Storm Insight: Effectively manage storm-related outages to make sure you don’t leave customers in the dark

By Tom Martin
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Major storm events are becoming more frequent and stronger, and with these storm events come outages. Winter will be here before we know it. You don’t want to leave customers in the dark during the coldest months of the year. Utilities must be ready to quickly prepare and mobilize crews to affected and high-risk areas.

However, while time is of the essence, moving crews from one region to another is slow and expensive. Mobilizing mutual assistance from other utilities is even harder. Relying on local weather forecasts and in-house expertise rarely provides enough lead time for utilities, and delayed responses have serious financial and customer satisfaction consequences.

Proactively plan for storms with reliable power-outage forecasts

Fill out this short form to start a conversation about your needs and how we can help.

This problem of lead time is where E Source Digital Grid Solutions can help. The E Source Storm Insight application provides accurate and prompt predictions for how, when, and where forecasted weather events will affect the distribution grid and guides your utility’s decisions for a cost-effective response.

The problems with storms

Distribution infrastructure for electrical power is routinely damaged by weather—from moderate winds causing a tree limb to fall on a power line to severe winds causing an entire structure to collapse, resulting in a loss of power to customers. In some weather conditions, you can dispatch baseline

operational crews to investigate the cause, assess infrastructure damage, and reestablish power delivery. But severe weather events can substantially increase the frequency of outages and require additional crews to service the outages and restore power in a timely manner.

In the most extreme storm events, utilities task their storm-response teams with appropriately allocating resources in advance of the event to allow for the provision and positioning of crews. And other utilities may request mutual aid to adequately address the resulting outages. But predicting the number of expected outages and the resources needed to restore power is extraordinarily difficult because of the complexity of weather forecasts and the interaction with vegetation and utility infrastructure.

Our Storm Insight solution's storm-outage model is a real-time, data-driven, outage-prediction system that uses a mechanistic approach to model when and where outages will occur. The modeling approach is comprehensive, collaborative, and configured specifically to the utility to build each of the fundamental mechanisms for outage risk into the data-driven model.

Storm Insight: An intuitive, visual tool

With this solution, you can:

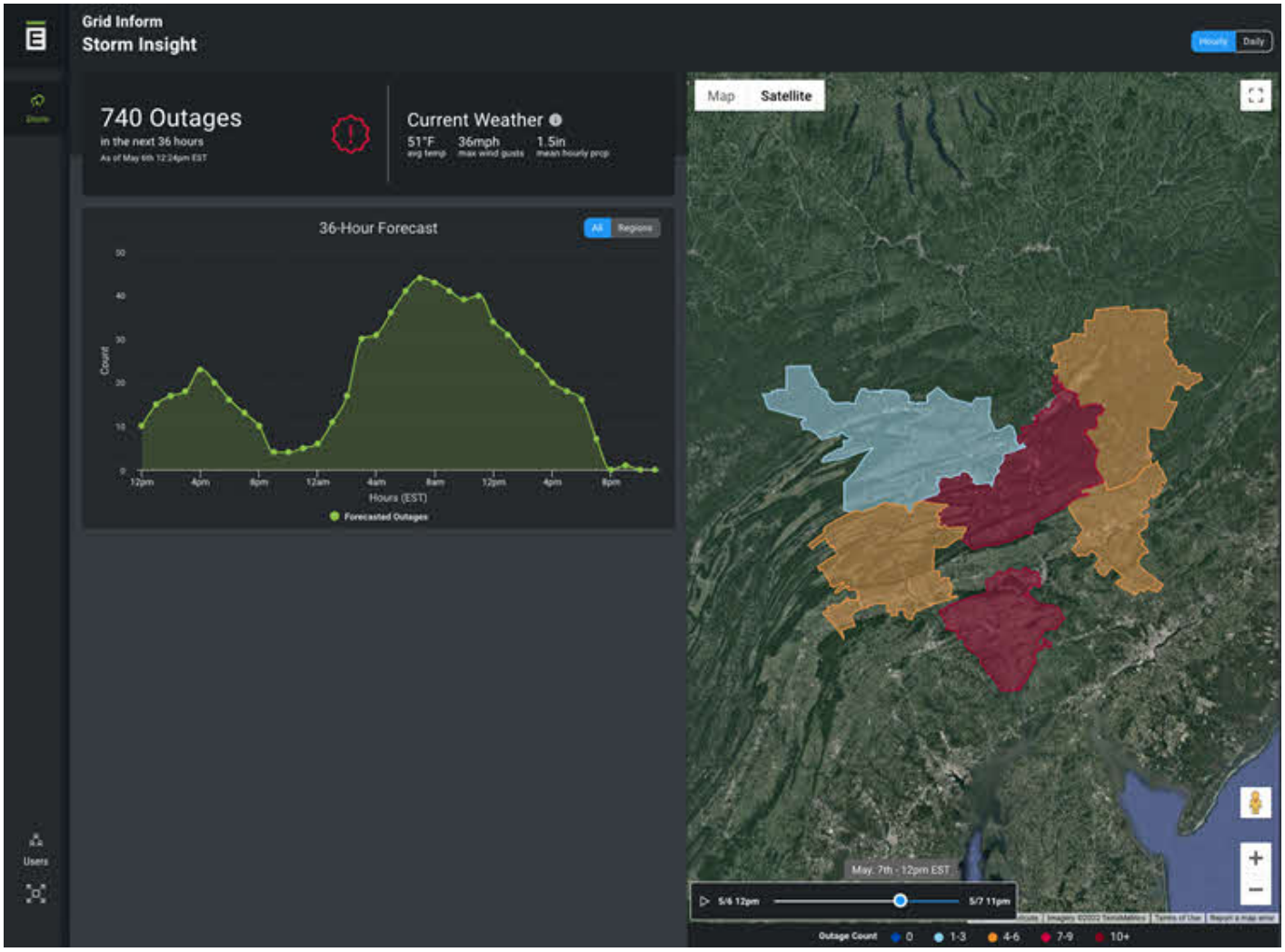
- Pan, zoom, and view aggregated information at varying resolutions and system levels
- Set predicted outage thresholds to automatically trigger notifications and visual warnings
- Give your storm-response teams access to distribution system outage predictions up to five days before a storm event
- View outage prediction trends

Accurately predict storm-induced outages and mobilize crews

Rather than relying on weather forecasts alone, Storm Insight builds a model on data that incorporates the relative risk from vegetation, various infrastructure types and conditions, terrain, geography, and inspection history before integrating high-resolution numerical weather prediction model outputs. The model forecasts weather and nonweather causes for a more accurate and reliable total outage prediction (**figure 1**). This approach predicts expected daily system-wide outages up to five days before storm impact and hourly location-specific outages up to 24 hours before storm impact.

Figure 1: E Source Storm Insight outage dashboard

Our Storm Insight application is highly configurable. It's built from the ground up to use your data, speeding time to value.



Storm Insight's comprehensive approach delivers a more accurate prediction of expected outages, which enhances utilities' ability to prepare for storms and make responsive decisions. It does this by:

- Ingesting your utility's existing data sets, such as outage history and maintenance costs
- Combining your data with industry-leading data sourced from a third-party weather vendor
- Providing a high-spatiotemporal-resolution forecast to adjust E Source's AI outage-prediction models
- Creating a dynamic digital replica of your grid and pairing it with real-time hourly weather forecasts, predicting potential storm-induced outages on your distribution grid three to five days in advance
- Identifying the regions and times of day that are at the highest risk for weather-induced power outages
- Helping your utility prioritize recovery efforts to maintain grid reliability and limit expenses

Using Storm Insight, a northeastern utility improved its outage-prediction accuracy by 30% three days in advance of a storm. Armed with information from Storm Insight, the utility was able to put the right levels of staffing in place, appropriately secure or deploy mutual aid, and implement a data-driven response plan. This accuracy prompted the utility's leadership to deploy Storm Insight at its other operating companies to support storm readiness and operations at an enterprise level.

Be prepared for whatever Mother Nature throws at you

Better preparation and storm-response planning can improve reliability metrics, decrease costs associated with the inaccurate allocation of resources, and improve customer satisfaction through faster restoration times. Even with the innate variability of the weather, Storm Insight provides location and impact predictions three to five days out with less variance and 20% greater accuracy than current forecasting approaches.

Learn more about our digital grid solutions. We'll help you overcome your storm-management challenges and optimize your grid investment.

Effectively manage storm-related outages with Storm Insight

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