No/Low cost Energy Saving Opportunities in Compressed Air Systems.

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Overview:

- Compressed Air ESA
- Compressed Air Energy Saving Improvements
    - The Big Three
        - Reduce air pressure
        - Repair Leaks
        - Recover Compressor Waste Heat
    - Others
        - Reduce Use of pneumatic tools
        - Reduce/eliminate inappropriate uses

Compressed Air Opportunities - No Cost

1. Reduce system pressure to lowest possible level
    a. Rule of thumb: every 2 psi reduction saves 1% of compressor input
    b. Energy Savings per year from reducing compressor pressure from 110 psig to 100 psig =$ 3,118 per year.

Compressed Air Opportunities - Low Cost

2. Repair Leaks
    a. Plant with no air system maintenance program may have 20+% leaks
    b. Well-maintained facility may still have 10% leaks
    c. Leaks are direct waste of precious resource
    d. Relatively inexpensive to repair
    e. Example: 2x250hp compressors; if leak is reduced from 20% to 10% = $3,978 savings/year

Compressed Air Opportunities - Quick ROI

3. Recover Water Heat
    a. only 10% to 20% of electric power of compressor is used to raise pressure remainder is dissipated as heat
    b. Up to 50% of this heat can be captured and put to good use for
        i. Comfort Heating
        ii. hot water heating
        iii. feedwater pre-heating
    c. Example: 125 hp compressor
    d. Avoided cost for heating = $7,600/yr

Compressed Air Opportunities - Low Cost

4. Reduce use of pneumatic tools
    a. air-powered tools are highly inefficient
    b. Example: compressed air component air grinder costs $0.92/hour to operate vs. electric grinder that costs $.09/hour, resulting in 93% savings.
5. Reduce inappropriate uses
    a. Because compressed air is expensive, it's use should be limited to applications for which no alternative is reasonable
    b. Potentially inappropriate uses should be eliminated such as personnel cooling, open blowing, etc.