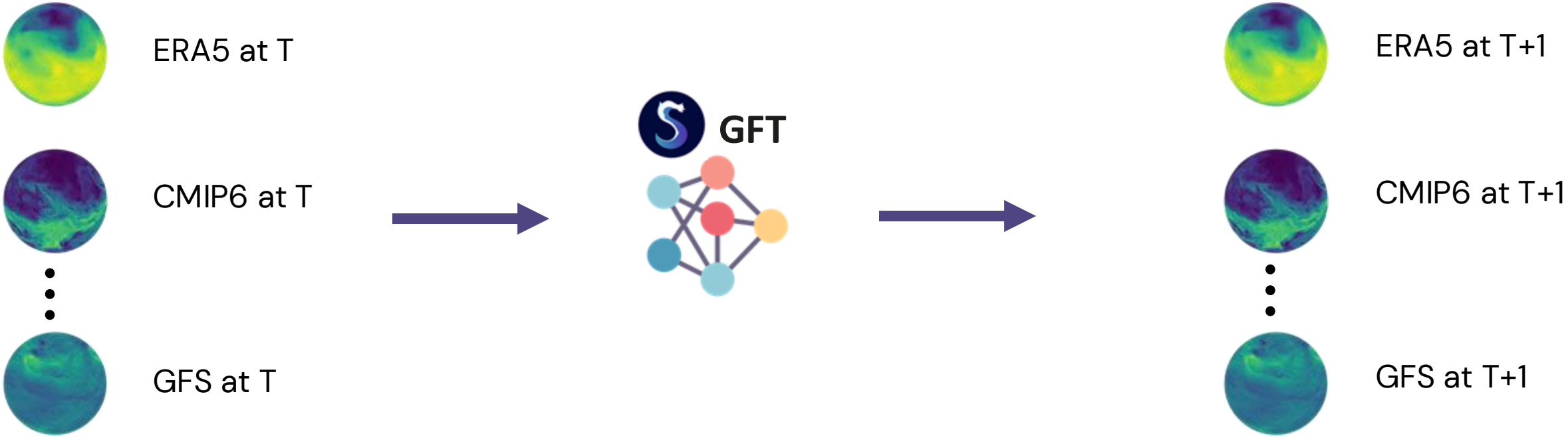
Weather Foundation Model (WFM)

Connect global and hyper-local with Generative Forecasting Transformer (GFT)



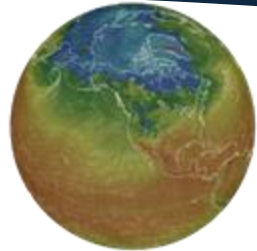
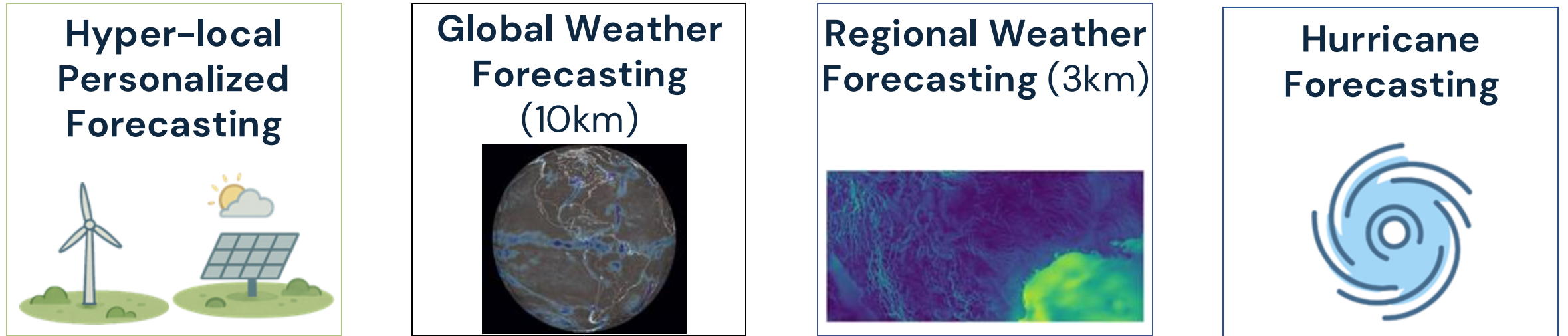
One model for all spatial scales solving operational needs directly

WFM: Understanding Earth's "grammar"



Silurian's WFM: GFT

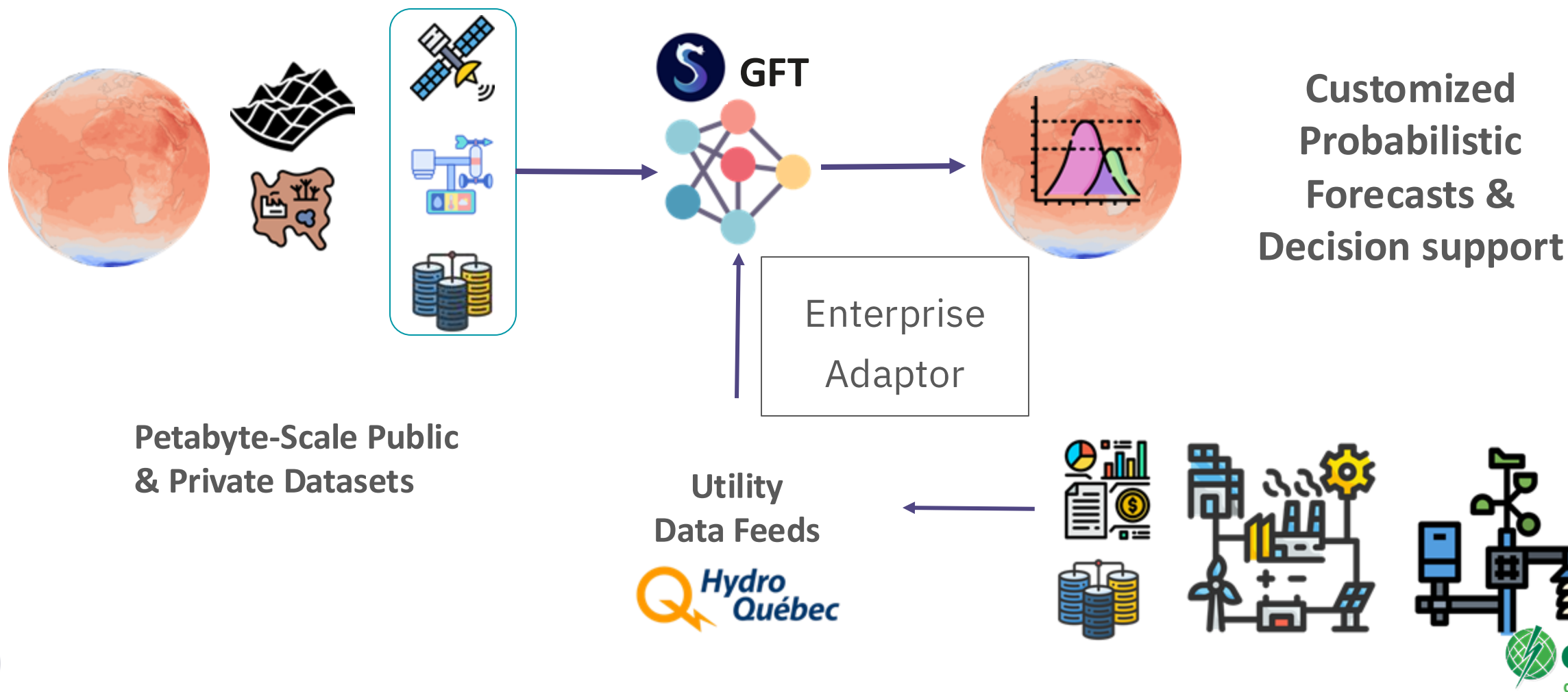
◆ <https://earth.weather.silurian.ai>



Built and operational in < 1yr by a small team.



The new world of tailored grid intelligence



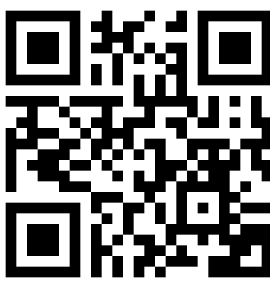
Petabyte-Scale Public
& Private Datasets

Utility
Data Feeds



Customized
Probabilistic
Forecasts &
Decision support





GFT-HQ: A WFM for HQ's Power Grid

<https://arxiv.org/abs/2509.25268>

Romaine Transmission Line Corridor



Nov. 19
2024

Line failure

Romaine-3 (395 MW) and Romaine-4 (245 MW) go offline

Dec 10
2024

Local reports confirm

~75 mm rime ice; between the Romaine complex and the Montagnais substation
5 km of transmission line to replace

Jan 8
2025

Repairs ongoing

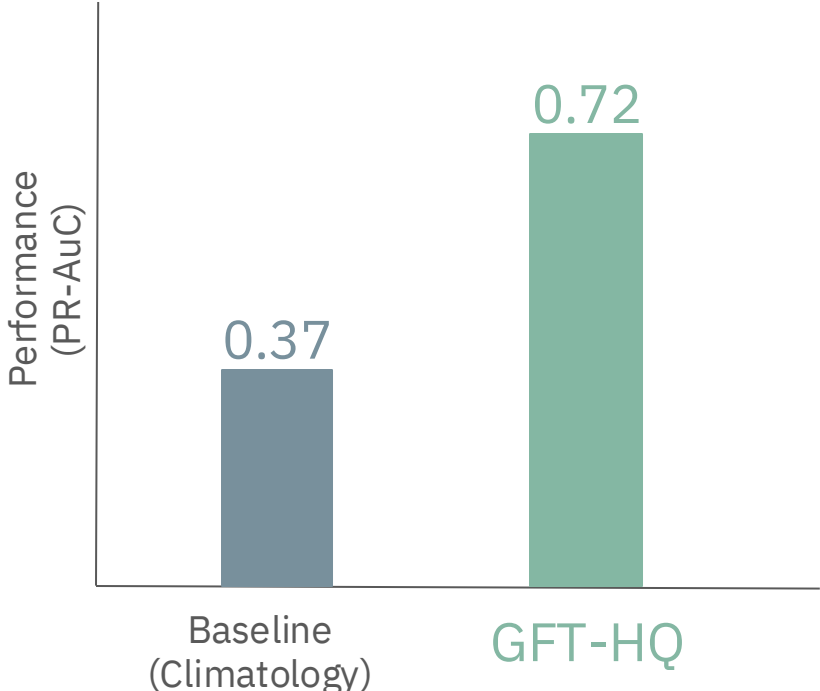
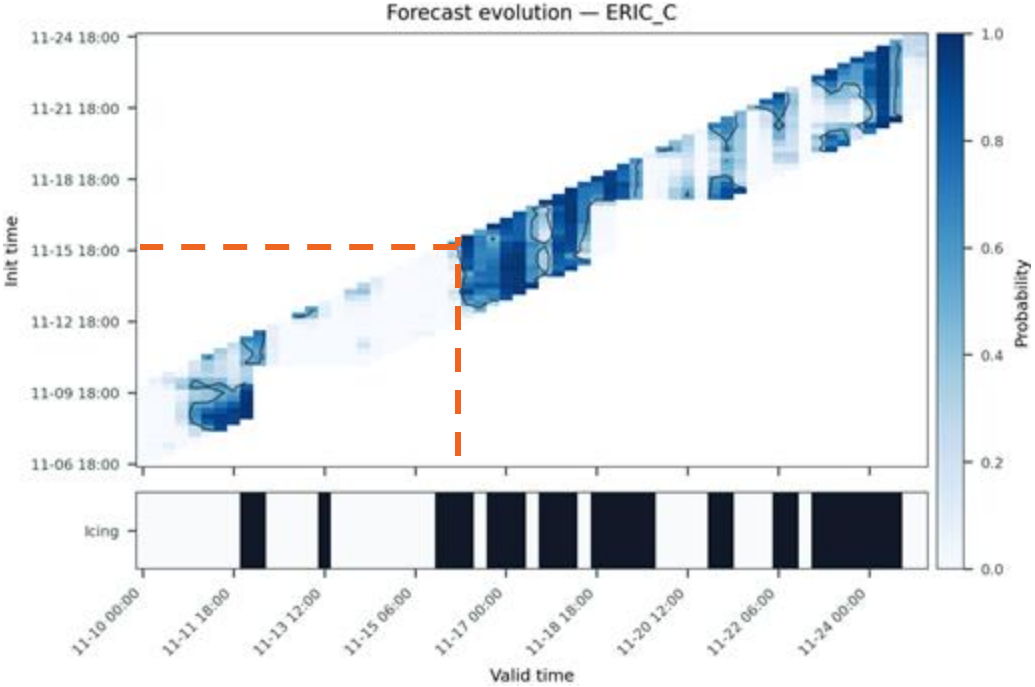
Restoration targeted for late Feb.

Mar 1
2025

Line repaired

Units back on the grid

What if such events were predictable more accurately?



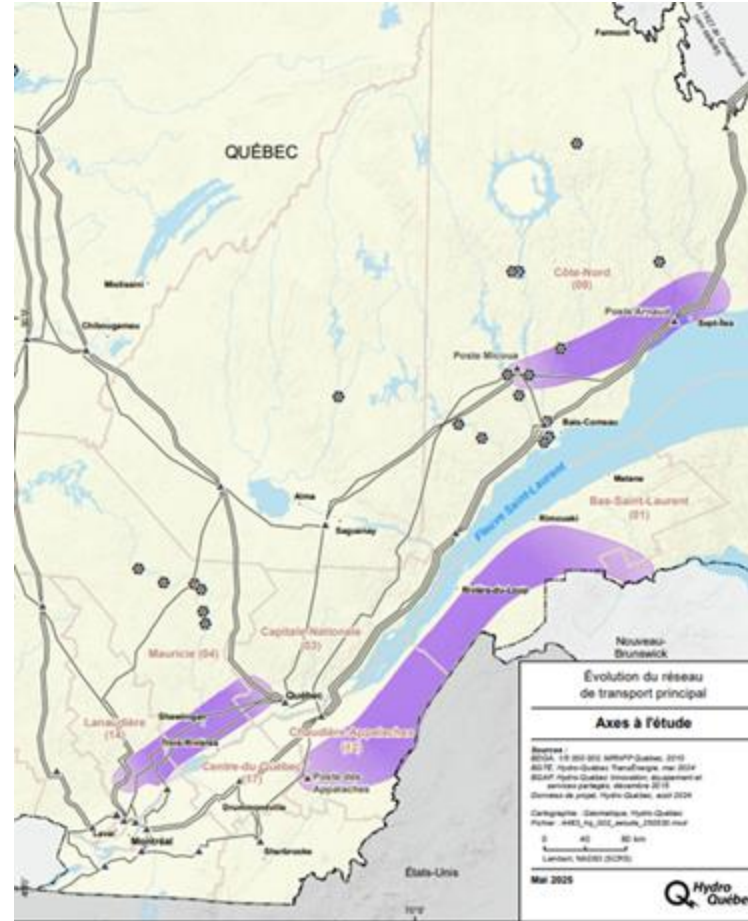
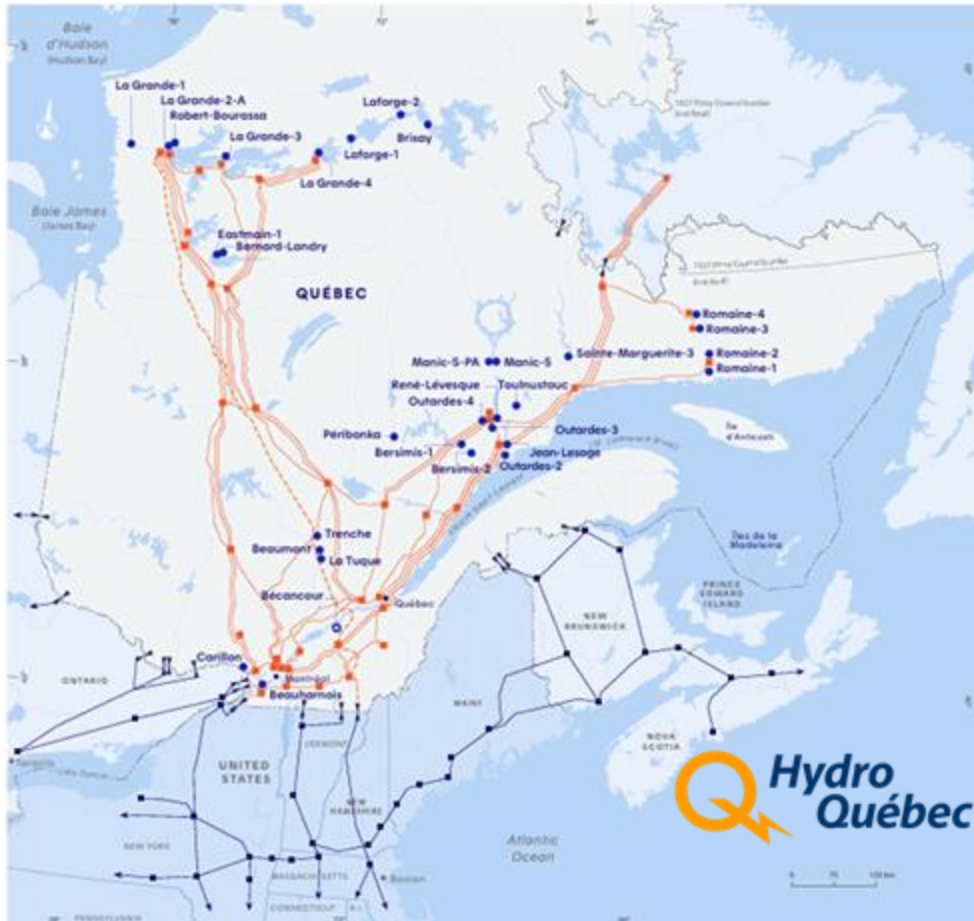
24-72h

Stable Early-Warning Window

Dramatic leap in day-ahead rime-ice risk forecasting



HQ's infrastructure and planned expansion



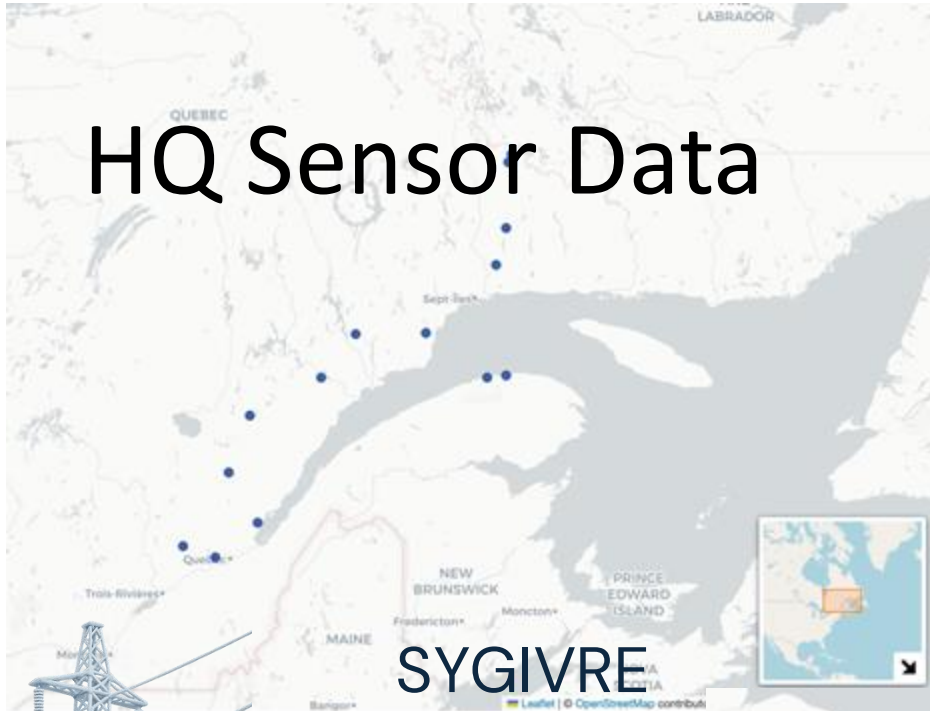
- Increasing wind-power share
- Increased load from EV & Electrification



Many transmission lines, bringing power from up-north, at risk of icing and freezing rain.

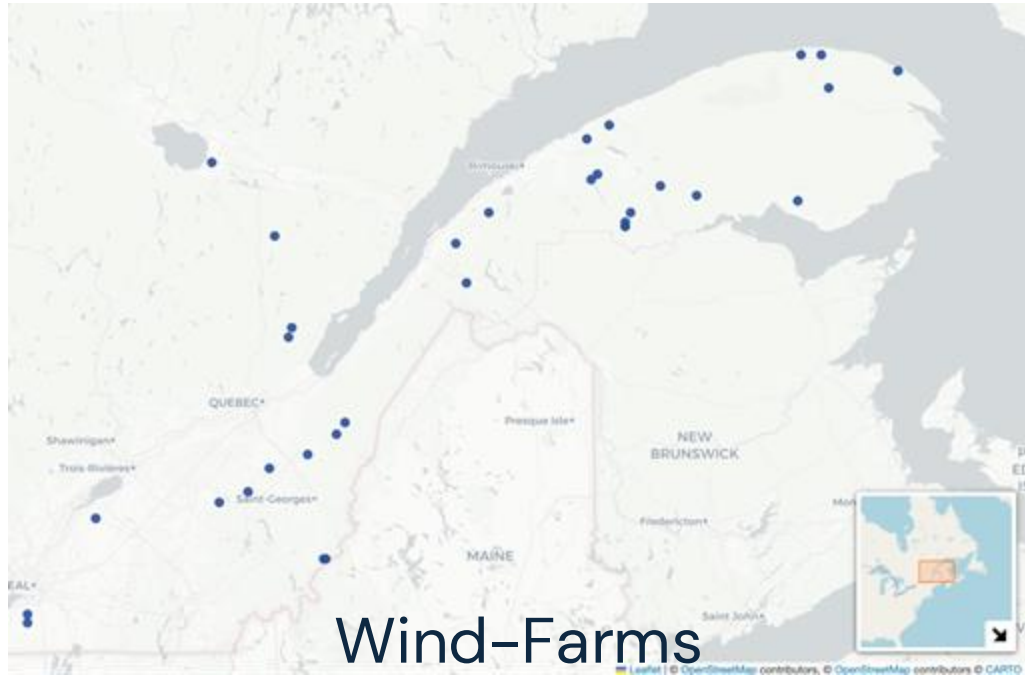
New expansion will continue to be exposed to icing risk

HQ Sensor Data



SYGIVRE

14 sensor locations



Wind-Farms

65 Met-masts

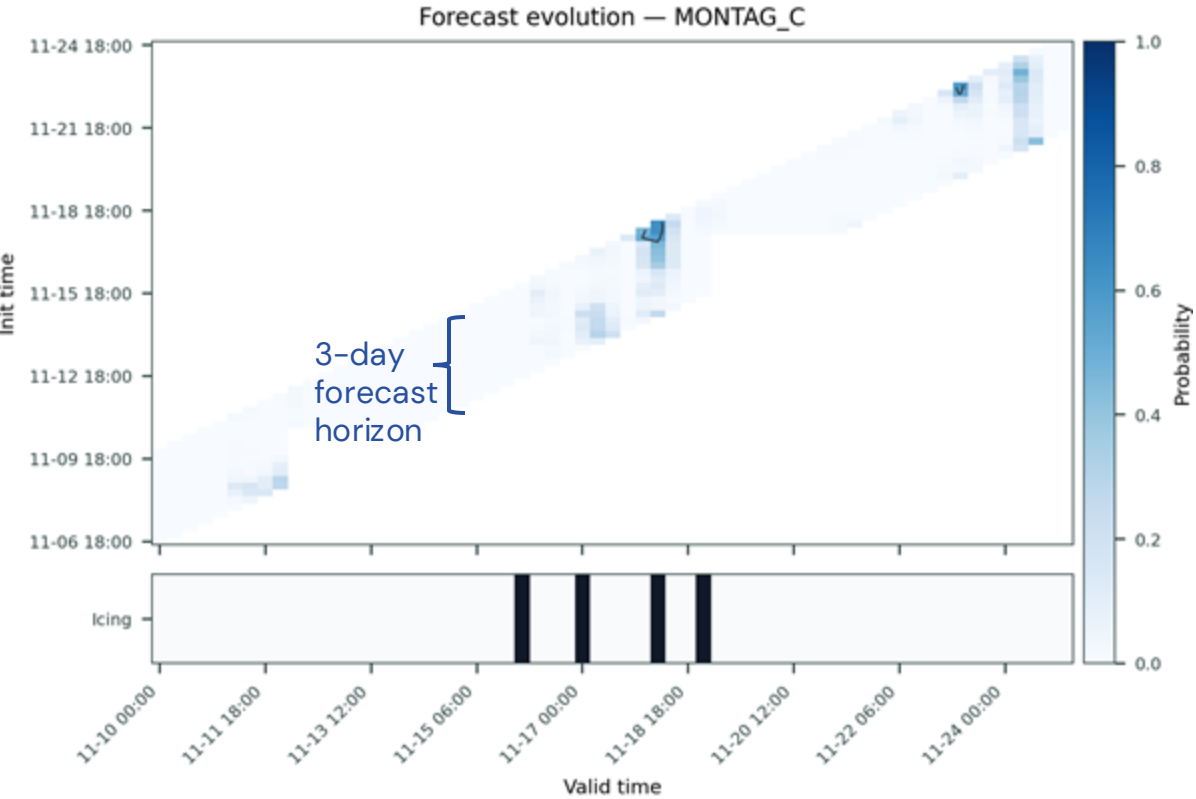
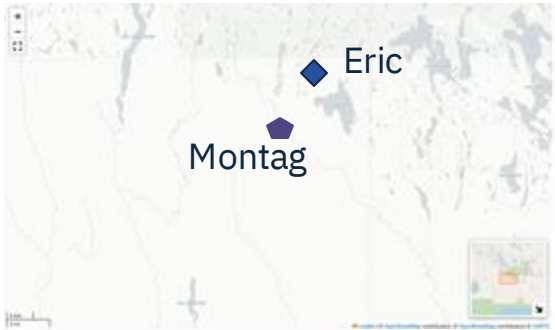


RMCQ

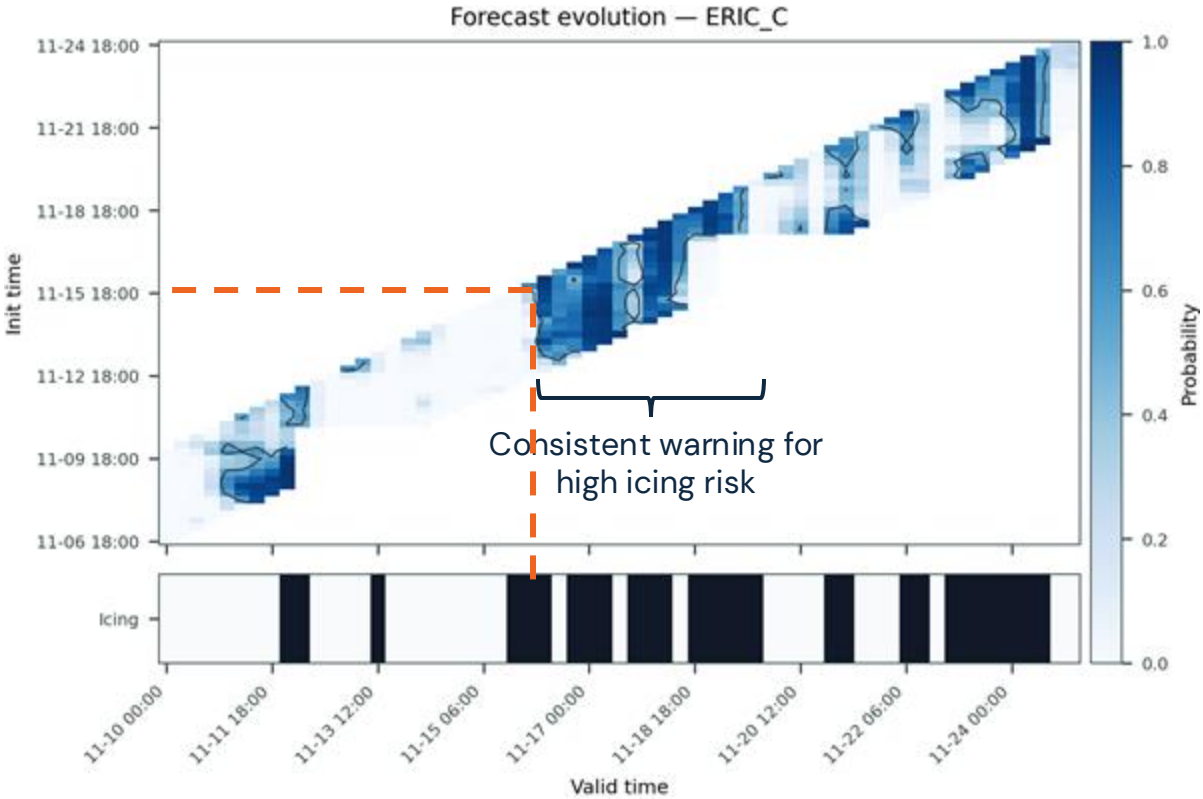
534 temperature sensors



Capturing local differences



Little icing observed

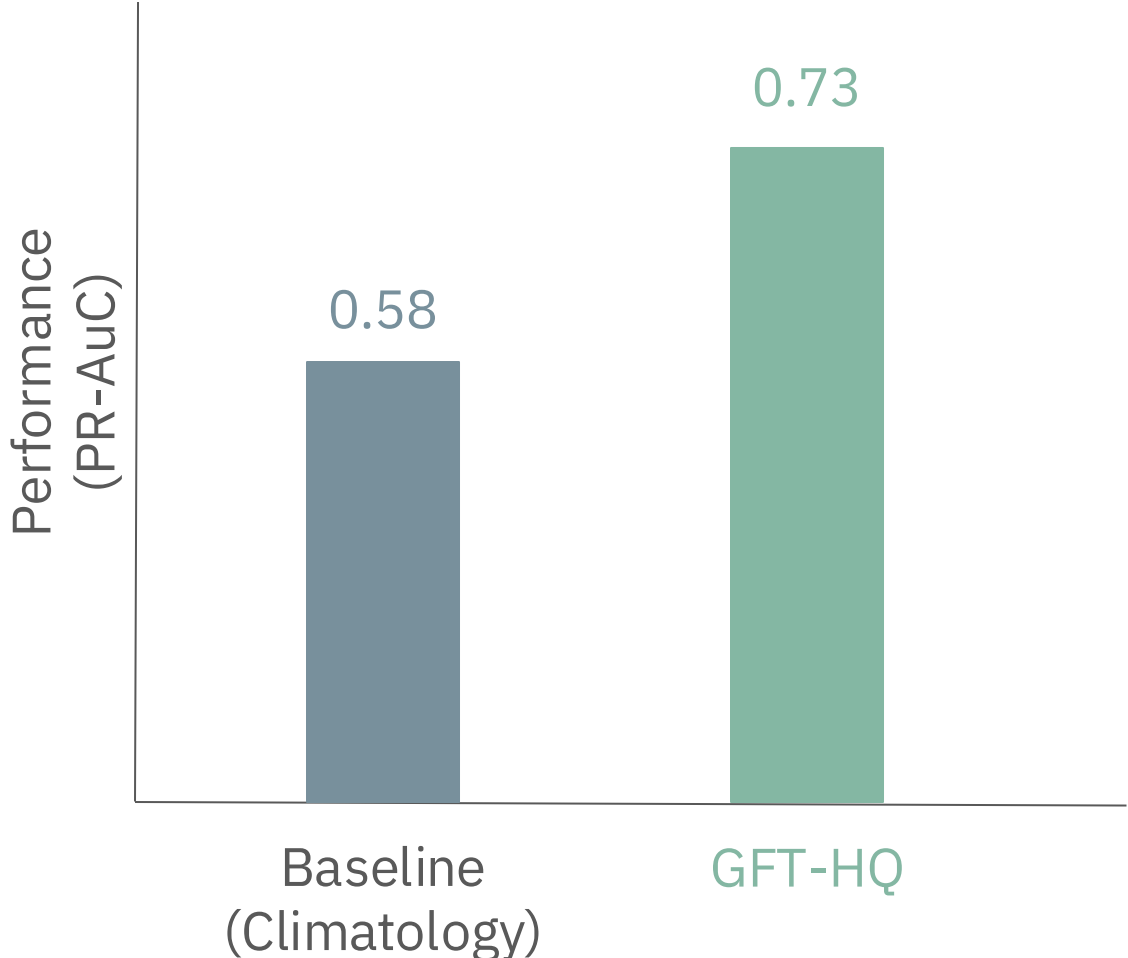
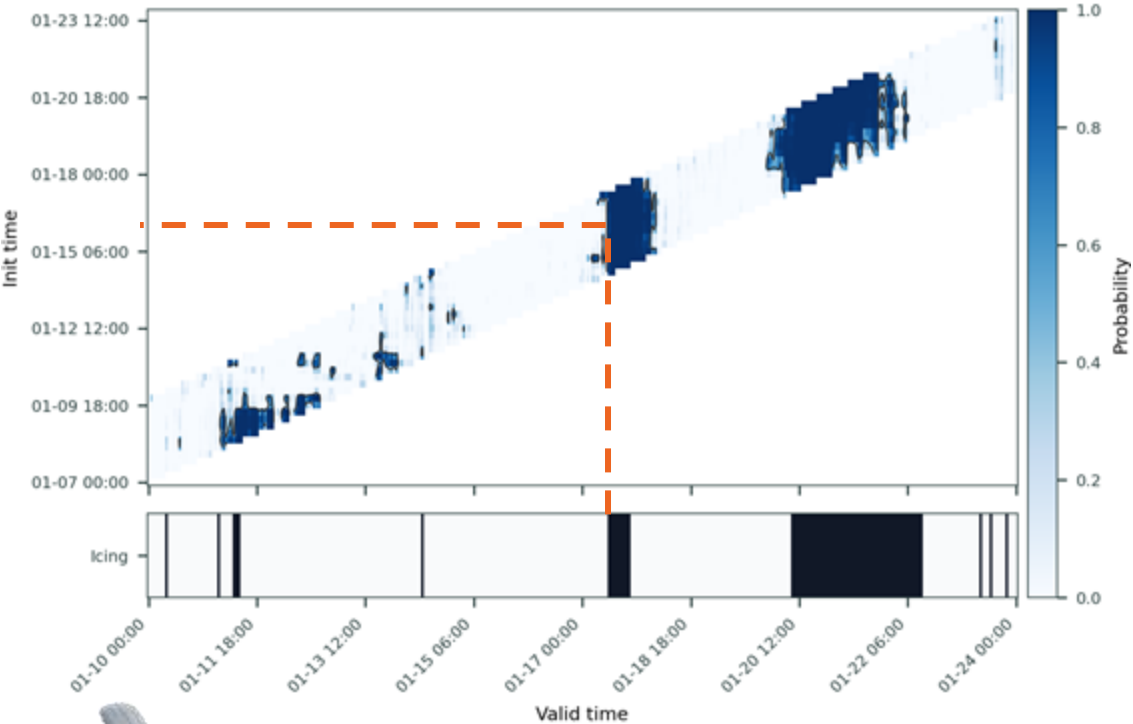


Heavy icing observed

Correct predictions of differences in icing behavior between stations 10km apart up to 3-day ahead



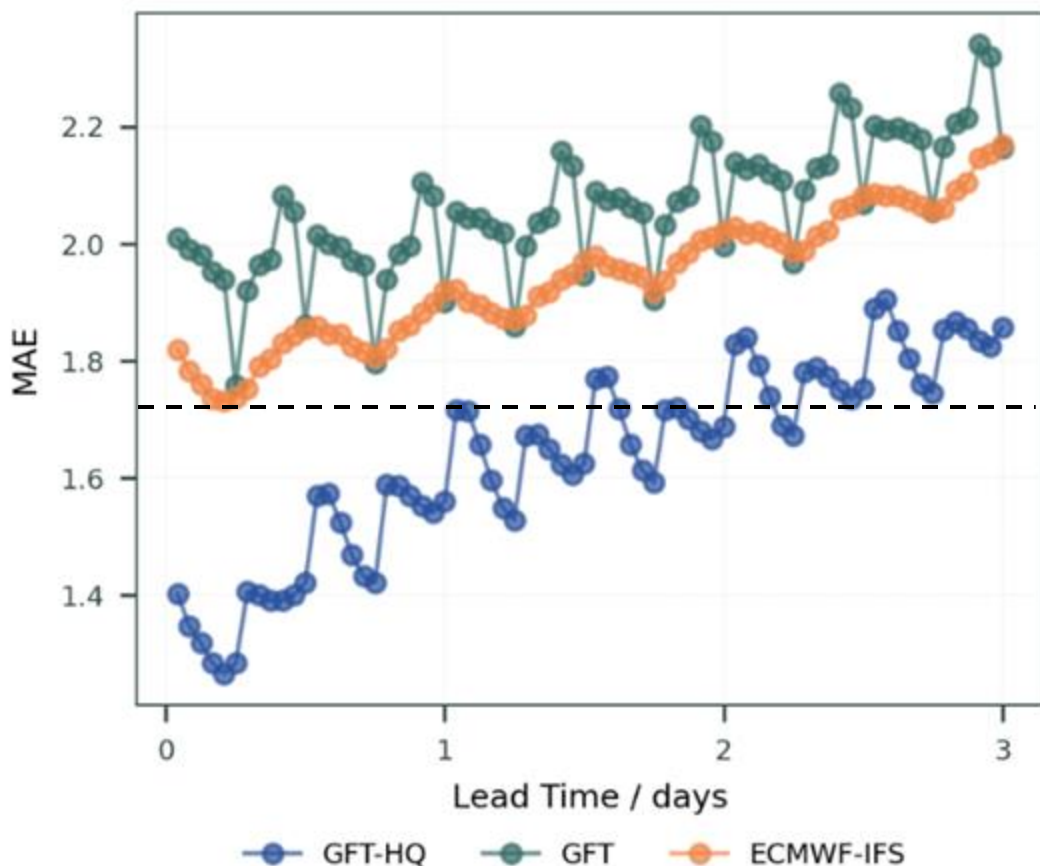
Icing risk forecasting for wind-farms



Dramatic leap in day-ahead wind-farm icing risk forecasting

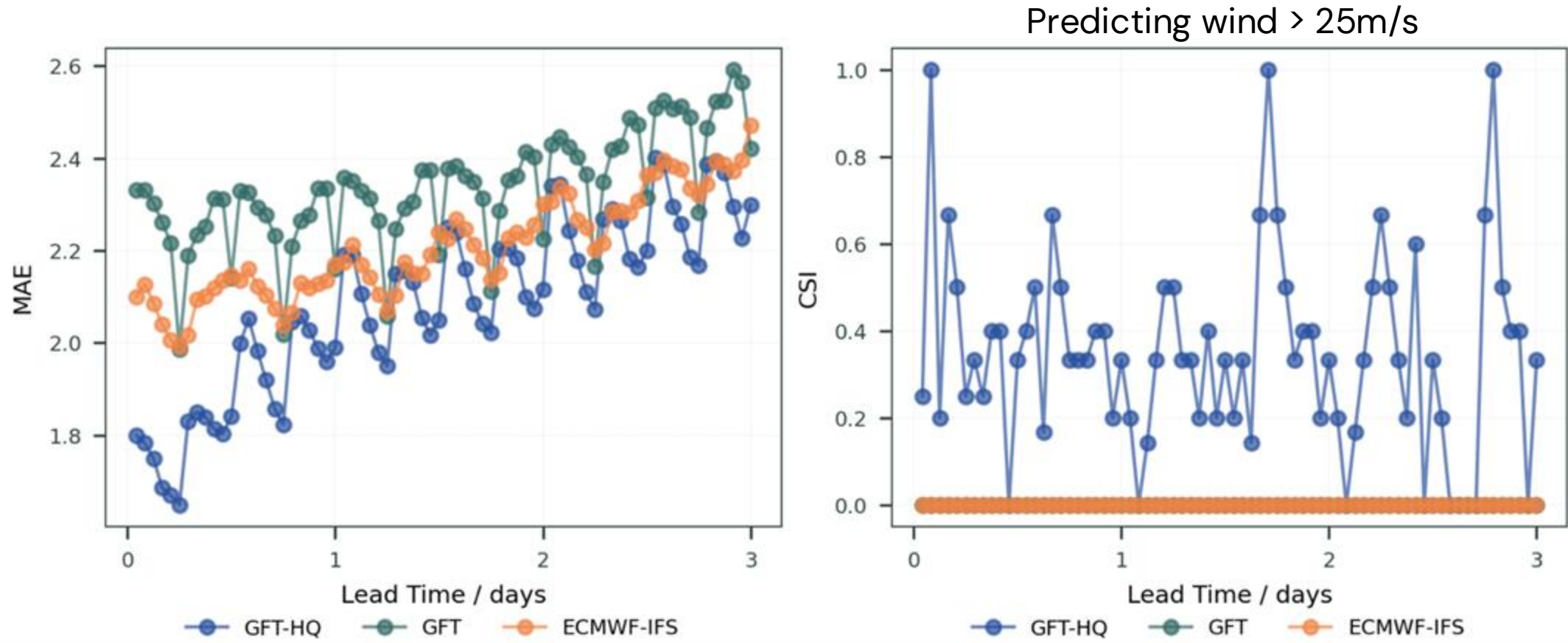


Enhanced wind-farm hub-height wind forecasts



- GFT-HQ consistently outperforms industry standard for the entire 3-day forecast period
- Lower forecast error leads to more accurate wind power generation forecasts, reducing financial and grid reliability

Predicting correlated risk: snow-storms

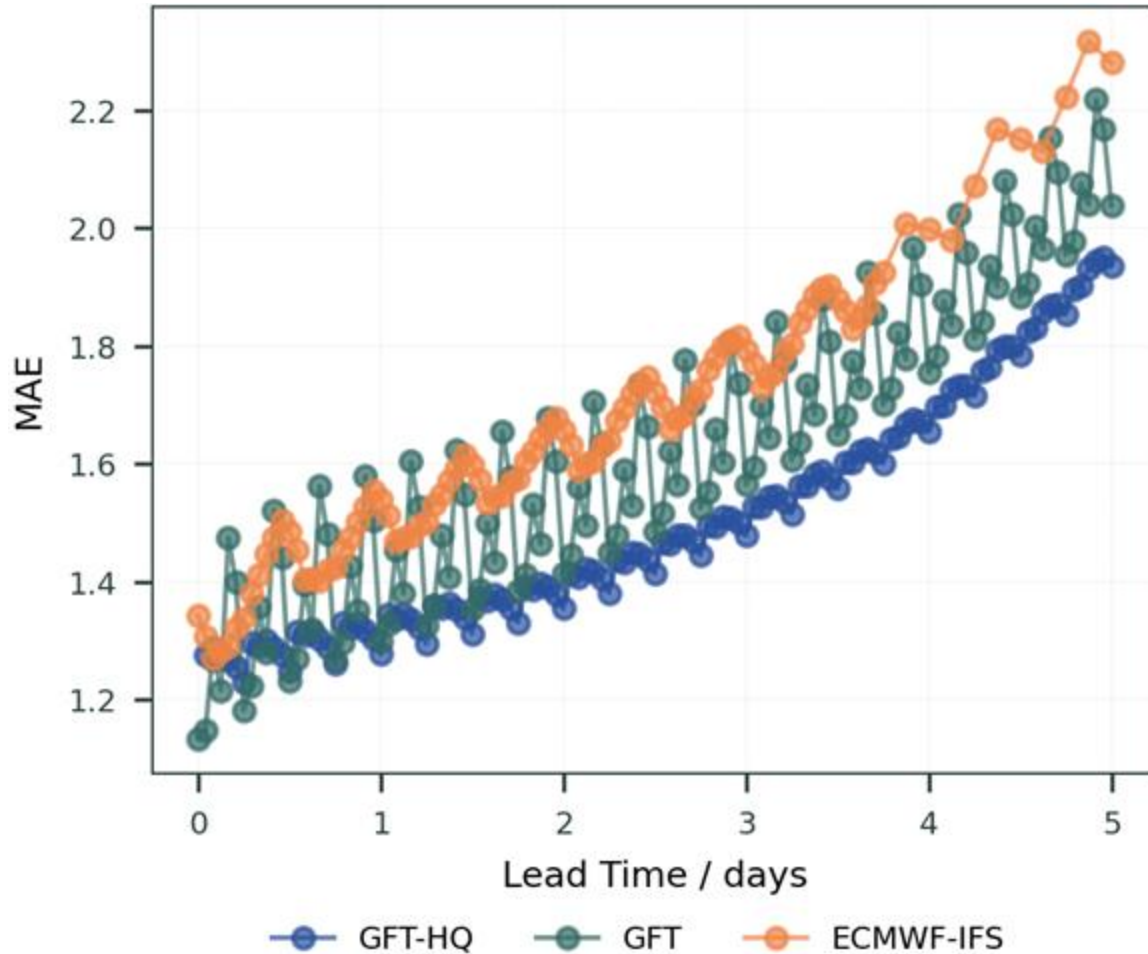


20% wind-speed forecast error reduction under **high icing** conditions
only model able to detect cut out wind speeds





System impact: Temperature



- GFT-HQ consistently outperforms industry standard for the entire 5-day forecast period, across seasons





GFT for TotalEnergies Power Plants

Improving hyper-local wind and solar forecasts

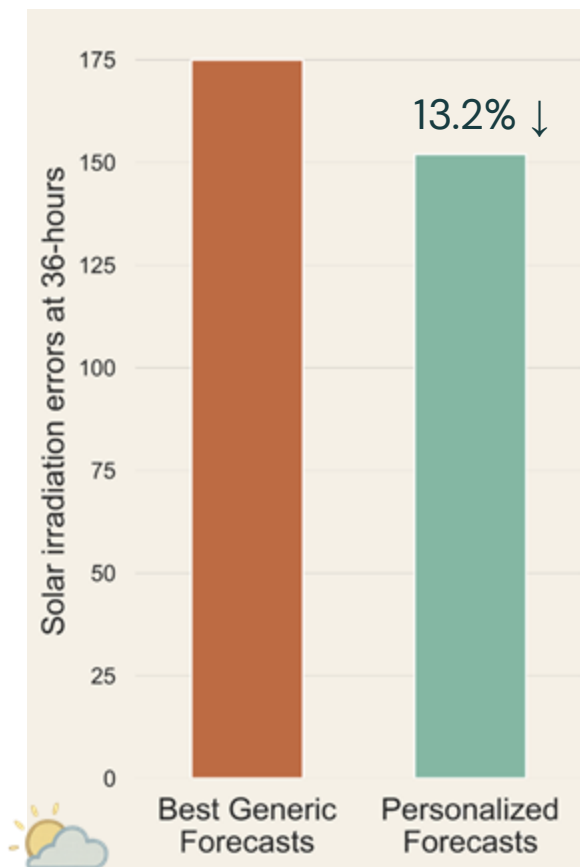
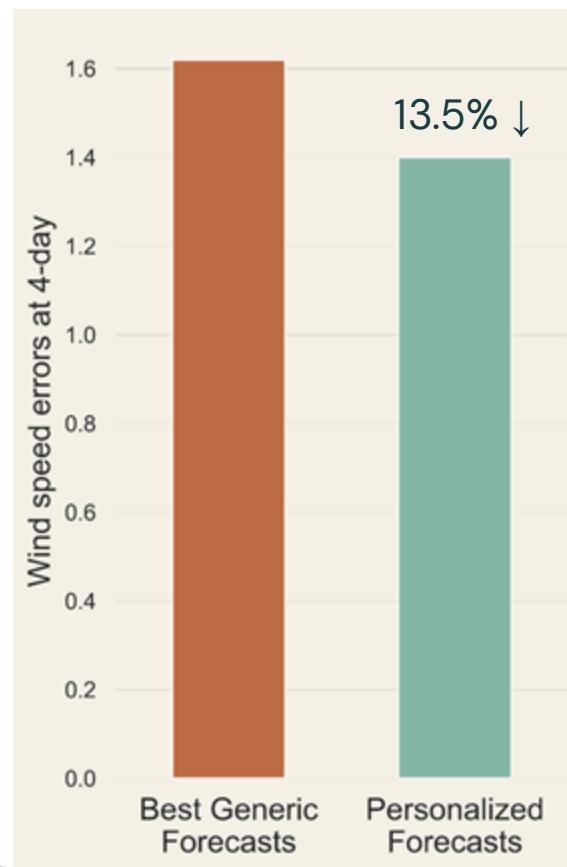
- Asset optimization and trading in France
- 10 wind-farms; 6 solar-farms sensor data
- Preparing for: **EU Market Time Unit (MTU) to 15min**



Improved hyper-local wind and solar forecasts

15-min forecast frequency
aligned with
EU Market Time Unit (MTU)

Available hours before the
government update schedule



One Model, Limitless Applications

The same foundational model extends seamlessly across the enterprise, protecting CAPEX and accelerating time-to-value.

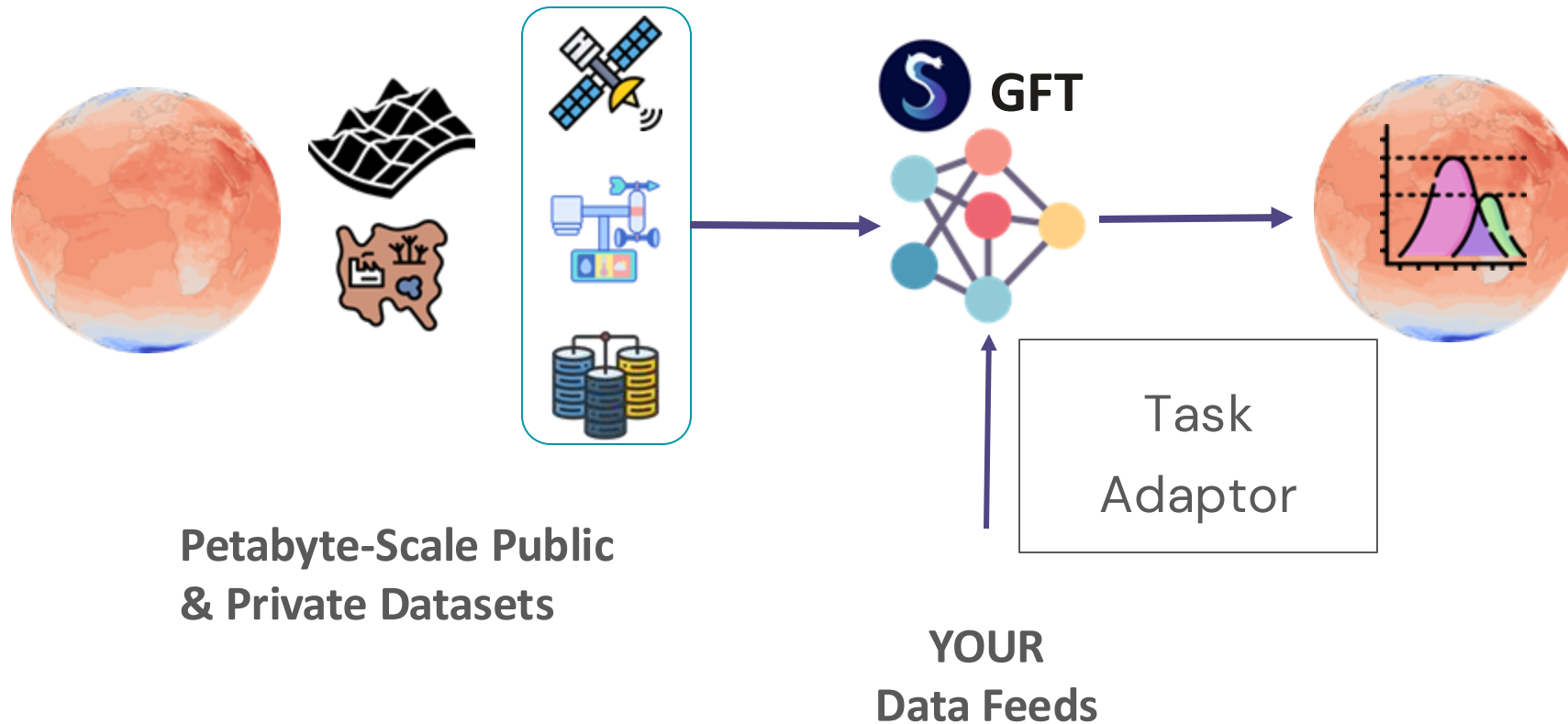


No new "point solutions" required.

The model's intelligence is universal and adaptable to your own data and requirements.



YOUR Grid, YOUR Model



The single source
of intelligence for
the entire
enterprise:

- ❑ Operations
- ❑ Trading
- ❑ Planning
- ❑ Risk

Available to deploy on your cloud or ours!



Questions?



jayesh@silurian.ai





TOGETHER...SHAPING THE FUTURE OF ENERGY®