MnTAP and Industrial Energy
CERTS 2013
Minnesota Technical Assistance Program

• Created in 1984
• Located at the University of Minnesota
• Provide waste management, pollution prevention and energy efficiency assistance
• Confidential and Non-regulatory
Industrial Process Assistance

- Pollution prevention
- More efficient use of raw materials
- Water conservation strategies
- Energy efficiency opportunities
- Cost savings for businesses!!
MnTAP Services

- **On-Site Assistance**
  - Site assessment visits
  - Company team facilitation
  - Intern program
  - Demonstrations and research projects

- **Minnesota Materials Exchange**

- **Communications and Outreach**
Program: On-Site Assistance

- One-on-one assistance
- P2 and E2 process evaluation
- Recommendations in a report or letter
  - Staff follow-up for further assistance in problem solving and implementation
Impact: Standard Iron & Wire Works

Sauk Centre, Minnesota

- Referred by Minnesota WasteWise
- Focused on paint booth efficiency
- Arranged a tour for staff to visit another successful company

- Made changes to facility to save
  - 3,900 lbs powder paint ($10,000)
  - Less staff time spent handling paint
  - 3,600 therms ($2,500)
  - Better work environment
Impact: Community Assistance

City of Buffalo

- Contact - City Utility Director
- Site visit request for target businesses
  - Small printer
  - Car washes
  - Metal finishing
- Opportunities Identified
  - Fan efficiency
  - Compressed air leaks
  - Motor efficiency
- Potential Savings
  - >70,000 kwh
  - $9,000
Program: Team Facilitation

• Success Through
  – Management support
  – Proper training
  – Empowered staff

• Leads To
  – Identifying and solving problems
  – Faster and more effectively
Impact: PM Beef

Windom, Minnesota

- Attended steam assessment training and participated in a facility audit
- Developed team to address energy management
- MnTAP helped prioritize team projects

- Completed several projects in 2011
  - 172,000 therms
  - 2.5 million gallons of water
  - $114,000
Program: Interns

• Fresh set of eyes for facility
• Work on target projects
• Advised by MnTAP and onsite supervisor
  – MnTAP staff conducts follow-up with company for up to 2 years
• Hired and paid by MnTAP
  – Utility partnerships
  – Companies contribute cost-share
Energy Related Projects – 2010-12 Interns

Breadth of focus

- Motor replacement and efficiency program
- Aeration and mixing energy in waste treatment
- Energy and resource use in paint and coatings
- Steam and compressed air utility improvement
- Process waste heat recovery

Big and small projects

Clients ranged from small to Fortune 500’s
Impact: Consolidated Precision Products

Bloomington, Minnesota

- Two interns since 2008
- Goals: reduce/eliminate SF$_6$ and reduce energy use
- Second intern now full-time employee
- Rolled out SF$_6$ alternative to other facilities in U.S.

- Results of implementation include:
  - Reduced SF$_6$ by 36,500 lbs ($250,000$
  - Reduced energy use by 1 million kWh and 93,000 therms ($120,000$)
Impact: City of Rogers WWTP

Rogers, Minnesota

- 2011 intern project
- Investigation energy efficiency of oxidation ditch rotors
- Identified new control scheme to reduce energy use
- City implemented optimal control set point and new pond aerators
- Potential for 240,000 kWh and $15,000
## 2011 Environmental Benefits

<table>
<thead>
<tr>
<th>Activity</th>
<th>Total Waste (lbs)</th>
<th>Water (gal)</th>
<th>Energy kWh</th>
<th>Energy therms</th>
<th>Cost Savings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Goal</td>
<td>200,000</td>
<td>11,000,000</td>
<td>4,000,000</td>
<td>330,000</td>
<td>$1,350,000</td>
</tr>
<tr>
<td>Site Visits (calls/emails)</td>
<td>3,580,000</td>
<td>620,000</td>
<td>1,640,000</td>
<td>955,000</td>
<td>$1,370,000</td>
</tr>
<tr>
<td>Interns</td>
<td>15,000</td>
<td>6,150,000</td>
<td>3,828,000</td>
<td>1,166,000</td>
<td>$1,100,000</td>
</tr>
<tr>
<td>Teams</td>
<td>1,545,000</td>
<td>7,100,000</td>
<td>2,320,000</td>
<td>76,000</td>
<td>$680,000</td>
</tr>
<tr>
<td>Materials Exchange</td>
<td>380,000</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>$11,000</td>
</tr>
<tr>
<td><strong>GRAND TOTAL</strong></td>
<td><strong>5,100,000</strong></td>
<td><strong>13,900,000</strong></td>
<td><strong>7,800,000</strong></td>
<td><strong>2,200,000</strong></td>
<td><strong>$3,100,000</strong></td>
</tr>
</tbody>
</table>
Our Reach

Site Visits
Teams
Interns
Save Energy Now – Grant Project Overview

- Project initiated – 2009
- Sponsor - MN Department of Commerce with a grant from US Department of Energy Save Energy Now Program
Training Events

• Energy Efficiency Training Events
  – DOE certified trainers
  – 1-2 day training events
  – Variety of industrial topics
    • Compressed Air
    • Motors
    • Fans
    • Steam
    • Refrigeration
Project Outcomes so far…

- **Training Workshops**
  - Compressed Air, Steam, Fan, Motors, Pumps

- **Energy Assessments**

<table>
<thead>
<tr>
<th>Activity</th>
<th>Identified Savings</th>
<th>Implemented Savings</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>MMBtu</td>
<td>Cost Savings</td>
</tr>
<tr>
<td>25 DOE Assessments</td>
<td>419,000</td>
<td>$7.9 million</td>
</tr>
<tr>
<td>8 Additional Assessments</td>
<td>6,800</td>
<td>$124,000</td>
</tr>
<tr>
<td>(IAC, Lighting, Intern)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>426,000</td>
<td><strong>$8.0 million</strong></td>
</tr>
</tbody>
</table>
# DOE Energy Intern Projects 2012

<table>
<thead>
<tr>
<th>Company</th>
<th>Intern</th>
<th>MnTAP Staff</th>
</tr>
</thead>
<tbody>
<tr>
<td>Graco Inc.</td>
<td>Brian Joe</td>
<td>Mick Jost</td>
</tr>
<tr>
<td>Northern Iron &amp; Machine</td>
<td>Eric Sterna</td>
<td>Mick Jost</td>
</tr>
<tr>
<td>3M</td>
<td>Olivia Zigler</td>
<td>Karl DeWahl</td>
</tr>
<tr>
<td>Seneca Foods</td>
<td>Emily Hutson</td>
<td>Paul Pagel</td>
</tr>
</tbody>
</table>

This project was made possible by a grant from the U.S. Department of Energy and the Minnesota Department of Commerce.
NEW: Industrial Refrigeration

- We estimate about 100 large industrial refrigeration >1000hp
- State-wide opportunity
DOE Refrigeration Outreach

- Technical association participation
- National quality efficiency training
- National quality energy assessments
  - User, utility, and MnTAP work together
  - Site provides 33% of the assessment funds
  - Opportunity for Investment Grade Audit
- Opportunity for further service and follow-up
Can MnTAP Help Your Clients

• Process Improvements
• Lean Manufacturing Projects
• Broad Industry Expertise
  – Food processing
  – Chemical manufacturing
  – Metal Fabrication and Coating
  – And many others
Assistance Resources

• Website – [www.mntap.umn.edu](http://www.mntap.umn.edu)
  – Industrial Energy Efficiency
    (http://www.mntap.umn.edu/resources/reports/DOC/index.html)

• Newsletters
  – Source - [http://www.mntap.umn.edu/source/index.htm](http://www.mntap.umn.edu/source/index.htm)
  – Enews, Case Studies

• Contact MnTAP
  – Email mntap@umn.edu
  – (612) 624-1300
MnTAP’S MISSION
Helping Minnesota businesses develop and implement industry-tailored solutions that prevent pollution at the source, maximize efficient use of resources, and reduce energy use and costs to improve public health and the environment.

View our confidentiality policy

RECENT NEWS & EVENTS
News: Minnesota Businesses are Conserving Energy, Reducing Waste, and Saving Money. Over 200 businesses worked with MnTAP in 2011 to evaluate waste, water use, and energy use. Businesses that implemented changes are realizing reductions of over 5 million lbs of waste, 13.8 million gallons of water, and 7.7 million kWh and 2.1 million therms of energy.

See More: News | Events

SOURCE NEWSLETTER
MnTAP’s Source newsletter contains information to help you take action on your waste and energy issues. It also recognizes companies that have been successful. View the current issue.
Minnesota Technical Assistance Program

Helping Minnesota businesses implement industry-tailored solutions that maximize resource efficiency, increase energy efficiency, reduce costs, and prevent pollution

Thank You
Mark Powers
mpowers@umn.edu