

Transpower

Situational Distance to Fault (SDTF)



Enhanced decision making ability at Transpower

THE SITUATION

Transpower is the state-owned enterprise that plans, builds, maintains and operates New Zealand's high voltage electricity transmission network (The National Grid). Transpower is central to the New Zealand electricity industry, connecting New Zealanders to their power system through safe, smart solutions for today and tomorrow. Service levels are largely determined by how well Transpower manage and maintain their assets, how they ensure that the supply of electricity is maintained to the highest levels across NZ and how well they deal with interruptions when they occur. To achieve this, they need an effective, reliable means of identifying, predicting and restoring faults as quickly and safely as possible.

When a fault is identified on a circuit, the National Grid Operations Centres (NGOC's) are responsible for determining the location of the fault, making informed decisions on the actions required to investigate and address the fault, ensure the fault is rectified and the circuit returned to service efficiently and safely. They need to confirm whether it's safe to attempt an immediate re-living of the circuit, or whether an inspection patrol is required which is a costly and time-consuming activity.

Prior to 2014, the NGOC controllers had to rely on manual interpretation of data from multiple systems to support effective decision making. Often large amounts of data needed to be assimilated at once and were depicted in tabular form with no spatial component. This meant quick and accurate responses to fault restoration were unlikely.

THE SOLUTION

Adhering to Transpower's theme of continuous improvement, they pursued an opportunity to create a solution whereby all spatial and data components were combined in a single view. Achieving this would be the next step towards further improving fault ID and restoration in a timely manner, maximizing the reliability and continuous supply of their service. It would also serve to enhance their objective to promote a high level of safety.

Hence the establishment of the Situational Distance to Fault (SDTF) project. The aim of this project was to incorporate a much richer set of spatial capabilities developed to support new use-cases and functionality, improve the access of the spatial information and present it in an easy to use format.

Transpower chose to partner with e-Spatial because of our reputation as experts in the spatial industry and our ability to partner with businesses to help them understand their current spatial capability and realise its untapped value. e-Spatial worked with Transpower to build the unique characteristics of spatial into their business strategy and plans, and subsequently design, build, test and deploy the SDTF solution.

Launched at Transpower in December 2014, the resilient SDTF system is a state of the art, real-time, integrated spatial visualisation tool. Controllers are now able to see all the necessary information integrated together in one place. They can see the fault tower range, weather and lightning data in combination with geographic layers such as public places, terrain and land use to quickly determine the best and safest course of action.

Information such as the following can now be assessed:

- Is it a safety issue for the general public?
- Would it be quicker and safer to send a road vehicle or helicopter?
- Are there any recurring problems in the vicinity?
- Could this be a weather related event and if so, where is the weather system tracking?



THE BENEFITS

- **Reduced supply downtime leads to greater return on investment.**
- **Improved response time to repair faults.**
- **Reduced grid interruptions leads to better customer service and reputation.**
- **Improved safety outcomes for lines crews and the public.**
- **Easy access to trending information helps users predict future faults and leads to more informed decision making.**
- **Built with the future in mind, it is an extensible application and has been designed to allow for future mobilization.**