How to Reduce Your Operating Energy Costs in a Hurry!

- TAMU IAC Info
- Common Recommendations
- Highlight on Sales Tax Abatement
- Highlight on Power Factor Correction
- Highlight on Compressed Air Problems

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Introduction to IAC Program

- Department of Energy program & criteria
- No-cost energy conservation studies
- Students led by Staff Professional
- Quantify Savings and Implementation Costs

Common Recommendations

- Motors
- Lights
- Compressed Air
- Heated/Cooled Systems
  - Boilers, Chillers, Steam, Insulation
- Power Factor Correction
- Productivity
- Waste Issues
Highlight on Sales Tax Abatement

- Predominant Use Study for Manufacturing performed by P.E.
- Texas rules
- 28 US States with Sales Tax Abatement: AR, CO, CT, FL, GA, ID, IA, IL, IN, KS, MA, MD, ME, MI, MN, MO, MS, NE, NM, NY, OK, RI, TN, TX, UT, VT, WI, & WY.
- Exempt uses – Manufacturing   Non-exempt – Offices, WH, Maint.
- Case Studies on two recent IAC visits for > $1MM savings
- Recent Chemical Processing article located at https://www.chemicalprocessing/article/2020/learn-from-your-electric-bills-part-1
Highlight on Power Factor Correction

- Corrected PF Reduces Billed Demand Costs paid to local TDSP
- PF minimum values
  - Houston, Centerpoint Energy is TDSP, PF min is 1.0 kW/kVA
  - North & Central Texas, ONCOR is TDSP, PF min is 0.95 kW/kVA
  - Entergy Texas in East Texas, PF min varies by rate tariff
- Billed demand = Actual demand × PF min ÷ PF actual
  - Example: actual demand = 1080 kW, actual PF = 0.82, ONCOR
    - = 1080 kW × 0.95 kW/kVA ÷ 0.82 kW/kVA = 1251 kW
    - = 171 kW MORE!
- Case Study on two recent IAC visits > $100,000/yr savings each
- Paybacks from 1 – 1.5 years is common for installation of capacitors to correct power factor.
- Recent Chemical Processing article located at https://www.chemicalprocessing/article/2020/learn-from-your-electric-bills-part-2
Highlight on Compressed Air Problems

✓ Compressed Air Leaks
  ✓ DOE found 20-30% of air is lost in leaks
    ✓ 100 hp AC = 400 cfm – 80 cfm lost in leaks
      ✓ Single shift operation, 5¢/kWh = $1,600/year
      ✓ 24/7/365 operation, 5¢/kWh = $7,000/year
  ✓ Welding Gases TOO!

✓ Reduce Compressed Air Pressure
  ✓ ROT is every 2 psi higher pressure = 1% higher power use on AC
    ✓ 100-hp AC, 20 psig higher pressure = 10% more AC power
      ✓ Single shift operation, 5¢/kWh = $750/year
      ✓ 24/7/365 operation, 5¢/kWh = $3,270/year

✓ Engineered nozzles
  ✓ Blow-offs, product movement, cleaning, drying
  ✓ Reduces compressed air usage by entraining ambient air into air stream – 80%
    ✓ 30 cfm before becomes 6 cfm usage = $600/yr becomes $120/year