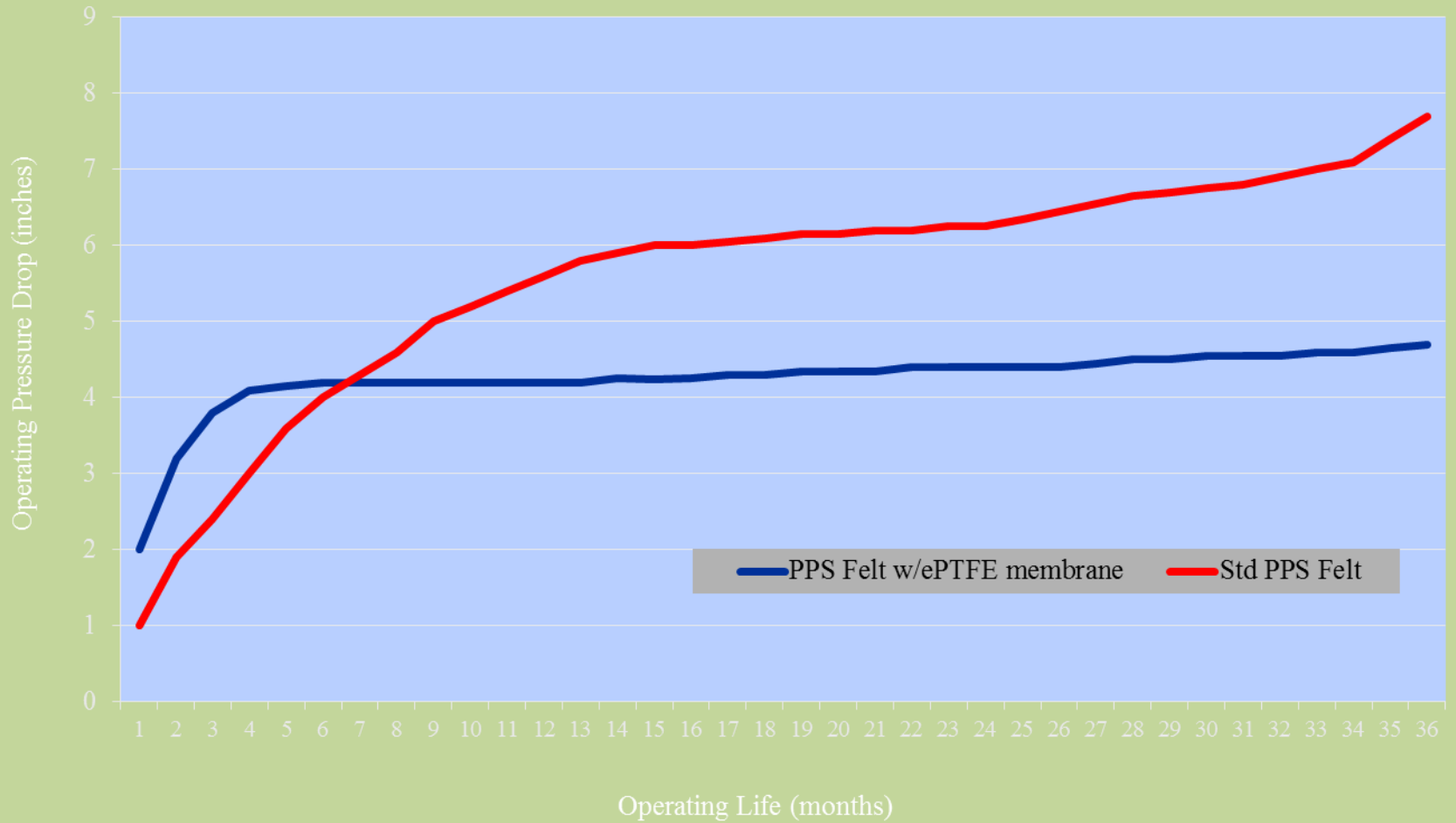


Pressure Drop Curves Comparing Standard PPS vs ePTFE membrane



Basic Equations:

1) Fan Motor Horsepower (hp) = $\frac{\text{Air Volume (cfm)} \times \text{System Resistance (in. H2O)}}{6356 \times \text{Mechanical Efficiency}}$

2) Electric Energy Cost (dollars/hour) = hp x 0.746 kw per hp x unit cost of Electric Energy (dollars per kw hr)

Assumptions:

1) Mechanical Efficiency = Fan Efficiency x Motor Efficiency x Drive Efficiency
By substituting typical efficiency values
Mechanical Efficiency = 0.70 (fan) x 0.90 (motor) x 0.99 (drive) = **0.62**

2) Annual Hours of Operation = 365 days/year x 24 hours/day = **8760** hours

Energy Cost Equation:

By combining the two basic equations and assumptions above, the following expression can be attained:

Annual Energy Cost in Dollars per 1000cfm =

$$\frac{1000 \text{ cfm} \times \text{System Resistance (in. H2O)} \times 0.746 \times \text{unit cost of electric energy (\$ per kw hr)} \times 8760}{6356 \times 0.62}$$

Power Plant Size	350 MW	500 MW
Total Air Volume (ACFM)*	1,225,000	1,750,000
Energy Savings per Year with 1.0” lower DP**	approx. \$100k	approx. \$145k
Energy Savings per Year with 2.0” lower DP**	approx. \$200k	approx. \$290k