AMPERON

2024

Impact Report

A summary of Amperon's annual
business and environmental impact

Impact Report 2024

Contents

Getting Started

Navigating this Report

Welcome to our interactive PDF 2024 Impact Report. You can easily navigate through the report by clicking on any of the navigation nodes—including the table of contents—whether you are viewing it in a browser or from a locally saved PDF on your desktop.

You will also find that all links, whether inline or in footnotes, are clickable for your convenience.

Introduction

# A Letter from Our Co-Founder and CEO

As global energy demands soar, ensuring that our energy systems remain resilient and reliable has become one of the defining challenges of our time. The energy transition calls for a delicate balance between supply and demand, a challenge that grows increasingly complex as we move toward a cleaner, more decentralized grid.

At Amperon, we are proud to play a pivotal role in navigating this transformation, equipping energy players with the insights they need to adapt to today's challenges and prepare for what's on the horizon.

In today's volatile energy markets, true resiliency demands more than just increasing clean energy sources. It requires durable infrastructure to endure extreme weather, advanced AI and data analytics to enhance grid responsiveness, and reliable energy storage solutions to efficiently capture and distribute power when it's needed most.

Amperon's advanced forecasting solutions are at the heart of this effort, enabling our customers to anticipate shifts in energy supply and demand with unprecedented accuracy. Our AI-powered insights provide greater visibility into future trends, empowering energy providers to optimize their operations and procurement strategies. By mitigating risks associated with price fluctuations, unpredictable demand surges, and generation surpluses,we are helping to reshape how energy is generated, distributed, and consumed. This foresight is critical for ensuring that our energy systems remain robust, flexible, and sustainable under mounting pressures.
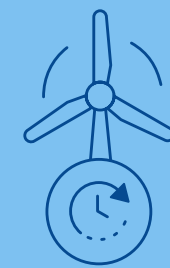
At Amperon, we believe that accurate forecasting is essential to realizing the full potential of the energy transition.

Our offerings empower our customers across the energy value chain, facilitating a smoother, more resilient shift toward a sustainable energy future.

Our commitment to innovation ensures that our customers are equipped to make informed decisions in an increasingly unpredictable energy landscape. By supporting their operational stability, Amperon's solutions help deliver reliable and affordable power to end users—even in the face of extreme weather and market fluctuations.

This inaugural Impact Report is a reflection of the incredible work our team is doing to support our customers, strengthen electric grids, and drive meaningful change in the world. It highlights the progress we've made and our vision for a resilient, sustainable energy future. Together, we can build a smarter, stronger grid that not only meets the demands of today but sets the stage for a sustainable future.

Sean Kelly
Co-founder and CEO

About Amperon

OUR MISSION

To forecast the energy transition

OUR VISION

To empower our customers to shape the future of every electron on grids globally.

OUR VALUES

01 We are customer-aligned.

Our customers have very specific needs and have complex requirements. It's our job to constantly put ourselves in their shoes and create the best solutions with their needs in mind that empower them in a changing energy landscape.

02 We do the hard things.

Modernizing the grid is no small feat—we're tackling a century of entrenched infrastructure. We are here to embrace the challenge and roll up our sleeves in pursuit of our customer's goals and our mission.

03 We are relentless.

We are laser-focused—on our domain, accuracy, continuous improvement, and our customers. This unwavering focus drives us to push boundaries, lead with purpose, and remain at the cutting edge of energy technology and innovation.
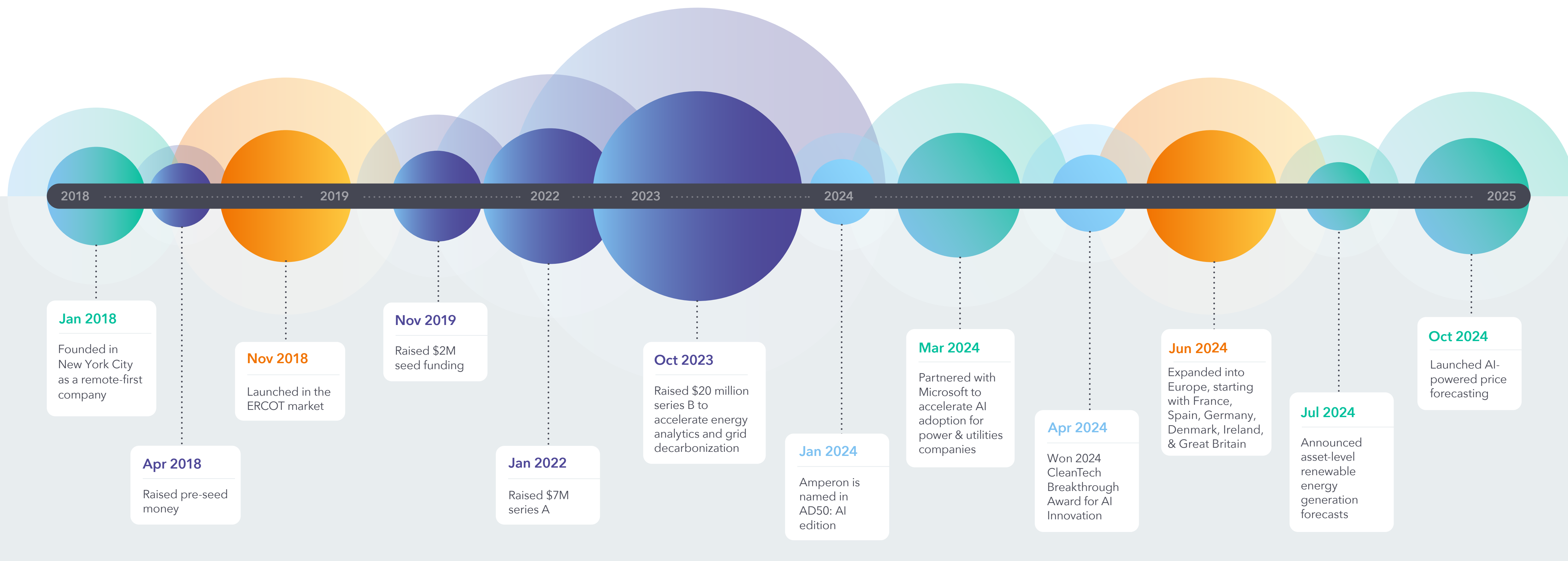
04 We are in it together.

We believe our biggest wins happen when we work together, where everyone's voice counts, and each person's strengths are valued. By supporting one another, we protect what we've built and are ready to tackle each new challenge as it arises.

About Amperon

Amperon is the leading energy forecasting company, positioned at the intersection of energy data and AI.

Founded in 2018, Amperon has become a trusted partner to power and utility companies, delivering demand, renewable generation, and price forecasts. With cutting-edge predictive analytics, seamless workflows, and dedicated customer support, Amperon enables customers to enhance grid reliability and optimize asset performance. With a commitment to grid modernization and decarbonization, Amperon is the forecasting company of the energy transition.

2018　　　**2019**　　　**2022**　　　**2023**　　　**2024**　　　**2025**

Jan 2018

Founded in New York City as a remote-first company

Apr 2018

Raised pre-seed money

Nov 2018

Launched in the ERCOT market

Nov 2019

Raised $2M seed funding

Jan 2022

Raised $7M series A

Oct 2023

Raised $20 million series B to accelerate energy analytics and grid decarbonization

Jan 2024

Amperon is named in AD50: AI edition

Mar 2024

Partnered with Microsoft to accelerate AI adoption for power & utilities companies

Apr 2024

Won 2024 CleanTech Breakthrough Award for AI Innovation

Jun 2024

Expanded into Europe, starting with France, Spain, Germany, Denmark, Ireland, & Great Britain

Jul 2024

Announced asset-level renewable energy generation forecasts

Oct 2024

Launched AI-powered price forecasting

Our Impact

About Amperon

Our People

100
EMPLOYEES
Across North America, South America, Europe, & Middle East

100+
CUSTOMERS
Across U.S., Canada, and Europe

Forecast Types

DEMAND FORECASTS

GENERATION FORECASTS

PRICE FORECASTS

Primary Customer Segments

UTILITIES

GENTAILERS & RETAILERS

INDEPENDENT POWER PRODUCERS

FINANCIAL SERVICES

COMMERCIAL END-USERS & INDUSTRIAL

Impact Metrics

2024 Key Metrics

26
GLOBAL GRIDS
We Operate Across 26 Grids Around the World

40k
WEATHER POINTS
We Utilize Over 40,000 Weather Points for Our Forecasts

40M
METERS
We Have Approximately 40 million Meters Under Management

3x
MORE ACCURATE
Our Forecasts Are More Accurate Than the ISO

79%
COINCIDENT PEAKS
Days We Correctly Forecasted via our Intra-day 4CP Alerts

Our Impact Strategy

The flow of electricity on our grids is becoming increasingly volatile. Extreme weather events like heat waves and powerful winter storms now strike with greater frequency and intensity, while intermittent power sources such as solar and wind comprise a growing share of our energy mix.
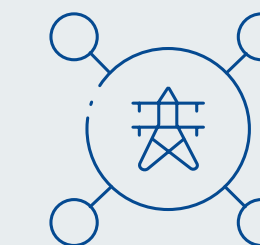
Clean energy providers and renewable power generators face mounting challenges to meet their obligations while maximizing cost savings and market opportunities in this dynamic landscape.

As the demand for electricity surges amid the clean energy transition and the electrification of transportation, **advances in technology like AI and cloud computing are driving up energy consumption.**

This evolving energy ecosystem demands innovative tools to predict, manage, and coordinate electricity usage effectively.

Amperon's forecasting solutions help reduce the cost of transitioning to clean energy and enable greater climate adaptability while ensuring the resilience and reliability of our critical electric systems.
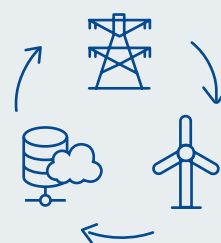
As weather patterns worsen and climate impacts become increasingly evident, our platform empowers energy providers and grid operators to optimize operations and adapt to a shifting climate landscape.

At Amperon, we are committed to addressing the challenges posed by climate change by fostering climate resilience and supporting adaptation through our products and services.

By delivering advanced analytics and forecasting tools, we enable customers to anticipate and mitigate climate-related disruptions, ensuring the reliability and sustainability of energy systems. This commitment is fundamental to our broader mission of supporting the energy transition and building a resilient energy infrastructure capable of facing the realities of worsening weather events.

This report marks Amperon's first foray into impact reporting—a critical step in transparently showcasing the progress we are making toward addressing the energy challenges facing the sector. While this initial reportprovides a foundation, we recognize that impact reporting is anevolving process. We are committed to refining and expandingthis report in the years to come, continuously improving ourability to measure, communicate, and amplify our contributionsto a more sustainable and resilient energy future.

Our Impact Themes

Amperon's impact strategy is built on three foundational themes, each representing a critical focus area in addressing the energy landscape's immediate needs and future challenges:

These themes reflect Amperon's dedication to fostering a smarter, more resilient, and sustainable energy future. As we continue to develop our impact reporting in the coming years, these themes will serve as the framework for measuring and communicating our progress, ensuring accountability and driving meaningful change.

I **Supporting Energy Resiliency and Reliability**

Ensuring that energy systems remain robust and reliable in the face of growing demands and unforeseen disruptions, including increasing load growth from AI, manufacturing, and electric vehicles.

II **Decarbonizing the Grid**

Helping to enable greater integration of renewable energy sources and optimizing grid operations with precise forecasts.

III **Preparing for Extreme Weather**

Proactively preparing for and mitigating the impacts of extreme weather events by leveraging advanced analytics and forecasting to strengthen the resilience of energy infrastructure.

I Impact Theme

Supporting Energy Resiliency and Reliability

A stable energy grid must be balanced at all times. This raises the critical question: how much energy needs to be generated to meet demand in the next hour, day, or week?

Our AI-powered demand forecasting methodologies are helping to lead the energy transition, allowing our customers to answer these "when?" and "how much?" questions with unprecedented precision.

Our unique strengths—domain expertise, weather insights, and advanced data cleaning capabilities—set us apart from traditional methods to help the grid remain balanced, resilient, affordable, and reliable.

CUSTOMER CASE STUDY

Actionable, Accessible, and Accurate Load Forecasts

Shipley Energy

Amperon Products:	ISOs:
Portfolio Demand Short-Term Forecast	MISO PJM

Challenge

With a growing book of business, increased financial risk, and volatile weather, accurate load forecasting became mission-critical for Shipley Energy. They had a provider for eight years, but needed a new vendor that could deliver on accuracy.

Amperon Solution

Amperon's 15-day load forecast, updated hourly, offers Shipley insights into day- ahead procurement strategy and a deeper understanding of their customers. The combination of Amperon's API and visual user interface enables Shipley to make data actionable for daily business operations and weekly leadership reporting.

Customer Benefit

Amperon's forecasting solution enabled Shipley to grow its electricity business confidently, knowing it has accurate and reliable insights into its portfolio's load and can manage load risk during uncertain market and weather patterns.

" *Amperon's load forecast stood head and shoulders above our previous provider, both in terms of forecasting accuracy and actionable nature of the forecasting data we could access via API and from the user interface.*

Chris Smith
General Manager, Electricity
Shipley Energy

II Impact Theme

Decarbonizing the Grid

The demand for granular, auditable, and accurate power and carbon data is rapidly increasing as the energy sector works toward decarbonization.

Operating the power grid 24/7, 365 days a year requires innovative solutions to manage its 8,760 hours of operation, particularly as new clean energy resources are integrated.

To achieve meaningful reductions in carbon emissions, accurate forecasting and effective management of renewable energy are critical.

At Amperon, we are advancing decarbonization by enabling the grid to integrate a growing share of variable renewable energy sources. Our asset-level renewable forecasts provide the precision needed to maximize the use of clean energy while ensuring grid stability.

By delivering highly granular and accurate demand forecasts, we unlock the potential of demand-side flexibility solutions like demand response and Virtual Power Plants. These tools enable smarter energy use, reduce reliance on fossil fuels during peak times, and further drive decarbonization efforts. Our peak alert solutions add another layer of efficiency, enhancing grid flexibility and ensuring that clean energy can reliably meet demand.

Through these innovations, we are not just supporting the energy transition—we are actively driving the decarbonization of the grid, helping create a cleaner, more sustainable energy future.

" *Knowing how much renewable energy is likely to be available to meet demand is critical for ensuring a safe, reliable, and affordable grid. If renewables, like wind or solar, produce less than expected, then the grid has to rely on more expensive, highly polluting natural gas-fired "peaker" plants to meet demand. More accurate wind and solar forecasts keep energy prices low while keeping the grid green.*

Elliott Chorn
Vice President of Markets and Technical Services
Amperon

Impact Theme - Continued

ASSET RENEWABLE ENERGY FORECASTS

In July 2024, we launched our asset-level renewable energy generation forecasts.

These forecasts help our customers more accurately forecast solar and wind generation, helping to reduce reliance on costly, carbon-intensive fossil fuel power plants, lower energy prices, and promote renewable energy generation. As we look to renewables to help us decarbonize our grid, renewable energy producers need better, more accurate forecasts that give our customers a very clear picture of how their generating assets are likely to perform in the days and weeks ahead.

More accurate solar and wind forecasts reduce the risk of financial losses from over-scheduling or under-scheduling in the real-time market, which occurs when actual generation differs from the generation that was previously forecasted and scheduled into the day-ahead market.

Traditional forecasting metrics like Mean Absolute Percentage Error (MAPE), normalized Mean Absolute Error (nMAE), and Root Mean Square Error (RMSE) often fall short when applied to renewable generation, particularly for single-site solar projects. To address this issue, Amperon has introduced a new metric specifically designed for renewable forecasting: capacity normalized mean absolute error (cnMAE).

The cnMAE metric scales the forecast error according to the system's capacity, offering a relative error measure that ensures the system's scale and the observed values during the estimated period do not skew the error score. By simply calculating cnMAE as MAE divided by capacity, this new approach incorporates system capacity into error measurement. This alleviates the limitations of traditional methods, providing a more versatile and equitable error metric for the renewable energy industry, ultimately enhancing forecast accuracy and reliability.

CUSTOMER CASE STUDY

Coincident Peaks and C&I Operations

Amperon Products:
Grid Demand Short-term Forecast

ISOs:
SERC

Challenge

Plug Power operates eight 5-MW electrolyzers at its Georgia plant, the largest electrolytic liquid hydrogen facility in the U.S. To manage electricity costs and avoid multi-million-dollar demand charges, the company sought a demand forecasting provider who could deliver on accuracy when operations began in 2024.

Amperon Solution

Amperon's platform provides Plug Power with a 15-day load forecast for the associated balancing authority where the plant is located, enabling proactive demand management before potential peak events. The energy teams use Amperon's API daily to assess the risk of a peak event.

Customer Benefit

Plug Power monitors and manages plant operations to curtail load ahead of potential peak events during summer and winter peaks. This enables strategic decisions to avoid penalties that could exceed $4 million annually.

> " Amperon's platform is extremely user-friendly, unlike other solutions we addressed – and I can seamlessly operationalize the data and train colleagues.
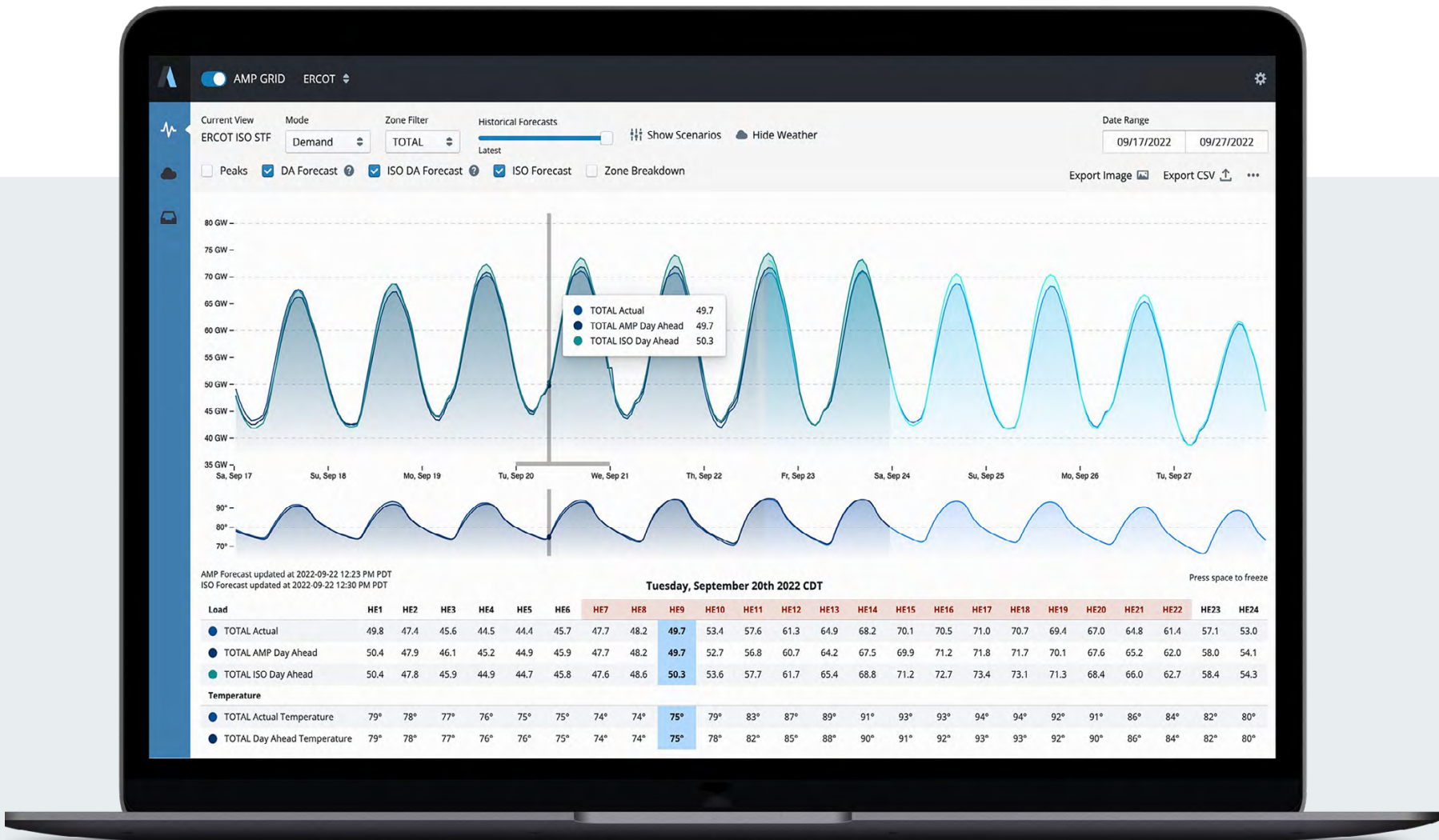
Jessica Fleck
Senior Manager of Energy Procurement Plug Power

III Impact Theme

Preparing for Extreme Weather

In 2024, the United States experienced a wide range of extreme weather events, from prolonged cold spells and wild windstorms to rapidly intensifying hurricanes and record-setting heat waves. These events have already tested the resilience of our power grids.

Powered by advanced weather data, we build individual demand models based on dense, multi-parameter historical and forecast weather data from premier weather providers: AG2, NBM, DTN, and Spire. We then use state-of-the-art machine learning methods to combine these demand models, offering customers an Ensemble Forecast that boasts better accuracy than a model based on any single weather forecast. Amperon's Advanced Weather offerings let our customers dive deeper into our demand forecasts and conduct extensive weather scenario analysis, aiding in making more informed trading decisions when extreme weather events are on the horizon. Customers can access individual demand forecasts based on weather predictions from AG2, DTN, NWS' NBM, and ECMWF, ensuring a diverse set of demand forecasts in their profile.

Additionally, customers can adjust weather scenarios up to two weeks out by modifying temperatures by ±1, 3, 5, 10, and 15 degrees Fahrenheit to explore the worst- or best-case scenarios. The one-to-two-week range is when the meteorological models show the most variability, making the two-week scenarios very beneficial for managing forecast risks.

CUSTOMER CASE STUDY

Coincident Peaks and C&I Operations

Rayburn Electric COOPERATIVE

Amperon Products:
Grid Demand Short-term Forecast, Grid Net Demand Short-term Forecast, Peak Alerts, andMeter Demand Short-term Forecast

ISOs:
ERCOT

Challenge

In 2023, ERCOT set ten new all-time peak demand records. Rayburn needed to modernize its load forecasting to track new variables that were shifting peak, including demand response, weather variability and impacts to transmission and distribution during extreme weather events.

Amperon Solution

Through a combination of grid, meter, and peak alert forecasting solutions, Amperon empowered Rayburn with industry-leading load insights to anticipate 4CP hours, net- load peak hours, and its load impacts during extreme weather events.

Customer Benefit

Our forecasts enabled Rayburn to leverage its demand response programs to respond to peak events and optimize energy procurement strategies.

" *Amperon's load forecasts are critical for planning our supply and demand response assets, especially during extreme weather events.*

Christian Nagel
Director of Power Supply
Rayburn Electric Cooperative

Measuring Our Carbon Footprint

Amperon is at the beginning of its journey in impact reporting, but we are committed to transparency and accountability in our environmental practices.

We have made it a priority to measure, monitor, and report our direct emissions annually through Scope 1, 2, and 3 greenhouse gas inventories.

Additionally, we are dedicated to enhancing energy efficiency across our operations and are actively pursuing opportunities to purchase and source renewable energy where possible in the future.

As we continue to grow, we are also committed to disclosing partial Scope 3 emissions, ensuring that our climate impact reporting evolves with our business and remains aligned with best practices in environmental stewardship.

PERFORMANCE SUMMARY

Greenhouse Gas Emissions

Scope 1 Emissions (MTCO2e) **0.00**
Company Vehicles and Transportation 0.00
Manufacturing or Energy Generation 0.00
Refrigeration and Air-Conditioning 0.00

Scope 2 Emissions (MTCO2e) **18.71**
Remote Employees 12.37
Electricity 6.34
Heat and Steam 0.00

Scope 3 Emissions (MTCO2e) **49.63**
Business Travel 49.63
Employee Commuting 0.00
Cloud Usage 0.00
Other 0.00
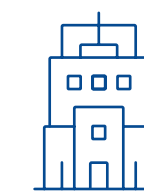
SCOPE 2

Amperon is a remote first company; however, we do rent two small offices at our headquarters in Houston, Texas, and in London, England where we use electricity purchased from the local grid.

SCOPE 3

Scope 3 emissions are indirect emissions associated with Amperon's value chain but created by upstream or downstream activities. Metric focuses on business travel, employee commuting, and web hosting as Scope 3 categories that we can measure and influence.

Our Partnerships

We partner with industry-leading providers to enhance and accelerate access to forecasting insights so our customers can focus on their business priorities.

Microsoft

Microsoft is the market leader in driving sustainability in the tech sector and beyond, and Amperon is proud to have replatformed its technology onto Microsoft Azure to accelerate the further development of AI technology for the energy sector. Microsoft has committed that by 2030 it will become carbon negative. New technologies, like the solutions that Amperon is delivering, hold promise for innovations that can help address the climate crisis.

However, at the same time, the infrastructure and electricity needed for these technologies produce unique challenges for meeting sustainability commitments across the tech sector. Amperon is both helping companies successfully navigate the evolving grid and supporting modern digital workloads hosted onthe world's market-leader for sustainable computing.

snowflake

Snowflake is the market-leader for data cloud providers. Adopted by many of the leading energy and financial enterprises, it is optimized both for advanced analytics that help drive innovation in the energy sector, as well as for energy efficiency, helping reduce energy and CO2 emissions by 95% compared

to traditional data storage. Amperon is proud to partner with Snowflake to help bring Amperon's market-leading forecast data products to more market participants to help drive decarbonization, grid reliability, and asset economic optimization.

INNOVATION FORCE™

InnovationForce was recently named a Top 10 Most Innovative Workplace Solution of 2024 by Fast Company. Launched in the energy industry, the company brings together utilities and their suppliers in an ecosystem to move ideas into production up to 65% faster. Amperon is proud to be featured in the InnovationForce Hangar

ecosystem of technology and solution providers to help companies drive innovation in energy, sustainability, and beyond by connecting utilities to new cutting-edge solutions to create a free and open marketplace of new ideas that will help utilities meet their decarbonization and modernization goals.

What's to Come

Looking ahead, Amperon is focused on further modernizing grid data and enhancing our AI software stack to improve grid reliability and operational efficiency. This involves developing advanced tools to help renewable generation asset owners optimize their operations and facilitating the integration of more renewable energy sources into the grid.

By providing precise, real-time insights into energy demand and supply, we enable asset owners to maximize their output and efficiency, contributing to a more sustainable energy grid.

Our future outlook involves expanding Amperon's role in the energy sector by continuously innovating our forecasting models and data analytics capabilities. We aim to stay ahead of industry trends and address emerging challenges in energy management, ensuring that Amperon remains a vital partner for energy companies navigating the complexities of the modern grid.

Amperon's innovative approach to electricity forecasting and analytics addresses the critical needs of today's volatile energy market

Leveraging AI and machine learning, our platform provides accurate, real-time insights that enhance grid reliability, manage financial risk, and support renewable energy integration.

With a steadfast focus on impact and scalability, Amperon is poised to influence every electron on the grid to support the energy transition.

Appendix

SUSTAINABLE DEVELOPMENT GOALS

As Amperon advances on its impact journey, we regularly assess the effects of our operations on the surrounding world. This strategy serves as a valuable resource for us, our customers, partners, and investors to measure our business impact.

We take pride in aligning ourselves with the United Nations' Sustainable Development Goals (UN SDGs), a set of 17 objectives aimed at eradicating poverty, eliminating inequalities, and fostering a sustainable and resilient global society. Our mission and vision at Amperon are closely aligned with this vision for the future.

Goal 7 (Affordable and Clean Energy): By leveraging AI and machine learning, Amperon's platform provides accurate, real-time insights that enhance grid reliability and support clean energy integration. Amperon is helping to influence the share of renewable energy in the grid by developing and deploying innovative clean energy technologies and products by facilitating the integration of renewable energy sources onto the grid.

Goal 9 (Industry, Innovation, and Infrastructure): Amperon is constantly innovating its forecasting models and data analytics capabilities. Amperon aims to stay ahead of industry trends and address emerging challenges in energy management to ensure that we remain a vital partner for energy companies navigating the complexities of the modern grid.

Goal 12 (Responsible Consumption and Production): Amperon's platform contributes to environmental sustainability by enhancing the integration of renewable energy sources and reducing carbon emissions. By providing accurate forecasts and real-time analytics, Amperon helps grid operators make informed decisions that promote energy efficiency and reduce waste.

Goal 13 (Climate Action): Amperon is building solutions to modernize grid data and enhance the AI software stack, aiming to improve grid reliability and operational efficiency by developing advanced tools that help renewable generation asset owners optimize their operations, facilitating the integration of more renewable energy sources into the grid. By providing precise, real-time insights into energy demand and supply, Amperon will enable these asset owners to maximize their output and efficiency, thus contributing to a more sustainable energy grid.

Goal 17 (Partnerships for the Goals): (Microsoft, Snowflake etc. Working with companies to support grid resiliency, reliability and decarbonization.

Relevant UNSDGs

Goal 7:
Affordable & Clean Energy

Goal 9:
Industry, Innovation, & Infrastructure

Goal 12:
Responsible Consumption & Production

Goal 13:
Climate Action

Goal 17:
Partnerships for the Goals