

Case 51

Refrigerator Magnets Company

The Refrigerator Magnets Company (RMC) makes magnets. The magnets are sold in a wide range of consumer outlets around the country. The annual capital budget is due, and as the engineering manager you have been asked to review the proposed projects submitted by the various departments and to prepare a final list for board approval. The board has budgeted \$1,200,000 for capital improvements. Last year's minimum attractive rate of return (MARR) was 12.8%. The weighted average cost of capital on which the \$1.2 million capital budget was based is 8.5%, and the marginal cost of capital is 11.5%.

The projects listed in Table 51-1 have been submitted. Regulatory projects are obligatory to meet state or federal requirements. Product growth projects are needed to support increasing product demand, and the project's benefits are from increased sales. The operating budget for next year assumes that the additional capacity will be created in a timely manner. Cost reduction projects are just that—projects which will reduce operating costs. They are discretionary. The new-product projects are to allow additional items to be added to the company's product offerings and as such increase sales (and thus profit).

Projects B and C are mutually exclusive solutions to the same problem. Projects L and M are dependent on Project K, but Project K does not depend on L and M. The production manager has been pushing to combine these three projects into one project on the basis of the synergy to be gained from three related parts on a common process.

Capital projects at RMC have historically been completed at 105% of the budgeted cost (on average). While company policy allows a +/-10% deviation (or a maximum of \$10,000)

on a project's capital expenditures without major questions or a supplemental capital request being required, the board has expressed its "strong desire" that the capital budget not be exceeded. From past experience you know that several small projects will come up during the year, which will be required for unforeseen opportunities or problems. You believe that \$50,000 should be set aside for these projects.

If a project is listed on the approved capital budget, project approval upon submittal of the detailed capital appropriation request is pretty automatic. When projects not on the capital budget are submitted (either as substitutions for budget projects or as opportunistic projects), they receive closer scrutiny during the evaluation/approval/disapproval process.

What is your final project list for the capital budget? What is your MARR recommendation for the upcoming year? Assume that all expenditures will be made in the budget year.

Table 51-1 Project List

Project	Type	First Cost	Life	Salvage Value	Annual Benefits
A. Packaging Line Automation	Cost Reduction	\$150,000	7	\$20,000	\$32,000
B. EPA Compliance – Option 1	Reg. Reqt.	75,000	10	0	0
C. EPA Compliance – Option 2	Reg. Reqt.	140,000	10	20,000	18,500
D. Automated Stamping Press	Cost Reduction	185,000	8	45,000	38,000
E. Banbury Mixer Upgrades	Cost Reduction	200,000	6	0	48,000
F. Glue System Upgrade	Cost Reduction	80,000	3	0	37,000
G. Curing Oven Expansion	Product Growth	129,000	12	22,000	23,500
H. Waste Water Treatment Project	Reg. Reqt.	205,000	15	0	23,000
I. Warehouse Automation – Phase 2	Cost Reduction	275,000	10	80,000	47,000
J. Part # 882G Die Replacement	Cost Reduction	29,000	4	1,000	9,700
K. Transfer Molding Press – New Product	New Product	130,000	6	30,000	28,900
L. Part # 638 Die – New Part	New Product	30,000	6	1,000	9,100
M. Part # A28C Die – New Part	New Product	24,000	6	1,000	5,500
Total		\$1,652,000			