

Study Case 6 : Operations Management

“Erin’s Energy plan”

Group 6:

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I. Overview

The financial status of Waylan Industries were not looking good. The latest figures had shown that profits were down inspite of increased sales because the cost of production was to high and it had consequently reduced profitability by a huge margin. It was also determined that the exponential jump in energy prices by as much as 250 percent had resulted in the high energy costs the company had incurred.

Waylan Industries want to develop an aggregate plan. Data that relate to production, demand, capacity, and cost are shown in table below.

| | Sales Period | | | |
|------------------------------|--------------|--------|-------|--------|
| | Spring | Summer | Fall | Winter |
| Demand | 1.500 | 5.000 | 5.000 | 10.000 |
| Capacity: | | | | |
| Coal | 500 | 500 | 500 | 500 |
| Natural Gas | 1.000 | 1.000 | 1.000 | 1.000 |
| Petroleum | 1.000 | 1.000 | 1.000 | 1.000 |
| Electricity (Local Utility) | 2.000 | 2.000 | 2.500 | 2.500 |
| Electricity (Nearby Utility) | 2.000 | 2.000 | 2.500 | 2.500 |

| Type of Energy | Cost per Million BTUs | Holding Cost |
|-------------------------------|-----------------------|--------------|
| Coal | \$ 8 | \$ 2,4 |
| Natural Gas | \$ 32 | \$ 9,6 |
| Petroleum | \$ 46 | \$ 9,2 |
| Electricity (Local Utility): | | |
| Spring | \$ 20 | 0 |
| Summer | \$ 40 | 0 |
| Fall | \$ 24 | 0 |
| Winter | \$ 70 | 0 |
| Electricity (Nearby Utility): | | |
| Spring | \$ 22 | 0 |
| Summer | \$ 44 | 0 |

| | | | |
|--------|----|----|---|
| Fall | \$ | 26 | 0 |
| Winter | \$ | 75 | 0 |

II. Analysis

| Supply From | Demand For | | | | Unused Capacity | Total Capacity Available (supply) | |
|-------------|------------------------------|----------------|----------------|-------------|------------------|-----------------------------------|--------------|
| | Spring | Summer | Fall | Winter | | | |
| Spring | Coal | \$ 8 500 | \$ 10,4 | \$ 12,8 | \$ 15,2 | 0 | 500 |
| | Natural Gas | \$ 32 | \$ 41,6 | \$ 51,2 | \$ 60,8 | 0 | 1.000 |
| | Petroleum | \$ 46 | \$ 55,2 | \$ 64,4 | \$ 73,6 | 1.000 | 1.000 |
| | Electricity (Local Utility) | \$ 20 1.000 | \$ 20 1.000 | \$ 20 | \$ 20 | 0 | 2.000 |
| | Electricity (Nearby Utility) | \$ 22 | \$ 22 2.000 | \$ 22 | \$ 22 | 0 | 2.000 |
| | Coal | | \$ 8 500 | \$ 10,4 | \$ 12,8 | 0 | 500 |
| Summer | Natural Gas | | \$ 32 1.000 | \$ 41,6 | \$ 51,2 | 0 | 1.000 |
| | Petroleum | | \$ 46 | \$ 55,2 | \$ 64,4 500 | 0 500 | 1.000 |
| | Electricity (Local Utility) | | \$ 40 500 | \$ 40 | \$ 40 1.500 | 0 | 2.000 |
| | Electricity (Nearby Utility) | | \$ 44 | \$ 44 | \$ 44 2.000 | 0 | 2.000 |
| | Coal | | | \$ 8 500 | \$ 10,4 | 0 | 500 |
| | Natural Gas | | | \$ 32 | \$ 41,6 1.000 | 0 | 1.000 |
| Winter | Petroleum | | | \$ 46 | \$ 55,2 | 0 | 1.000 |
| | Electricity (Local Utility) | | | | \$ 70 | 0 | 2.500 |
| | Electricity (Nearby Utility) | | | | \$ 75 | 0 | 2.500 |
| | Coal | | | | \$ 8 500 | 0 | 2.500 500 |
| | Natural Gas | | | | \$ 32 1.000 | 0 | 1.000 |
| | Petroleum | | | | \$ 46 1.000 | 0 | 1.000 |

| | | | | | | |
|--------------------|-----------|-----------|------------|------------|-------|------------|
| Total Demand | 1.500 | 5.000 | 5.000 | 10.000 | 6.500 | 28.000 |
| Cost of production | \$ 24.000 | \$120.000 | \$ 116.000 | \$ 432.800 | 0 | \$ 692.800 |

So, the cost of production of Waylan Industries for 4 seasons is \$692,800.