ECONOMY, ENERGY, ENVIRONMENT

Sustainable Manufacturing

"Leading the Way to Prevention, Profit and the Future"

IMPLEMENTING WATER AND ENERGY CONSERVATION

David Herb

RETAP Manager

517-284-6863

September 17, 2014

www.michigan.gov/retap

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RETIRED ENGINEER
TECHNICAL ASSISTANCE PROGRAM

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Free, Onsite Pollution Prevention and Energy Conservation Assessments Conducted by Teams of Retired Engineers

- Any business with 500 or fewer employees in Michigan
- Institutions of any size

- Confidential, Non-Regulatory, Voluntary, Objective, No Obligations

- Written Reports Within 60 Days
  - Specific recommendations
  - Estimated resource & dollar savings
  - Targeting each client's priorities

- **www.michigan.gov/retap**

RETAP

- >1,850 Assessments Conducted to Date!
- >100 Assessment per Year
- >$40,000 Savings per Assessment (average)
- >50 Retired Engineers and Scientists

Over 2,000 Years of Combined Engineering Experience
Free of Charge

Request an Assessment or Additional Information

www.michigan.gov/retap

David Herb, RETAP Manager
800-662-9278 (toll free)
517-284-6863
herbd@michigan.gov

RETAP Engineers/RETAP Contractor
888-749-7886 (toll free)
248-478-8030

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E3-Sustainable Manufacturing Conference

September 17, 2014

IMPLEMENTING WATER AND ENERGY CONSERVATION

Lou Gibson, PE, CEA

Do companies routinely track energy and water consumption?

RETAP's Experience:

- Most companies track utility costs
- Large Companies: Typically Yes
  - Energy consumption common
  - Water consumption if critical to operations
- Small Companies: Typically No
  - Practice is becoming more common

Real time measurement will be important.

Factors influencing energy and water conservation in small business operations

RETAP's Experience:

- Cost (or rising costs)
- Awareness and significance of opportunities
- Continuous improvement systems (and/or importance to continually reduce costs)
- Production demands and staffing limitations
- Economic condition of business

Common factors inhibiting energy and water conservation (that need not)

RETAP's Experience:

- Limited expertise
- Unaware of opportunities
- Unaware of true costs
- Other (i.e. production) priorities
- Lack of management support

More Challenging Barriers:

- Available funds
- Staff time
- Restrictive ROI requirements

Other important factors for achieving energy and water conservation

RETAP's Experience:

- Understanding true costs

    - Water: supply, treatment, heating, wastewater treatment, disposal/sewer fees

- Awareness of new technologies / improved equipment

- Champion or strong advocate

- Green team with goals

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What is Sustainability?

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Dow Jones-
"Sustainability generates shareholder value by controlling risks and capitalizing on opportunities associated with environmental and socioeconomic issues."
President of XYZ Manufacturing-
"Sustainability is just staying in business."

I believe it's creating a balance between what you take from the environment and return to it.

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Statement:

The use of water and energy is a "cost of doing business" for many manufacturing processes and operations.

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Case Studies

Seimans Industries, Benton Harbor, MI
Flexfab, LLC, Hastings, MI
Linn Products, Charlotte, MI
Kenwall Steel, Dearborn, MI

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- Siemens Industry Inc., Benton Harbor
- RETAP completed the on-site assessment in August, 2008
- Helped Siemens Save Over $125,000 Annually
- Made 35 recommendations, total $29,000 in quantifiable savings
- Savings primarily lighting and ventilation

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- **Flexfab LLC, Hastings, MI**
- **RETAP completed the on-site assessment in October, 2008, with 60 recommendations, $250,000 total savings**
- **Implemented 49 recommendations**
- **Annual savings of $162,000**

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• Flexfab LLC, Hastings, MI

- Improved recycling program that reduced the number of containers going to landfill and saved $4,500 in disposal costs.
- Replaced 400-watt metal halides and T12 fluorescent lamps with T8 fluorescents and reduced number of lamps in fixtures saving 308,000 kWh and $24,000 per year. Received rebates from Consumers Energy totaling $21,000.
- Upgraded/installed more efficient gas fired ovens saving 8,100 mcf and $79,500.
- Equalized natural gas delivery cost between plants saving about $2,500.
- Reduced sewer charges for boiler water and process water not going to the sewer, saving $25,000 per year.
- Reduced operating pressure of air compressors saving 32,000 kWh and $2,600.
- Instituted a regular compressed air leak detection saving 36000 kWh and $3000 per year

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- **Linn Products, Charlotte, MI**
- **RETAP completed the on-site assessment in November , 2010, with 35 recommendations, $100,000 total savings**
- **Annual savings of $180,000 realized**
- **Recommendations included lighting, compressed air, ventilation and VFD's**

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- **Kenwall Steel, Dearborn, MI**
- **RETAP completed the on-site assessment in April , 2011, with 40 recommendations, $51,000 total savings**
- **Annual savings of $185,000 realized**
- **Recommendations included lighting, compressed air, oil separation and HVAC**

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My conclusion?

The use of water and energy is NOT a "cost of doing business"

Water and energy use and associated cost can be controlled and reduced.

It must be measured in order to be controlled.

Savings can often be achieved with little or no investment, or with short paybacks.