



CASE STUDY: Anglian Water Strategic Pipeline Production Planning trial

Strategic Pipeline Alliance (SPA) is delivering the largest drinking water grid program in the UK and one of the largest infrastructure programs in Europe. SPA supports Anglian Water's key strategic aims to make the East of England resilient to the risks of drought and flooding and to be a net-zero carbon business by 2030.

KEY POINTS

- Enhanced production planning capability required due to increasing demand and reductions in availability of water resources
- Development of tool to satisfy UK water industry needs
- Successful trial demonstrates that the tool will satisfy Anglian Water's needs

CLIENT REFERENCE

Ian Burgoyne
Systems Engineer
Anglian Water – Strategic Pipeline
Alliance

BACKGROUND

Anglian Water is building a new 290km Strategic Pipeline that will enable transfer and distribution of water from wetter areas in the north of the region to central and southern areas that have increasing stress on supplies due to reductions in abstraction licences and increased demand from growing populations. Anglian Water identified the need for an enhanced production planning capability to maximise the benefits of the new pipeline for increased water supply reliability and resilience.

PURPOSE

The new production planning capability is intended to deliver a safe and reliable water supply whilst meeting all licensing and quality targets by developing short-, medium-, and long-term coordinated regional plans that respond to changing conditions whilst incorporating forecast demands and capacity planning to efficiently and effectively manage water assets.

This is a complex task, requiring development of optimised coordinated plans for managing abstraction licenses over a variety of durations, account for variations in production costs and capacity over the year, include asset maintenance schedules, and enable scenario planning. It was decided that an automated software solution would be needed to deliver this capability effectively.

Optimatics was looking for an opportunity to enhance an existing production planning tool and adapt it for the UK market. A proof-of-concept trial was initiated to explore whether this tool could satisfy Anglian Water's needs for enhanced production planning.

PROJECT SCOPE

The trial was executed as a collaborative development process. For phase 1, Optimatics developed the tool with SUEZ to satisfy an initial requirement set that was agreed with Anglian Water and built a model for one part of the geographical scope of the trial. Anglian Water used historic data to create scenario data sets that were used for testing. A series of joint workshops were used by Optimatics to demonstrate the working model, adapt the solution based on Anglian Water feedback, develop a detailed requirement set, and train Anglian Water staff to perform further development of the model.

For Phase 2 of the trial, Anglian Water extended the model to include the whole of the trial's geographic scope. The model was also enhanced to support an extensive set of fixed and variable constraints to replicate real-world physical and operational limitations. Additional collaborative workshops were run to continue to build understanding of the tool's capabilities and identify additional functionality that would be required to satisfy Anglian Water's ambitions for an enhanced production planning capability. The workshops were also used to identify adaptations required for the tool to satisfy UK water industry requirements and regulations.

RESULTS

The trial proved that the AQUADVANCED® Water Supply Production Planning module provides the capability to:

- Build a model that accurately replicates system performance
- Enable generation of a production plan that would safeguard abstraction licenses and improve reliability of supplies
- Provide a clear visual representation of planned production and transmission, enabling decision-making

Following the successful outcome of the trial, Anglian Water has decided to use the AQUADVANCED® Water Supply Production Planning module as the basis for the new production planning capability. Initial rollout of the tool will begin in the most critical areas for water resources in late 2024; extending use across the region as the Strategic Pipeline comes into service in 2025 and beyond.

