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*