

Case/Exercise 4B Expansion to Build Excess Capacity

The Runbybozos (RBB) company sends 420 units of its products to two warehouses in Bennington and Tractown. The products are made at the same cost in three factories, in Hooperman, Wizcity and Doogiecorners.

Transportation costs (\$K/truckload) before expansion

Warehouse-> <u>Factory</u>	Bennington	Tractown	<u>Supplied</u>
Hooperman	8	10	60
wizcity	20	12	60
Doogiecorners	8	14	60
	120	180	300
Demanded	120	300	

An EXCEL sheet, rbbexpan.xls, has been set up to calculate transportation costs. Finish setting this up as a Solver Model to test this solution and see if it is optimal.

If it isn't optimal, how could it be improved?

A) What is the original optimal solution transportation cost before considering expansion?

Although there is enough capacity, Joe Optionlover has proposed a construction project to increase capacity in the Hooperman plant by 200 truckloads per year. The cost would be amortized over a period of years that corresponds to increased facilities costs of \$400K/yr.

B) Use the Solver model to optimize the new situation with the Hooperman expansion. What is the new plan and the new cost?

C) Should RBB spend the money to build the excess capacity that would increase facilities cost by \$400K per year? Why or why not? Why would it be worthwhile to build capacity you don't need?

D) Studying and referring to the shadow prices for relaxing capacity constraints, which is the best plant to expand?

Use Solver to show how much it is worth expanding.