

## CASE STUDY

Maximising NPV for the world's largest coal deposit



### The Customer

Adaro MetCoal holds Coal Contract of Work (CCoW) for seven concession areas in Central and East Kalimantan provinces. These CCoWs currently constitute 1.27 billion tonnes of premium quality metallurgical coal resources with ultra-low ash and phosphorus content. The Maruwai Coal Basin, where the seven CCoWs are located, contains the largest relatively undeveloped metallurgical coal deposit in the world.

### The Problem

As part of a feasibility study, Adaro needed to evaluate and prioritise the sequence in which the remaining CCoWs were developed. They needed to make a number of strategic CAPEX and OPEX decisions for the next 20+ years to maximise the NPV. These included decisions such as:

- what order to open the mines (CCoWs)
- what order to mine each LG shell within each mine
- what mining equipment to purchase
- when, where and what size processing plants to build
- what coal to wash and bypass
- what transport network to build (road, rail, barge)
- what products to blend and sell to market

With such an extraordinarily large problem presented to Adaro, it was next to impossible to produce a solution manually that maximised NPV across all CCoWs.

The problem was so complex and large that there were thousands of options just for where, when and what size processing plants should be built. Even making the smallest change in the early years would result in a very different supply chain and NPV, affecting the results of the feasibility study.

### The Solution

Polymathian deployed BOLT, a supply chain optimisation decision support tool, to automate and optimise the strategic planning process. BOLT produced plans for each time horizon that decided the optimal CAPEX investment timing and OPEX spend, utilising a variety of data sources. Polymathian were then able to run multiple scenarios with varying parameters to maximise NPV over the next 20+ years. The results of the scenarios tested were then provided in a report to Adaro which included mining, blending and marketing decisions.

### Business Function

Maruwai coal basin

### Planning Function

Feasibility study for life of mine

### Product

BOLT - [bolt.polymathian.com](http://bolt.polymathian.com)

### The Benefits

From the scenarios tested, there was a 50% difference in NPV between the best and worst case plan. This equated to a difference of many billions in potential NPV.

By utilising BOLT, Polymathian were able to provide the level of certainty required to complete the feasibility study, which could have resulted in suboptimal CAPEX and OPEX decisions or delaying the start of investment.

50% difference in NPV between best and worst scenarios tested

Billions of dollars in improvement towards NPV

### Design to delivery: 12 weeks

#### Data Gathering

4 weeks

#### Configuration

4 weeks

#### Study

4 weeks