Solution

Q1		
Sale Price	(p, \$/q)	100
Oper Cost per Unit	(c, \$/q)	40
Delay Time	(t_g, yr)	2
Percent Price Reduction	(x_g)	0.20
Delay Discount Factor	g	0.100

Q2				
Existing System				
Cost of Capital	(i)	5%		0.04
Economic Life	(N, yr)	10		5
Annual Demand	(q/yr)	1,500		10000
Sale Price	(p, \$/q)	70		70
Investment Cost	(IV, \$)	250,000		59000
Salvage Percentage		30%		0.25
Salvage Value	(SV, \$)	75,000		=C5*C6
Eff. Investment Cost	(IV^{eff}, \$)	203,957		=C5-C7*(1+C1)^(-C2)
Cost Cap Recovery	(K, \$/yr)	26,413		=C8*(C1/(1-(1+C1)^(-C2)))
Annual Operating Hours	(H, hr/yr)	2,000		2000
Known Departure Rate	(r_d, q/hr)	0.75		=C3/C10
Estimated Utilization	(u)	0.80		0.95
Estimated Capacity	(r_e, q/hr)	0.94		=C11/C12
Capital Cost per Unit	(k, \$/q)	14.09		=(C9/C10)/C13
Operating Cost	(OC, \$/yr)	50,000		500000
Oper Cost per Unit	(c, \$/q)	33		=C15/C3
New System				
Delay Time	(t_g, hr)	2		
Percent Price Reduction	(x_g)	0.50		
Delay Discount Factor	g	0.477		
Annual Demand	(q/yr)	2500		
Known Departure Rate	(r_d, q/hr)	1.25		
Optimal Capacity	(r_e, q/hr)	2.50		