

Maximizing the Potential of Transmission and Distribution Assets

Our Goal

Grid Raven's goal is to help increase grid transmission capacity by 30% annually on a global scale by 2030, which could bring the energy transition forward by a decade. The power grid is becoming a bottleneck in the energy transition, but the existing network is not yet used to its maximum potential.

Grid Enhancing Technology

Grid Raven offers Dynamic Line Ratings, a Grid Enhancing Technology, based on our extremely detailed AI weather forecasting model. This enables grid operators to have a precise overview of the conditions of their network and helps manage the amount of power that the grid can really handle at a given time.

Ambient Adjusted Ratings

Comply with FERC Order 881 while ensuring the safety of your network. Grid Raven's hyper-local wind prediction AI ensures that line ratings are not dangerously exceeded during hot, sunny and windless hours. Ratings are calculated based on IEEE and CIGRE methodologies and are provided as an hourly forecast up to 10 days ahead.

Dynamic Line Ratings

Grid Raven predicts weather and especially wind with meter-scale accuracy. We cover the full network without leaving any blind spots and can operate under all weather conditions. Our solution does not depend on physical hardware, but works well with any sensors that have already been installed. We predict the future with precision.



Accurate

Our wind forecasts are 40% more accurate than the national forecast in Estonia and we are continually improving our model together with the weather service.



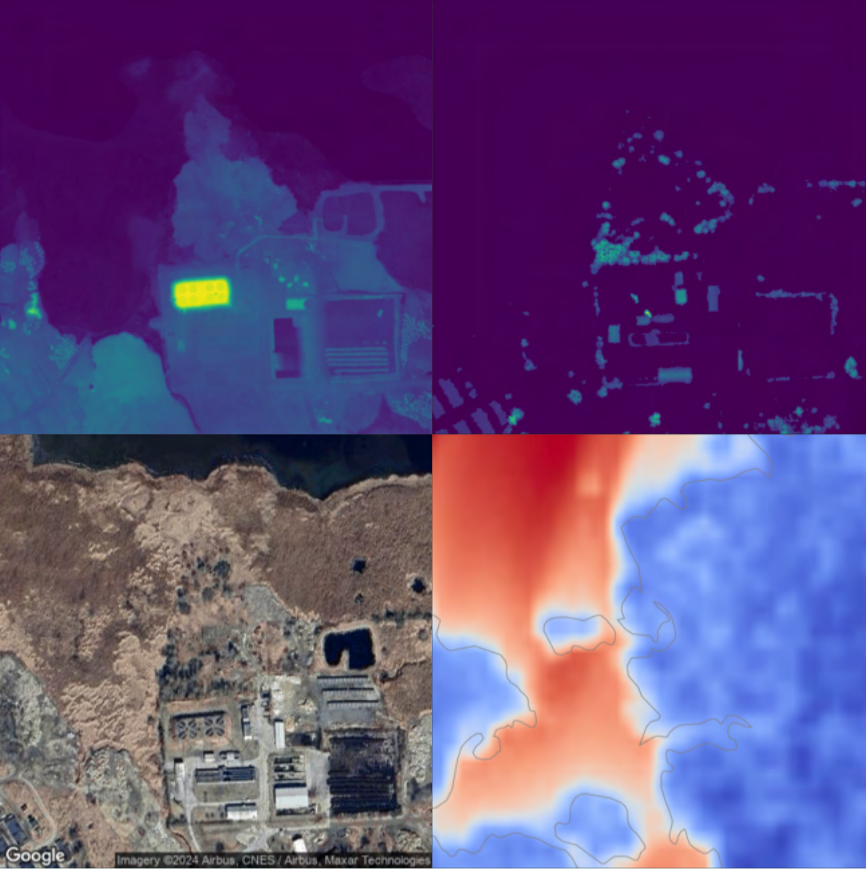
Reliable

Our service level availability is 99.99%. Our solution does not depend on physical sensors out in the field, but can work seamlessly with installed devices.



Scalable

Our license covers your full network from the start. With Grid Raven you can implement AAR and DLR at your own pace.



HOW IT WORKS

Hyper-Local Weather

Combining weather measurements with landscape data from satellites.

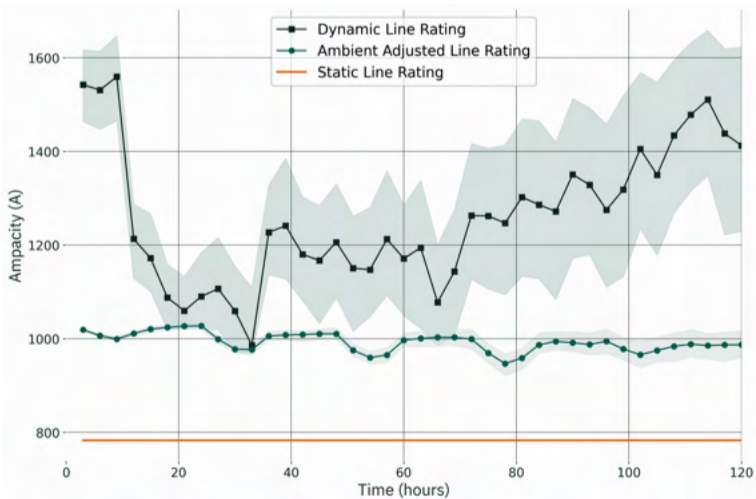
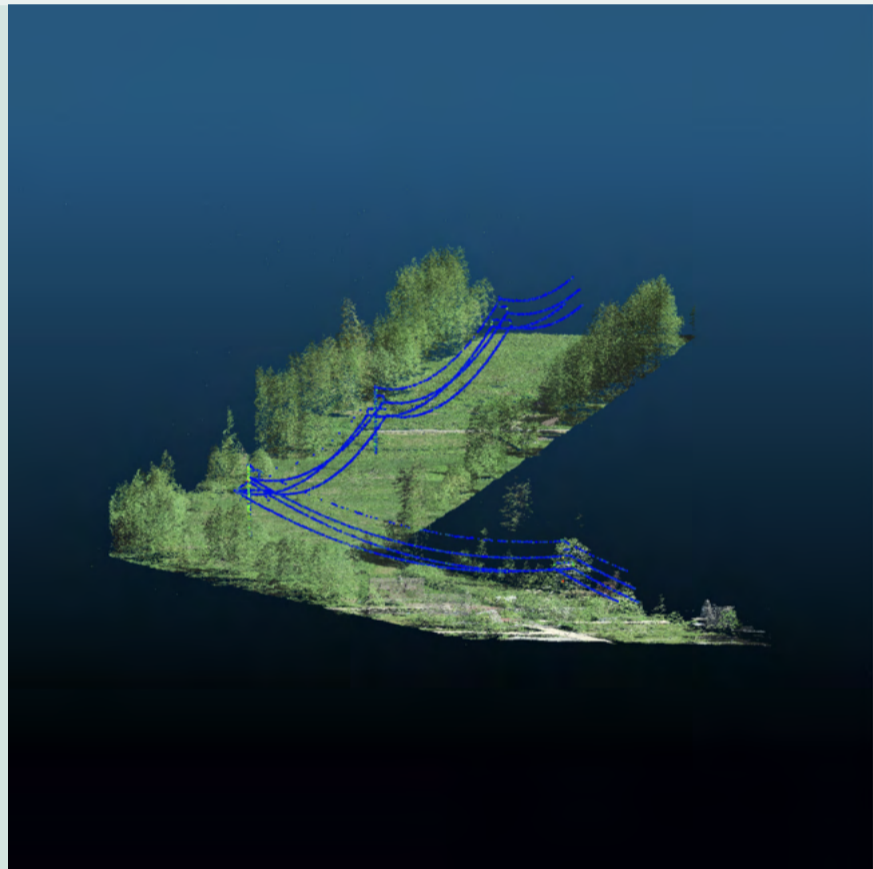
Our AI determines weather, including wind speed and direction, at the level of each individual span. The AI relies on satellite and LiDAR data to account with the detailed terrain and vegetation around each line. It is thus able to accurately predict wind even in valleys and forested areas where critical spans might be found.

HOW IT WORKS

Advanced Grid Modelling

Digital twin of overhead lines.

Grid Raven undertakes advanced grid modeling to determine the thermal ratings of each line. A comprehensive sag analysis is undertaken based on accurate input data and line parameters. If necessary, we can process LiDAR data to measure ground clearance.



Our line rating forecasts (lines) together with confidence intervals (shaded)

HOW IT WORKS

Accurate Line Ratings

Forecast of line ratings based on local weather conditions.

Combining the hyper-local weather and grid modelling gives real-time and forecast power line ratings. The maximum thermal rating of each span is calculated for each hour up to 10 days ahead, so that the additional capacity can be made available on energy markets.