



National Grid

Safeguarding the national transmission system

Key points

- Provides a more robust process for tracking and managing sources of risk.
- Helps inspection and engineering teams co-ordinate work in the field.
- Strengthens the organisation's overall risk management framework.

Summary

To gain greater insight into third-party risks to its gas transmission infrastructure, National Grid engaged AMT-SYBEX to integrate the company's core asset management system with its incident management and GIS systems. Improved integration helps National Grid detect and address sources of risk more efficiently, helping to protect its extensive pipeline network.

Overview

Mitigating risk and increasing efficiency

National Grid recognised the need for integration between its current systems in order to boost information visibility and safeguard against risk.

Easy integration

AMT-SYBEX helped to integrate the company's asset management solution, Ellipse, with various incident management and GIS systems.

Securing supply

National Grid's key responsibility as sole operator of the UK's gas transmission infrastructure is the safe and reliable flow of gas through the NTS.

The challenge

National Grid relies on an extensive range of asset and incident management systems to ensure the safe and reliable operation of more than 7,600 kilometres of high-pressure gas pipeline. In an effort to boost information visibility and better safeguard against risk, the company wanted to increase integration between these disparate systems.

The solution

Working closely with National Grid, AMT-SYBEX helped to integrate the company's asset management solution; Ellipse, with various incident management and GIS systems, creating a set of co-ordinated, automated processes for organising and controlling work orders, asset information and incident reporting.

The benefits

- Ensures that asset and incident information is kept secure and made more available, allowing the company to get more out of existing data.
- Provides a full, historical picture of inspection work and third-party communication, boosting auditing standards.
- Helps to improve visibility of activity out in the field, ensuring that inspection and risk remediation work is carried out appropriately and on schedule.
- Allows the business to detect patterns of risk more effectively, improving the likelihood of resolving problems before they escalate.

National Grid owns and manages the systems that deliver gas and electricity to millions of customers across the UK. One of the largest investor-owned utilities in the world, the company plays a vital role in connecting homes and businesses to the energy they use.

Protecting high-pressure pipeline

As the sole operator of the UK's gas transmission infrastructure, one of National Grid's key responsibilities is ensuring the safe and reliable flow of gas through the national transmission system (NTS) – a high-pressure pipeline over 7,600 kilometres long that links six coastal importation terminals and 28 compressor stations, which are used to balance pressure throughout the system.

Paul Dowson, Senior Project Manager at National Grid comments: "Gas travels through the NTS at extremely high pressure – around 85 times normal atmospheric levels – and is highly flammable. If a section of pipe were to be pierced or broken accidentally, the

consequences could be extremely serious – so we have to ensure that there are very robust processes in place to safeguard the network against damage.”

Bringing systems together

Potential sources of accidental damage are numerous, and can range from building and development work to farming activity. To help maintain the integrity of the NTS, National Grid relies on a range of systems to capture and manage information about any sources of risk.

To keep a close watch on every metre of pipeline, the company conducts regular foot-based patrols and fortnightly helicopter fly-bys of the entire network. Field team members use a system known as SRP (Surveillance Reporting for Pipelines) to report on the condition of the pipeline and to flag up any potential issues.

Connecting the dots

National Grid was operating a suite of separate systems to manage and check its infield assets, but realised the potential value of system integration.

National Grid also uses an incident management system called EAGLES (Electricity And Gas Location Enquiry System) to handle enquiries from third parties about proposed works. For example, if a development company intends to start a new housing project, they can check with National Grid to see if there are any pipelines or other assets in the vicinity that could potentially be uncovered or damaged during construction works.

To support the company’s inspection and engineering teams, a pair of geographical information systems (GIS), Uptime and TMAPS, are used to map and manage detailed information about the pipeline and other network assets.

Rounding out this set of tools is the Ellipse asset management application suite, which delivers full visibility and management of the company’s assets. The solution is linked to a mobile working solution from AMT-SYBEX that allows field engineers to receive instructions for inspection and maintenance duties, and update central asset records remotely from the field.

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Paul Dowson
Senior Project Manager
National Grid

While these systems provided the company with rich data on the condition of its transmission network and possible threats, National Grid realised that their value could be increased by connecting them together.

Paul Dowson elaborates: “We wanted to take incident and asset management to the next level by bringing all of the information held in different systems together and building a set of standardised processes for end-to-end management of third-party risks. This would provide us with a full, accurate history of all our asset information, helping us to get the most out of our existing data and strengthen our risk management framework.”

Choosing a partner

AMT-SYBEX provided design, implementation and testing services for the new systems and data flows.

The result

Using Ellipse as asset master, National Grid can collect more meaningful information on its assets, control field team activity and synchronise with other systems. The result: a highly integrated, intelligent and efficient information system.

Joining forces with AMT-SYBEX

Recognising that such an integration project would be a considerable undertaking, National Grid engaged AMT-SYBEX to provide design, implementation and testing services for the new systems and data flows.

“This was a complicated project, and we are extremely pleased with the quality of work that AMT-SYBEX delivered,” states Paul Dowson. “They were very focused on keeping us involved at every stage, and collaborated closely with our project team and other service providers to pull everything together and steer the project to a successful finish.”

AMT-SYBEX established Ellipse as National Grid’s asset master, and worked to fully integrate the solution with the company’s other incident reporting and GIS systems. The AMT-SYBEX team also worked to enhance data quality by ensuring that databases were correctly set up and that messaging between the different systems and associated databases ran properly.

Highly integrated solution

With Ellipse at the centre of a tightly integrated work and asset management system, National Grid can collect more meaningful information on its asset base and better control field team activity. Enquiries and sightings captured in EAGLES and SRP automatically generate work orders in Ellipse that are subsequently published to the mobile workforce and logged in the GIS systems, enhancing the information made available in the field.

“Now that all this information from our incident reporting, work management and GIS systems is coming into Ellipse, we can track and co-ordinate field team activity much better,” explains Paul Dowson. “We can see that our engineers are getting out to jobs, investigating potential problems and closing down any incidents properly. From a management point of view, this level of visibility is really beneficial, as it allows us to organise work much more effectively.”

By automatically transmitting work orders via the AMT-SYBEX mobile solution to the field, the new system ensures that each enquiry or sighting is handled effectively, and no potential issues are missed.

The mobile element also gives National Grid a more flexible way to gather information to meet ever-changing requirements. New “scripts” can easily be created to prompt field teams to collect specific data while they are out on site. As an example, when the United Kingdom Onshore Pipeline Operators’ Association (UKOPA) updated its reporting requirements, National Grid was able to adapt its mobile scripts to include the relevant questions and guidance quickly and at minimal cost.

Staying on top of inspection work

The integrated solution is also helping National Grid to build a much fuller picture of asset conditions and sources of risk, and better understand the history of inspection work. Every time that field teams return to a site, their reports and comments are appended to the existing entry for that specific work order, making it easier for the company to stay on top of incident reporting and follow-up activity.

The higher level of reporting detail is also helping the company to improve data management. Having a full history of communication with third parties enables National Grid to be better prepared in the event of an audit. The company can now present a record of all interactions with landowners or developers, and of subsequent inspection activity at a particular site, helping it to prove that proper procedure was followed in each case.

“AMT-SYBEX has helped us to build a solution that allows us to get more out of our systems and data than ever before. For us, the ability to improve our risk management and prove that we are doing so has been the biggest success of this project to date.”

Paul Dowson
Senior Project Manager
National Grid

Improving risk management

By bringing all of its asset and incident information together in Ellipse, National Grid can analyse its activities more easily and detect trends and patterns of risk, improving the likelihood of resolving specific problems before they escalate.

Paul Dowson concludes: “AMT-SYBEX has helped us to build a solution that allows us to get more out of our systems and data than ever before. Now that our asset and incident information is centralised, up-to-date and secure, we can give the business a solid platform for staying on top of trends and issues related to third-party risk. For us, the ability to improve our risk management and prove that we are doing so has been the biggest success of this project to date.”

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AMT-SYBEX Ltd.
The Spirella Building
Bridge Road
Letchworth Garden City
Hertfordshire
SG6 4ET
United Kingdom

National Grid is a long term client of AMT-SYBEX and utilise the Affinity Suite and Ventyx Ellipse in key areas of their business.