CASE STUDY

Optimising coal consistency

BlendOpt

The Challenge

An open pit + underground multi-seam mine sold several metallurgical coal and thermal coal products. There was a particular quality attribute that was sometimes difficult to control in product blends but that was important to buyers.

The mine's parent company engaged Paradyn to determine if a more consistent product quality could be achieved through optimised stockpiling and CHPP processing strategies without making changes to the mining schedule, which was constrained and had limited optionality due to the layout of the underground mine.

The planning problem was defined such that sales volumes for each product were fixed, so opportunities for improvement were not in relation to production yields or margin and instead related to the delivery of products within a narrow quality specification.

The Solution

BlendOpt was used to construct a Digital Twin of the customer's operation using a combination of stockpile definitions, process plant, and product specifications that reflected the customer's operational reality.

The Value Unlocked for our Client

The BlendOpt optimiser demonstrated its value as an effective coal supply management software application, and discovered plans that violate product specifications in <5% of targets in comparison to a previously existing plan that violated specifications in ~35% of targets across a five-year planning horizon.

Importantly, BlendOpt did not violate any quality specifications that were rejection limits, i.e. hard constraints for product sale.

The BlendOpt Solution

Paradyn's BlendOpt value-chain platform powered by Collaborative Mathematical Optimisation (CMO) can help you:

● Satisfy constraints in your value-chain

● Optimise for any objective including tonnage, revenue, and cost

● Optimise and integrate operational, tactical and strategic planning from minutes to years

● Improve collaboration and synchronisation between planning and operations

● Publish reports to relevant stakeholders

● Reconcile forecast with actuals

● Optimise reserving, processing, blending and logistical decisions

● Product portfolio optimisation

● 'What-If' scenario analysis

Read our articles to learn about Paradyn's innovative value-chain optimisation technology and how it can help your operation.

The Benefits

☑= ☑= 35% Spec Violations in Existing Plan to <5% in BlendOpt Plan

Zero Violation of Quality Specs That Were Rejection Limits

Optimised 5-Year Plan

Paradyn

Integrated Value-chain Optimisation

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