

HW-3 -

(3.2.)

a) Pool \$16 /MWh

NSPCO: uses 200 MW
pays \$3200

\$18 /MWh
uses 200 MW
pays \$3600

\$13 /MWh
uses 200 MW
pays \$2600

SALCO: delivers 200 MW
paid \$3200

delivers 200MW
paid \$3600
\$400 to NSPCO

delivers 200 MW
paid \$2600
NSPCO pays \$600
→ SALCO

b) $500 \text{ MW} \times \$18 = \900

NSPCO

makes 50 MW

\$900 from Pool

pays \$400

SALCO

gets 200 MW
\$3600 to pool
reclaims \$400

c)

NSPCO makes 200 MW
\$2600 from Pool

Receives \$600

SALCO
gets 100 MW
\$1300 to pool
pays \$600

3.4 a) supply curve

b) 400 MW

using supply curve market price = \$13.0

Red $q = 100 \text{ MW}$

$$= 13 \times 100 = \$1300$$

Blue $q = 300 \text{ MW}$

$$= 300 \times 13 = \$3900$$

Green $q = 0$

$$\text{per} = \$0$$

600 MW

MP: \$14.0

Red $q = 150 \text{ MW}$

$$\text{Revenue} = 150 \text{ MW} \times \$14.0 = \$2100 \text{ profit}$$

Blue $q = 400 \text{ MW}$

$$\text{Revenue} = 400 \text{ MW} \times \$14.0 = \$5600 \text{ profit}$$

Green $q = 50 \text{ MW}$

$$\text{Revenue} = 50 \text{ MW} \times \$14.0 = \$700 \text{ profit}$$

875 MW MP: \$18

Red $q = 225 \text{ MW}$

$$= 225 \text{ MW} \times \$18 = \$4050$$

Blue $q = 500 \text{ MW}$

$$= 500 \text{ MW} \times \$18 = \$9000$$

Green $q = 180 \text{ MW}$

$$\text{Revenue} = 180 \text{ MW} \times \$18.0 = \$2700$$

3.4 c)

$$D = L - 4\pi$$

$$\pi = \frac{D - L}{-4.0}$$
$$= \frac{348 - 400}{-4}$$

$$= \$13$$

* demand and supply curve:
* using intercept we can
find the demand and price.

* Find new market prices
for each forecast and actual demand.

~~the price sensitivity of demand makes quantity traded and market price go down.~~

c) $\frac{400 \text{ MW} = L}{348 \text{ MW} = D}$
i) \$13.0

The demand is found at the intersect of the supply curve and demand curve below.

$$\text{Red } q = 100 \text{ MW}$$

$$\text{Revenue} = 100 \text{ MW} \times \$13.0 = \$1300$$

$$\text{Blue } q = 248 \text{ MW}$$

$$\text{Revenue} = 248 \text{ MW} \times \$13.0 = \$3224$$

$$\text{Green } q = 0 \text{ MW}$$

$$\text{rev} = \$0$$

~~L = 600 MW~~
~~D = 546 MW~~

$$\$13.5$$

$$\text{Red } q = 100 \text{ MW}$$

$$\text{Revenue} = 100 \text{ MW} \times \$13.5 = \$1350$$

$$\text{Blue } q = 400 \text{ MW}$$

$$\text{Revenue} = 400 \text{ MW} \times \$13.5 = \$5400$$

$$\text{Green } q = 46 \text{ MW}$$

$$\text{Revenue} = 46 \text{ MW} \times \$13.5 = \$621$$

$$\pi = \frac{813 - 875}{-4}$$
$$= \$15.5$$

$$\begin{array}{l} L = 875 \text{ MW} \\ D = 813 \text{ MW} \end{array}$$

$$\$15.5$$

$$\text{Red } q = 200 \text{ MW}$$
$$\text{Revenue} = 200 \text{ MW} \times \$15.5$$
$$= \$3100$$

$$\text{Blue } q = 500 \text{ MW}$$
$$\text{Revenue} = 500 \text{ MW} \times \$15.5$$
$$= \$7750$$

$$\text{Green } q = 113 \text{ MW}$$
$$\text{Revenue} = 113 \text{ MW} \times \$15.5$$
$$= \$1751.5$$

