

Case study 1: Poor maintenance affecting efficiency

Conveyor of length 190m, nominal power 100 HP

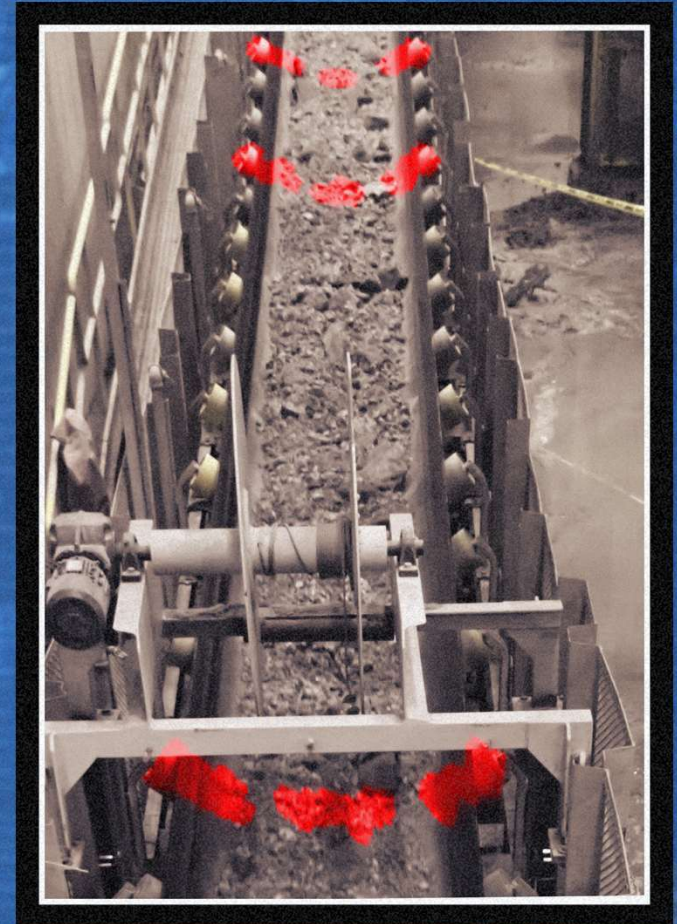
Scenario A

Conveyor is well maintained

Scenario B

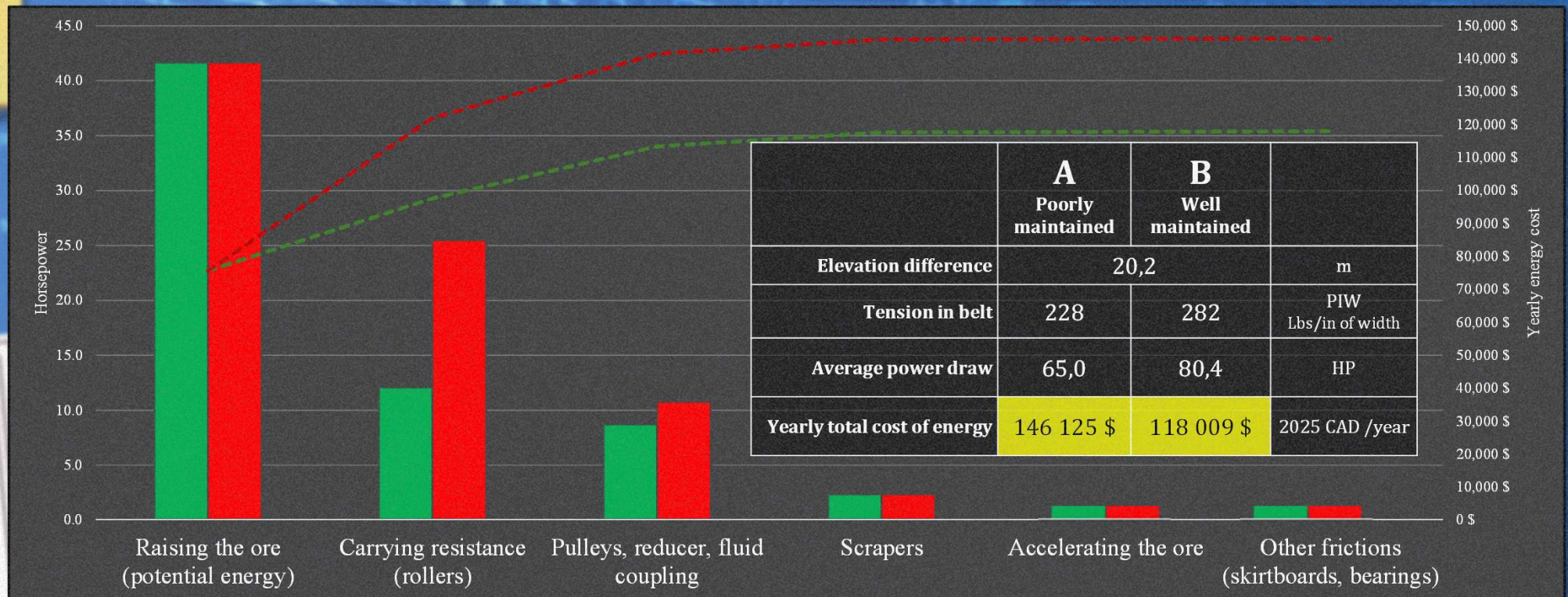
10% of the rollers are seized

What is the differential cost to operate?



Case study 1: Poor maintenance affecting inefficiency

Conveyor of length 190m, nominal power 100 HP

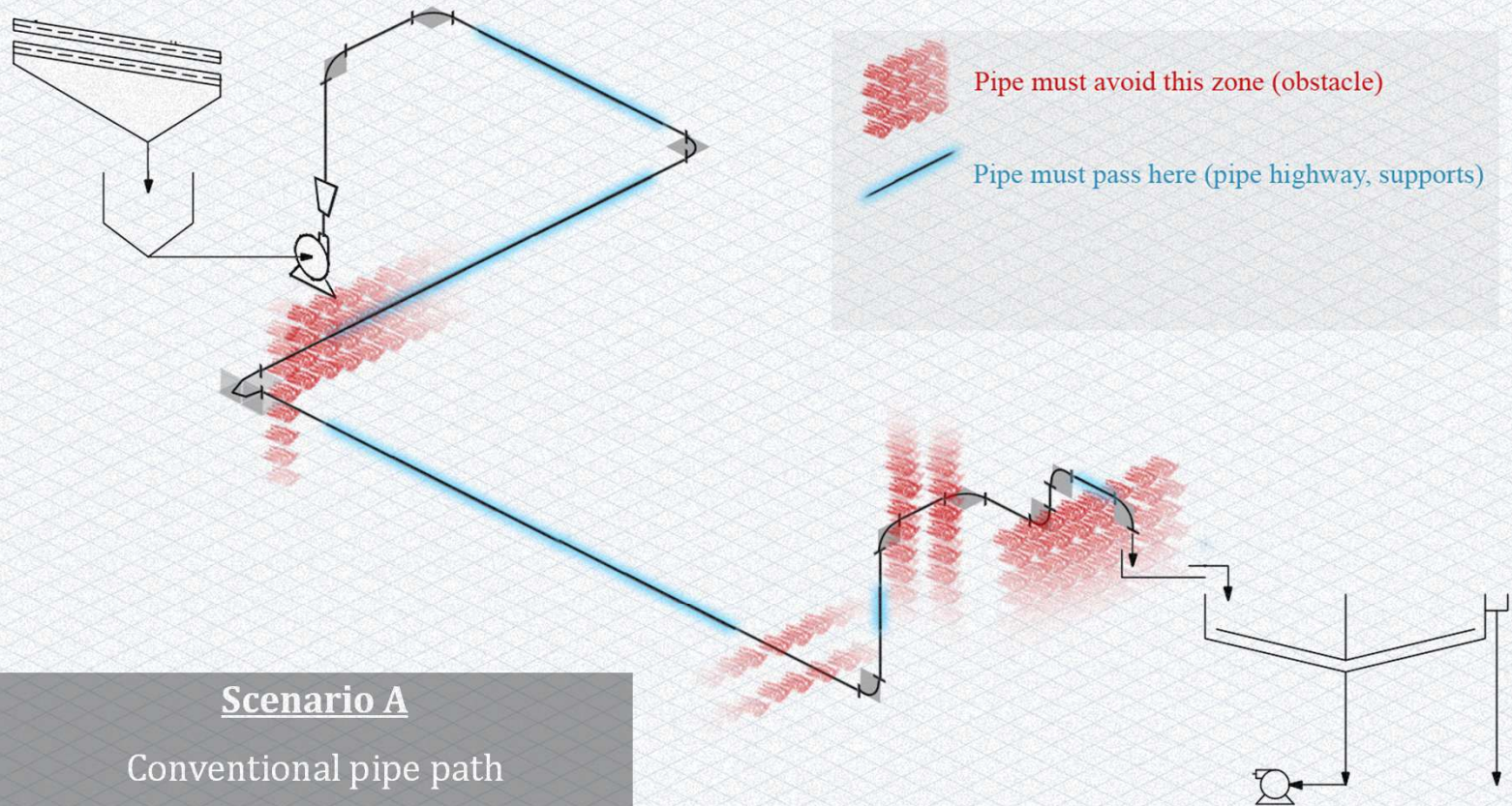


Quick wins

- Put a rock box in the receiving bin
- Put an emphasis on Phase 1 of Work Management: Identification (daily routes, PM01, SOPs)

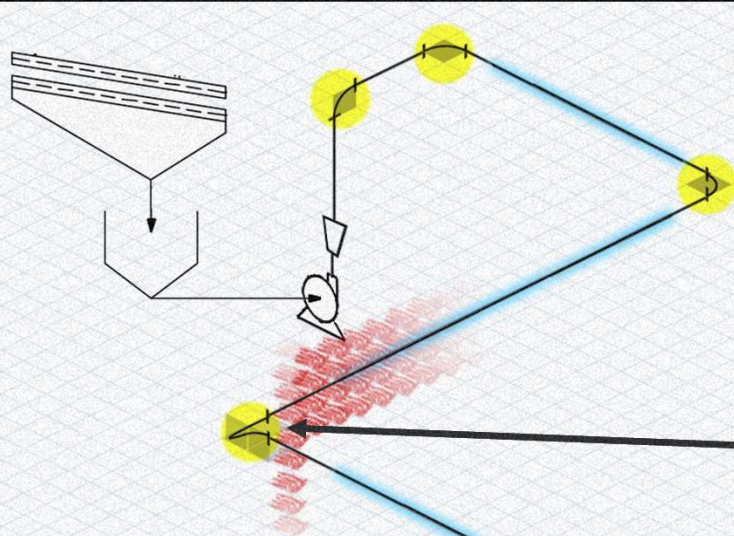
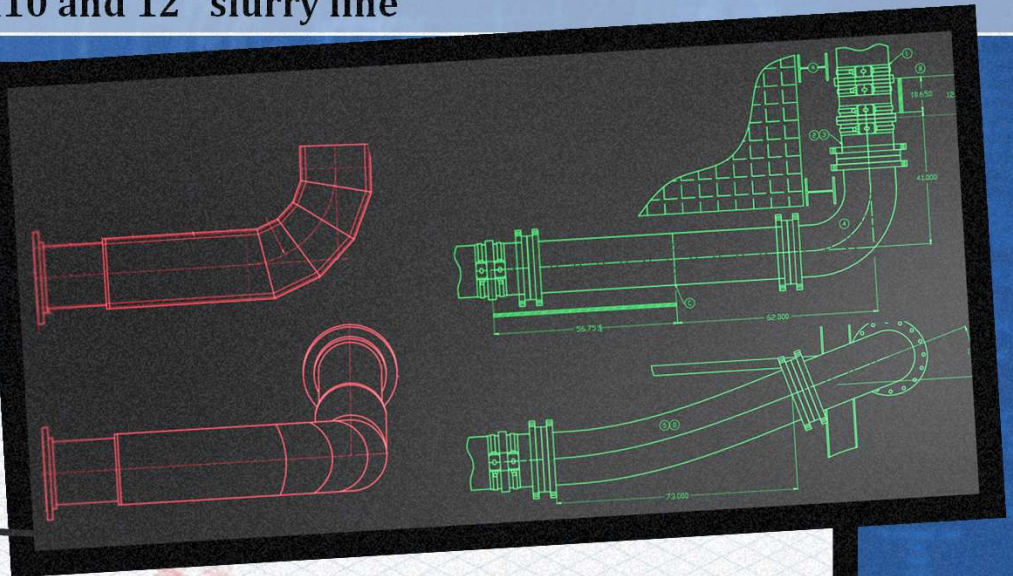
Case study 2: Energy efficiency affecting maintenance

Pump 12x10 and 12" slurry line



Case study 2: Energy efficiency affecting maintenance

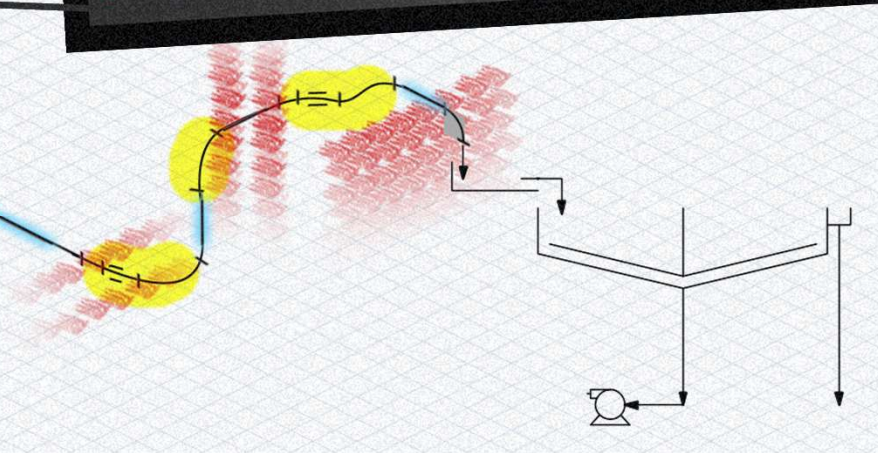
Pump 12x10 and 12" slurry line



Scenario B

Optimized pipe path

Radius maximized given constraints through calculus and linear algebra. Customs segments + flexible pipes.



Case study 2: Energy efficiency affecting maintenance (results)

Pump 12x10 and 12" slurry line



	A Not Optimized	B Efficient path	
Elevation of slurry	20,0		m
Equivalent length of pipe	165,1	111,7	m
Pressure loss (total)	37,3	34,4	psi
Power call	131,3	120,5	HP
Yearly energy cost	267 280 \$	245 264 \$	2025 CAD/year
Frequency of changing sections of the line	3 weeks	2 months	time/change
Yearly cost of maintenance (parts and labor)	29 089 \$	23 259 \$	2025 CAD/year
Yearly cost of re-processing spills	3 808 \$	1 310 \$	2025 CAD/year
Capex cost of the change	0 \$	31 440 \$	2025 CAD/year
Piping yearly cost	300 177 \$	269 833 \$	2025 CAD/year