



Asset Management • Reliability • Condition Monitoring

Spares Optimisation Case Study – Food & Beverage Industry

Using Isograph Availability Workbench

The Objectives

- To deliver a **spares optimisation** project for two Canning Lines at a Brewery.
- To reduce the costs associated with **out of stock** incidents.
- To compare existing **unoptimised stock levels** to **optimised stock levels**.
- To quantify the **value** of the optimisation project over a 15 year life cycle.
- To use **Isograph Availability Workbench** – RCMCost module

Spares Optimisation

- Existing FMECA model
- Assets, Functions, Functional Failures, Causes
- Failure data & effects
- Corrective tasks & times
- Populated Spares data – current stock levels, lead times, purchase costs, storage costs and retrieval times.

The screenshot displays the Assetivo software interface. On the left, a hierarchical tree structure shows the following components:

- Pre-Optimisation - Spares
 - Locations
 - MBC:Modern Beer Co.
 - MBC.1:Capital City Plant
 - MBC.1.1:Brewery
 - MBC.1.1.1:Canning Line 1
 - MBC.1.1.1.1:Pasteuriser
 - MBC.1.1.1.1.2:Body/Structure
 - MBC.1.1.1.1.1:Infeed Section - Upper Deck
 - MBC.1.1.1.1.8:Infeed Section - Lower Deck
 - MBC.1.1.1.1.4:Wash Pump 1 - Pre-Heat
 - MBC.1.1.1.1.5:Wash Pump 2 - Full Heat
 - MBC.1.1.1.1.6:Wash Pump 3 - Hold Zone
 - MBC.1.1.1.1.7:Wash Pump 4 - Cooling
 - MBC.1.1.1.1.3:Outfeed Section - Upper Deck
 - MBC.1.1.1.1.9:Outfeed Section - Lower Deck
 - MBC.1.1.2:Canning Line 2

- Location Types
- Effects
- Spares
- Spare1:Wash Pump Motor
- Spare2:Wash Pump Impeller
- Spare3:Temperature controller (incl
- Spare4:Main drive motor gearbox
- Spare5:Conveyor support bearing
- Spare6:Modular belt section (1M)
- Spare7:Full modular belt
- Spare8:Conveyor sprocket
- Spare9:Position encoder
- Spare10:Mechanical seal
- Spare11:Electrical gland set
- Spare12:Perspex sheet
- Spare13:Emergency stop button
- Labor
- ET:Electrical Technician
- MT:Mechanical Technician

Two 'Spare Properties - Spare1 : Wash Pump Motor' dialog boxes are open. The first dialog shows the following fields:

- ID: Spare1
- Type: Not set
- Description: Wash Pump Motor
- Unit cost: 1000
- Unit volume: 0
- Unit weight: 0

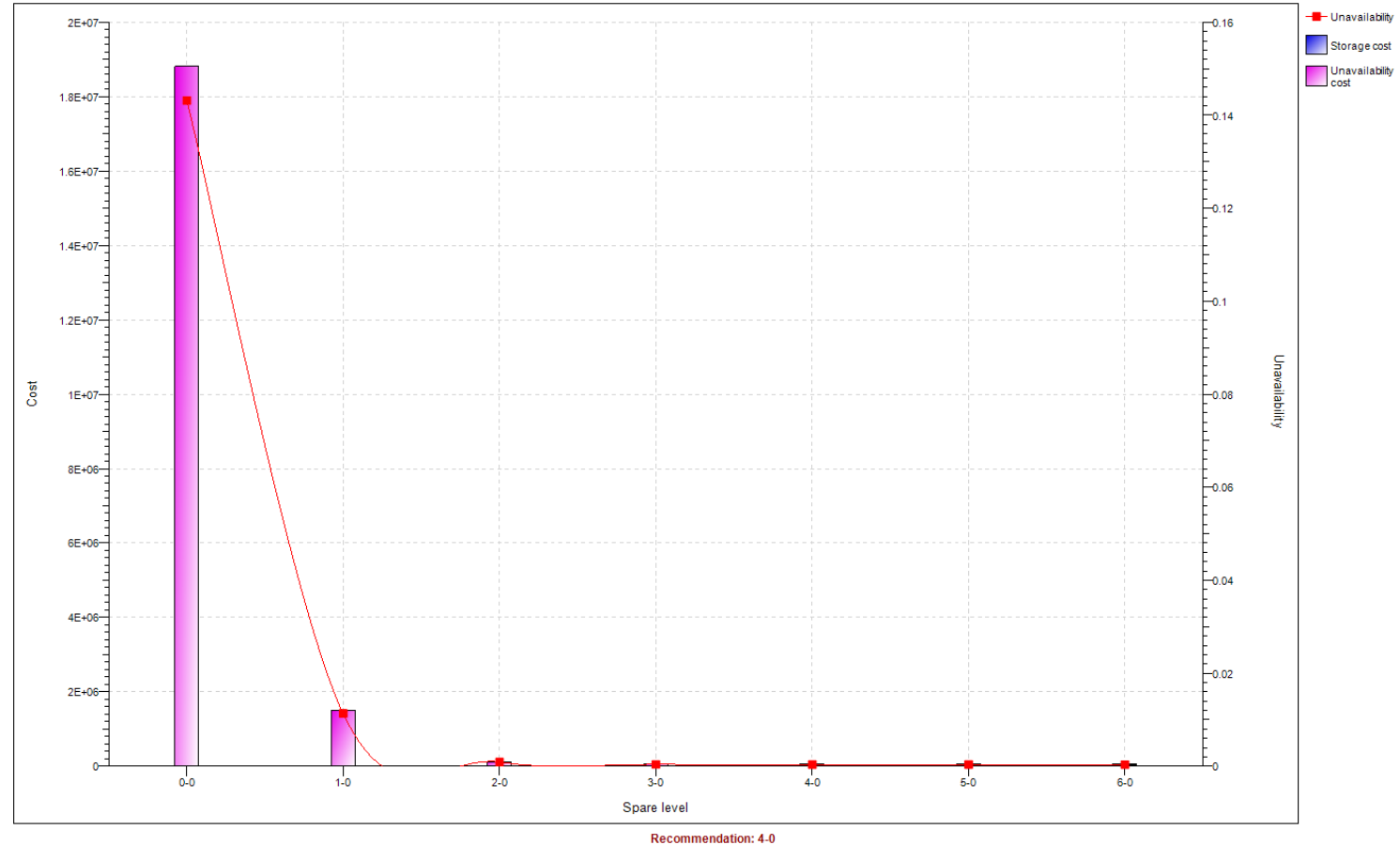
The second dialog shows the following fields:

- Capacity: 1
- Storage cost rate per unit: 0.02
- Logistic delay time: 0.75

Spare Optimisation

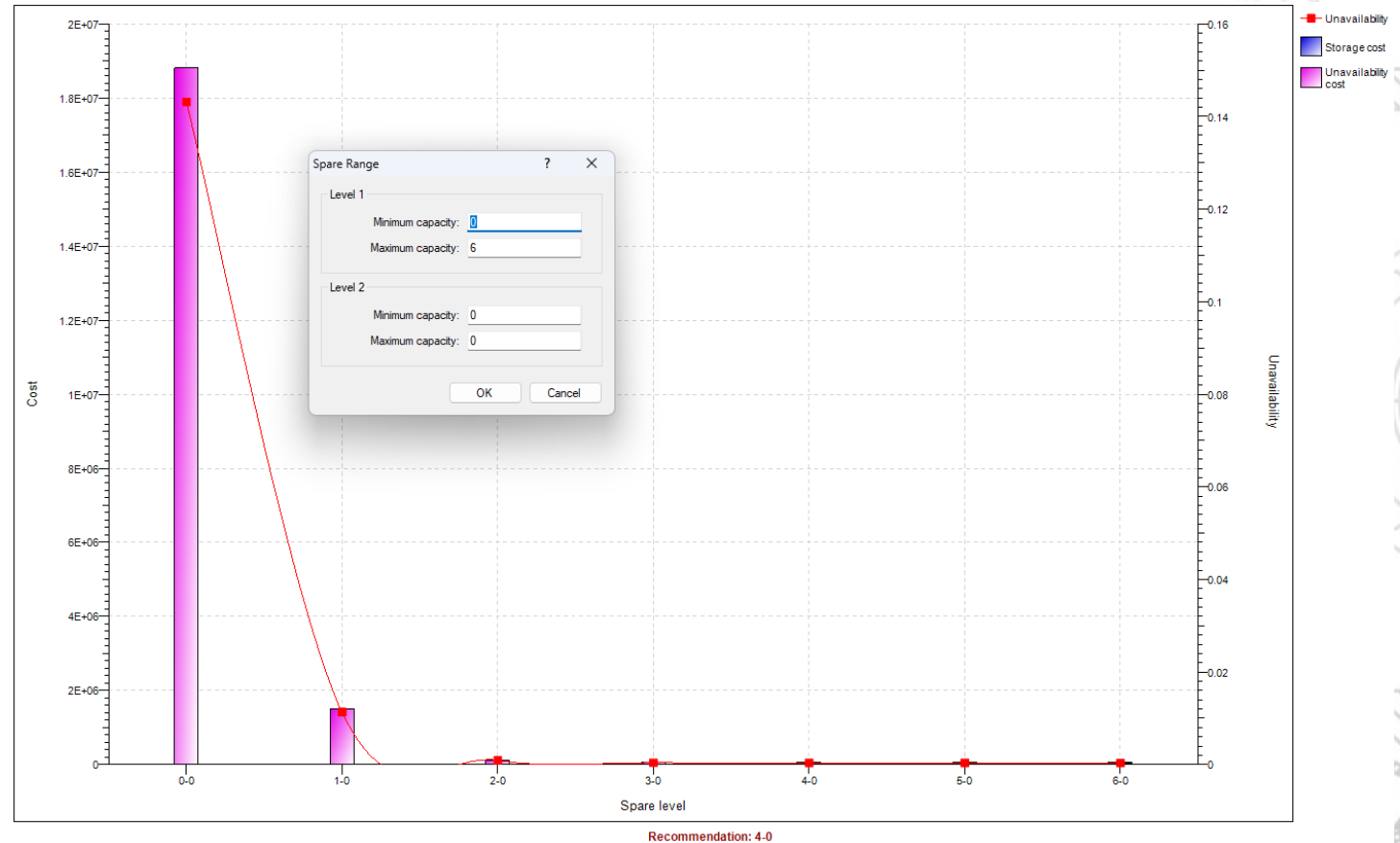
- Optimised each Spare
- Result based on Cost of Unavailability and Storage Costs

- Spares
- Spare1: Wash Pump Motor
 - Spare2: Wash Pump Impeller
 - Spare3: Temperature controller (inc
 - Spare4: Main drive motor gearbox
 - Spare5: Conveyor support bearing
 - Spare6: Modular belt section (1M)
 - Spare7: Full modular belt
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 - Spare9: Position encoder
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 - Spare11: Electrical gland set
 - Spare12: Perspex sheet
 - Spare13: Emergency stop button



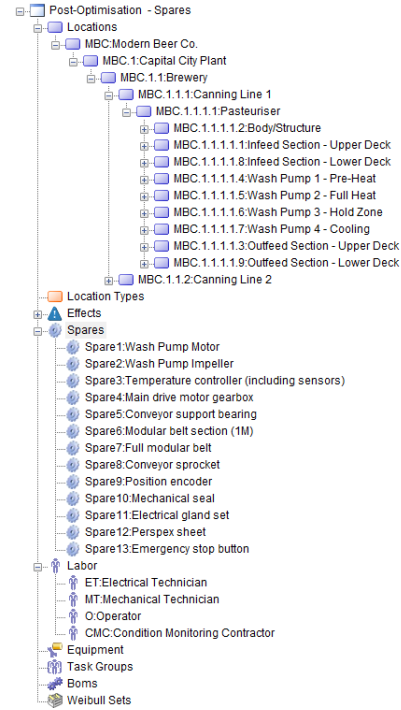
Spares Optimisation

- Different scenarios can be simulated.
- Increased storage capacity
- Satellite or second stores.



Post-Optimisation

- Accepted all **optimised spare stock levels** for each individual spare.
- Compared **Pre-optimised to post-optimised** models to understand overall costs
- Analysed costs over a 15 year asset life cycle

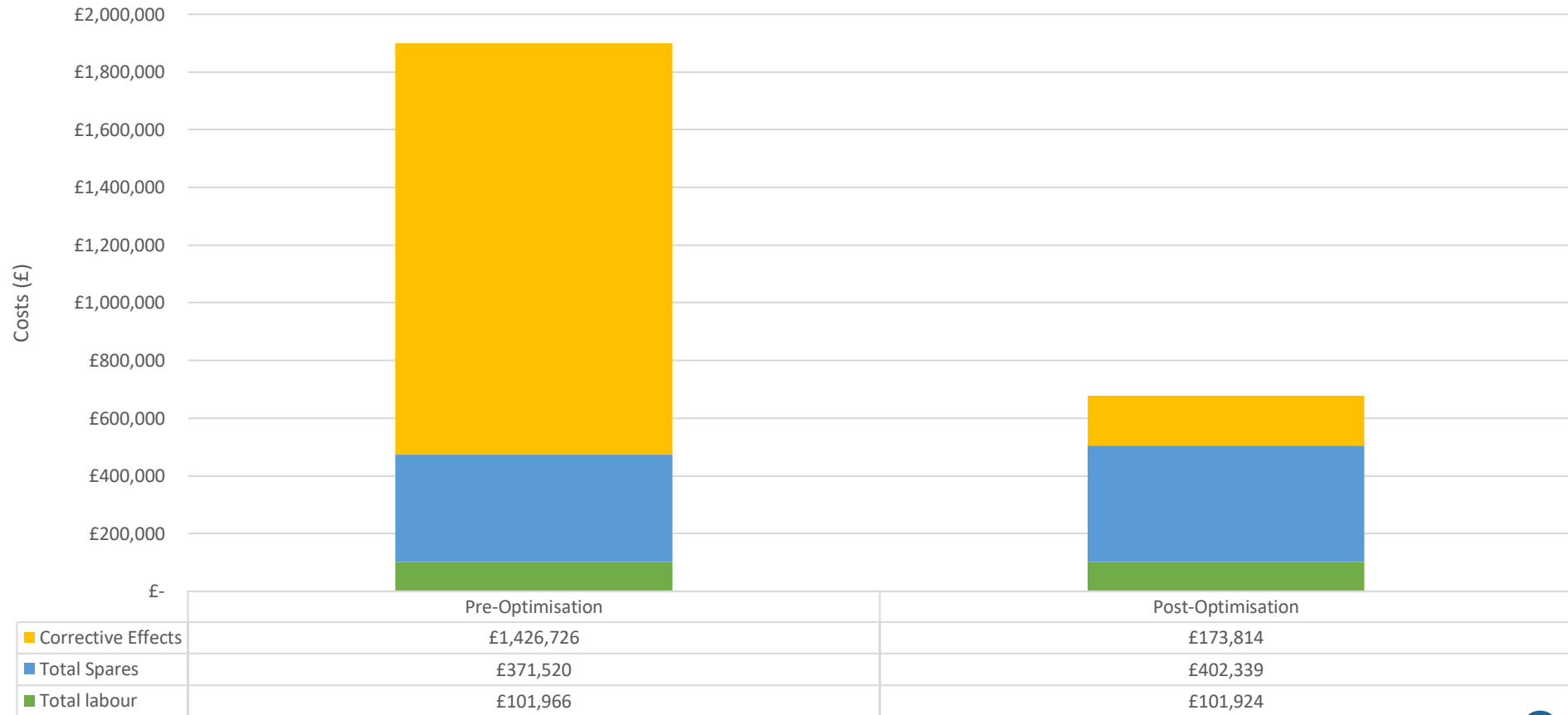


Spares Profile for All Spares



The Results – Life Cycle Costs

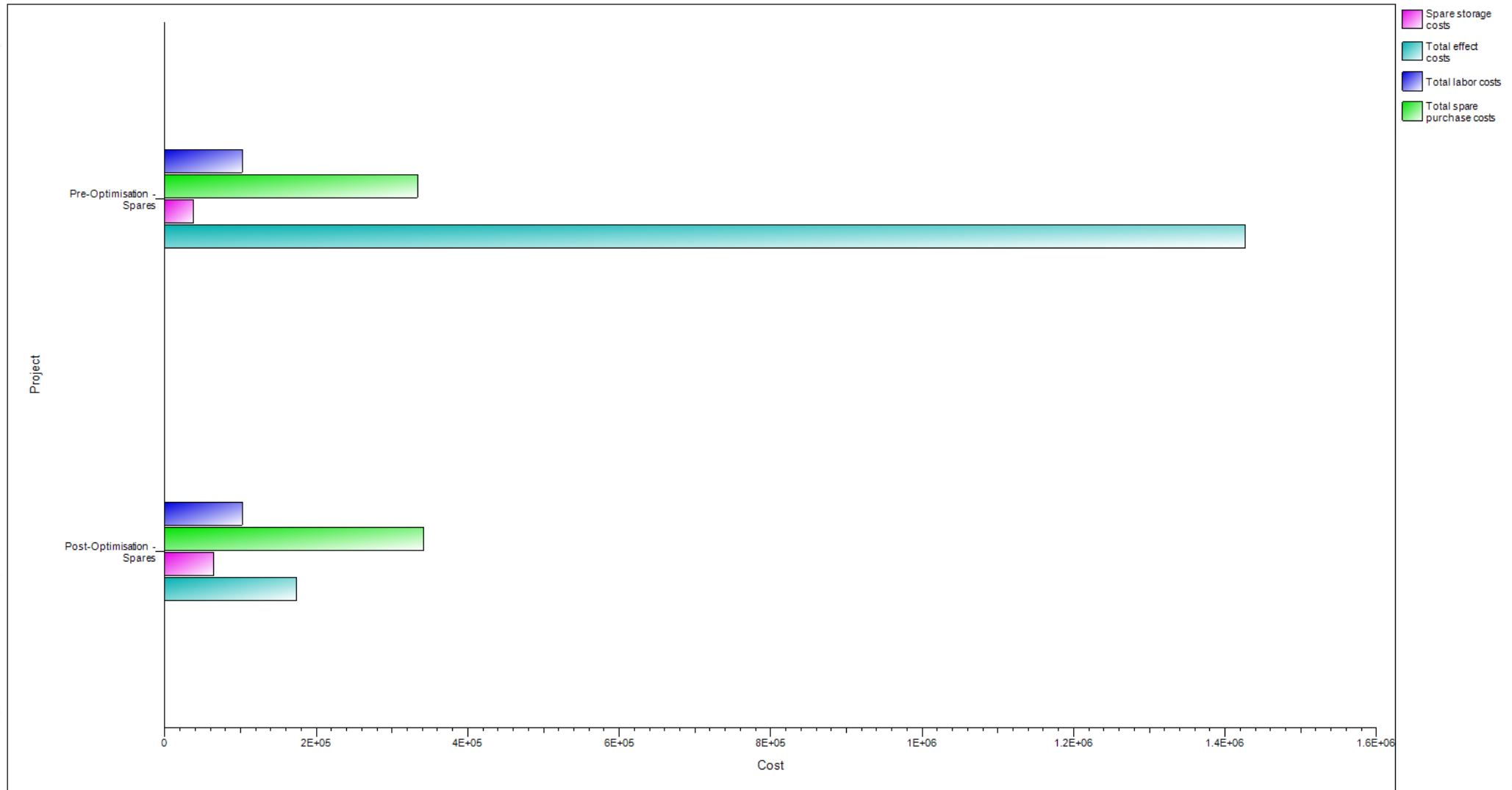
Spares Optimisation Comparison - 15 Year Life Costs



Spares Optimisation

■ Total labour ■ Total Spares ■ Corrective Effects

The Results – Comparison



Conclusion

- Spares optimisation applied to **two production lines** resulted in:
 - Cost reduction of 64% over 15 years due to higher line **availability** and reduction of **out of stock** incidents.
 - **Spares costs** increased marginally
 - Estimated overall saving of **£1.2M**
 - Increased accuracy in **budget predictions** for spares
 - **Optimised spares stockholding level** updated in CMMS



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