

EMERGING LEADERS CONFERENCE

Laying a foundation to build a community of peers at the May inaugural conference. — pp18-19

THE RESHORING TREND

A growing number of companies across the country are bringing their manufacturing efforts back from overseas. — p23

ONE VOICE MEMBERS MAKE ADVOCACY TRIP TO CAPITOL HILL, REMIND LAWMAKERS THAT MANUFACTURING MATTERS

Nearly 70 NTMA and PMA members participated in the seventh-annual One Voice Legislative Conference in Washington, DC in April. — p24

SMALL BUSINESSES HIRING MILITARY: A WIN-WIN

In late May, the Center for America and the American Jobs for America's Heroes military hiring campaign released its groundbreaking "Best Practices Guide for Employers in Recruiting and Hiring National Guard Members and Veterans." — p24

NRL: A manufacturing workforce development program disguised as a robotics competition

- see details pp.10-13



"THE NRL IS THE ONLY COMBAT ROBOTICS LEAGUE THAT FORMALIZES TIES WITH MIDDLE TO POST-SECONDARY SCHOOL TEAMS, TEACHERS AND MANUFACTURING PARTNERS, INTRODUCING THEM TO REAL-WORLD MANUFACTURING EXPERIENCES"

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WELCOMES
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275 Swamp Road, Cottage 1
Newtown, PA 18940

CUTTING EDGE PRECISION
Northern Utah Chapter
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1805 W. 2900 S., Unit 4
Ogden, UT 84401

FOREST CITY GEAR COMPANY
Rock River Valley Chapter
Ms. Kika Young
11715 Main Street
Rockford, IL 61073

MACHINE METRICS
National Associate Member
Mr. Eric Hagopian
5 Strong Avenue, Suite 201
Northampton, MA 01060

METAL SOLUTIONS, INC.
Pittsburgh Chapter
Ms. Melissa Monarko
1141 Industrial Park Road
Vandergrift, PA 15690-6050

SAWS INTERNATIONAL
Rock River Valley Chapter
Mr. Mike Rans
4931 26th Avenue
Rockford, IL 61109-1637

SYNERGY RESOURCES LLC
National Associate Member
Mr. Mark Lilly
320 Carleton Avenue, Suite
6200
Central Islip, NY 11722

WOLFRAM MANUFACTURING
Houston Chapter
Mr. Nathan Byman
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NTMA WELCOMES NEW NATIONAL ASSOCIATE MEMBERS



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PRESIDENT'S UPDATE

DAVE TILSTONE / NTMA PRESIDENT

As we look back on May it was filled with key events that help shape who we are as the NTMA and bring focus on our future.

What am I referencing? **The NRL National Competition and the Emerging Leaders Conference.** Both events were held in Cleveland on May 15 and 16. If you hadn't heard yet, we had a record turnout for the NRL Competition with 65 student teams (versus 54 teams last year) attending from eight states plus Puerto Rico.

Special thanks go to Steve Tamasi (NRL Team Leader) as well as to Bill Padnos and Sarah Brooks, who orchestrated all aspects of the competition. The NTMA events team led by Kristen Hrusch coordinated venue details and event hospitality. I'd be remiss if I didn't recognize the efforts of our volunteers who contributed hours of their time, judging and making the competitions safe and fun. There is a separate section in this edition of The Record devoted to the national competition so please look at the great photos and read about all the interest generated in manufacturing.

The Emerging Leaders Conference had 41 attendees, far exceeding expectations, due in large part to the hard work and leadership by the Emerging Leaders Team and Zac Overton. Kudos on the production video, generously funded by CliftonLarsonAllen; to GF Machining Solutions and DMG Mori, sponsors of networking events; to subjects presented, lively discussions during the roundtable, and special guest speaker Mark Mohr (president of DMG Mori). This was an Emerging Leaders Conference that set the bar very high for future events. Zac and the Emerging Leaders Team really wanted to have meaningful and instructive content in a relaxed and fun atmosphere. Mission accomplished on all fronts!

Supply Chain Network – September 16th @ Hurco, Indianapolis: Many of you have told me of the new business you realized by attending prior Purchasing Fairs, but have asked for improvements and enhancements. So we have implemented a strategic initiative to improve members' opportunities to enter new markets, expand

in existing markets and grow business, all while taking into account the many changes we have all observed. The Purchasing Fairs of the past are being revamped to increase value to buyers and sellers alike.

After reviewing attendees' survey results and observing changes within supply change management in the U.S., it was decided that we need to make changes that would preserve the value of attending, yet make it more efficient and effective for you and buyers.

As I write this, the Purchasing Fair is being reinvented with a new name, logo and improved format. In fact, we are teaming with the ISM (Institute for Supply Management) to learn about their members' key drivers and interests. The Purchasing Fair will now be known as the **Supply Chain Network**. The Supply Chain Network event will take into account the trend of streamlining the supply chain value streams of companies and the movement of reshoring by many companies.

A team was assembled to review and recommend changes necessary to revital-

ize the value for both the buyers and sellers. Interaction between you and buyers will remain face-to-face interactions with introductions to explain the value you offer and capabilities that differentiate you from other suppliers. The Supply Chain Network will offer you a highly interactive exchange with buyers, including opportunities to source and provide services to other NTMA members.

Yes, we are also adding another link in the supply chain – that is to connect NTMA members with one another. Sourcing from other NTMA members and providing other NTMA members your services are among the most trusted networks I have seen develop. We are also considering Concierge Introductions – appointments you can make with selected buyers so you have a schedule of pre-arranged meetings with your "must see" buyers.

Special Sales and Marketing Workshop – September 15th @ Hurco, Indianapolis: To help improve your effectiveness at the Supply Chain Network, a special Sales and Marketing

CONTINUED ON – P5

THE RECORD

OPERATIONS & EDITORIAL

Dave Tilstone, President
Sally Safranski, Executive Editor

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Workshop will be held the day before. We will explore initiatives being implemented by OEMs and large manufacturers that will help tailor your discussions with and proposals to buyers and prospective customers. You'll learn how to present the value you provide to your existing customers and translate that into a meaningful dialog with the buyers you'll meet the next day.

By the time you read this, an email has been sent announcing the name change and introducing the new logo. More details will follow in E-Trends, future editions of *The Record* and a separate communication on the Supply Chain Network in upcoming weeks. **In**


the meantime, please mark your calendars for September 15th and 16th when Hurco will host the Sales and Marketing Workshop and the new Supply Chain Network.

DAVE TILSTONE /
NTMA PRESIDENT

A handwritten signature in black ink that reads "Dave Tilstone".



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CHAIRMAN'S CORNER

HERB HOMEYER / NTMA CHAIRMAN OF THE BOARD

This year's Chairman's theme is Authentic Leadership. Throughout the year to come you will have the chance to hear and read about my thoughts on the characteristics of Authentic Leadership.

Authentic Leaders are courageous. To be a visionary, it takes courage. It takes inner strength to do what you think is right, even though it may not be easy. Throughout my travels as NTMA Chairman this year, I have the privilege of seeing NTMA members as courageous, authentic leaders.

It takes courage to expand facilities, to expand and develop technologies and equipment. It takes courage for a company to embrace innovative operations, perhaps stretching and challenging long-held practices that might very well have enabled successes, yet need to be changed to meet the today's

(and tomorrow's) demands.

It takes courage to invest in workforce development and apprenticeship programs. Four years ago NTMA-U was launched. The Education Team had a vision of an online training program that could reach the NTMA membership. Training programs had been eliminated in many states. Current training programs weren't meeting the needs and technical expertise of modern manufacturing. Many students today want an option of accessing their training on-line, not in classrooms.

We had many obstacles launching this program – from members' questioning the program's need to funding challenges. Fortunately, because of the Education Team's perseverance NTMA-U continues to grow and expand. Today, NTMA-U enrollment is strong and growing; it has

brought in new members, and aligns with NTMA's mission and vision. It took courage to maintain the vision with all the obstacles. It took courage to create (and to continue to develop) NTMA-U to the success it is today and beyond.

The growth of NRL is another way I am seeing courage. Two Chapters celebrated the success of brand new regional NRL competitions, investing time and financial resources to establish new opportunities for students, our workforce and our future. On the flip-side, look at the widely successful NRL programs with rich histories and traditions. These regional competitions gathered in Cleveland for the May national completion. Consider, too, the courage it took for students to build their teams and their robots, then to compete all the way to the national champion-

ship competition. Talk about courage!

I challenge you to look around for evidence of courage – in yourself and your family, in your company and in your community. How does that courage affect change and build our future? How can you be courageous and step forward as an authentic leader?

HERB HOMEYER / NTMA
CHAIRMAN

A handwritten signature in dark ink that reads "Herb Homeyer".



INDUSTRY VETERAN JOINS FORCES WITH MACHINOMETRICS TO IMPROVE MFG PRODUCTIVITY



Many manufacturers have little visibility into their production and rarely operate at optimal performance. Eric Hagopian, third generation (now former) owner of Hoppe Technologies knew that from first-hand experience.

After leaving Hoppe, Eric consulted with successful software developer Bill Bither to develop a product that would automatically



"IF THIS TECHNOLOGY WERE AVAILABLE WHEN I RAN MY MANUFACTURING BUSINESS, I WOULD HAVE BOUGHT IT!"

Eric Hagopian

collect valuable but mostly unused data that comes directly from the CNC machine control to more effectively manage the business. On-time delivery and productivity are two of the toughest parts of managing a modern manufacturing company.

They developed a product

conceptualized through the lens of a successful advanced manufacturing job shop. Hagopian decided to invest in the company and join them to promote the solution to most companies' toughest challenge: ON TIME DELIVERY. The solution: software that opens a live window into parts production – software that allows an immediate response to problems and speeds up production by 20% by empowering operators, managers and owners to actively manage jobs on a real time basis.

MachineMetrics' target customer is a manufacturer that produces parts with metal cutting CNC machines. In speaking with over 100 manufacturers, Eric has found that most have limited visibility into production. Some track parts by hand using whiteboards, which is very prone to human error and isn't actionable. Others have implemented ERP and MRP systems, but failed to use the systems' full potential. Problems aren't identified and are not corrected until it's too late, when contracts are lost.

MachineMetrics was built to solve this problem. TV dashboards are installed across

the shop floor. That same display on computers and mobile devices can be accessed from home or on the go, giving workers and managers real-time feedback. Machine operators compete with each other to perform as good as or better than their peers. This transparency alone can increase productivity by over 10%. If a job falls behind, the color of the tile changes and SMS notifications are sent to managers so that action can be taken immediately.

Every second of data is stored in the cloud and is made available through historical reporting and a timeline that displays every event exactly when it happened. This helps diagnose problems and gives managers the ability to evaluate efficiency over time. The vision is to eventually use this information to predict failures before they occur.

For more information on MachineMetrics' fully automated collection and visualization of manufacturing data for increased production efficiency visit www.machinmetrics.com or (413) 341-5747 (info@machinmetrics.com)



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NTMA-U UPDATES



NTMA-U will have a total of 21 graduates by the end of June. These students have completed over 600 contact hours of training and will be qualified to receive their Federal DOL- Journeyman's Certification in Precision Machining.

Current NTMA-U Enrollment (by modules)

138 NTMA member students	414
19 high school students	57
23 college students	69
82 individual modules	82
Total	655

NEW! COMPREHENSIVE SAFETY COURSE

NTMA-U now offers a comprehensive safety course that includes Lock-Out Tag-Out, Safety Data Sheets and MSDS.

Training is highly encouraged in these areas, which have the highest national rate of OSHA compliance violations:

- Lock-out Tag-out
- MSDS
- Machine Guarding



CFO ROUNDTABLE IN PHILADELPHIA



The unique demands of the financial operations of NTMA member companies meant that regional Technical Seminars that zero in on learning, shared topics of interest and networking made perfect sense to National Associate Member CBIZ. That's why they have stepped to the plate to sponsor four 2015 CFO Roundtables throughout the country. Philadelphia was the site for April's CFO Roundtable.

John Mackay, President of Mackay Research Group launched the day's conversations, with thoughts on how using the OCEC Benchmarking results helps companies improve their bottom line. (The OCEC Survey and resulting report is a



Presenters at the CFO Roundtable

free benefit available to NTMA members.) "Having John Mackay present ... was right on the mark. He brought the importance of measurements and action to become an industry leader to us in a manner we can take home, complete with action items to improve the bottom line" noted Jim Carroll (Controller, Hamill Manufacturing Company).

Mackay's presentation was followed by discussions on tax structures (CBIZ), 401K plans (Medallion Wealth Management), workers comp and employee health and safety (CBIZ) and cash flow forecasting (CBIZ).

The afternoon closed with a roundtable discussion – from which one attendee said that "the most valuable aspect of the event was hearing about others' actual experi-



ences." "The conversation with our peers supports the need for periodic meetings and open discussion that matter," concluded Carroll.

The next CFO Roundtable is just around the corner – June 24 in Cleveland, OH.



Networking at CFO Roundtables is always valuable

2015 NRL: THE FUTURE OF MANUFACTURING AT WORK/IN COMPETITION

DAYTON'S PONTITZ CTC TAKES NRL GRAND CHAMPIONSHIP



Ponitz Career Technology Center (CTC) of Dayton, Ohio took Grand Championship and third place honors at the National Robotics League (NRL) national competition at Baldwin Wallace University, in Berea, OH, May 15-16.

In addition to double elimination bouts, teams completed stringent engineering and detailed documentation requirements and face-to-face interviews with NRL officials to determine points toward the Grand Champion title. The Grand Champion Award and \$500 prize went to the team with the highest combined score. Other winners received an award or certificate.

THE LINEUP OF AWARDEES INCLUDES:

- Grand Champion – Ponitz CTC, Dayton, OH. Robot: R.O.N.
- First Place – Plum Borough School District, Pittsburgh, PA. Robot: Knockout
- Second Place – North High School, North St. Paul, MN. Robot: Final Cut
- Third Place – Ponitz CTC, Dayton, OH. Robot: R.O.N.
- Best Engineered Bot (tie) – Beaumont School, Cleveland Heights, OH. Robot: Beaumonster and Dunwoody College of Technology, Minneapolis, MN. Robot: Wedgey
- Best Documentation – Ringgold High School, Monongahela, PA. Robot: Mark 42
- Coolest Bot (tie) – Admiral Peary AVTS, Ebensburg, PA. Robot: TOXIC and Punxsutawney (PA) Area High School. Robot: The Mystery Bot
- Sportsmanship – Punxsutawney (PA) Area High School

Months of work by a record number of 65 teams and nearly 300 student participants from eight states and Puerto Rico were on display this year. Student teams competed in NRL sanctioned regionals to prepare for the national competition.

The NRL provides a national structure for job-driven, STEM

CONTINUED ON – P12

NRL: ENGAGED COMPETITORS



NRL: TEAMS WITH SHARED GOALS



(science, technology, engineering and math) focused educational robotics where students design and build remote controlled robots to face off in a gladiator-style competition.

Manufacturers support the National Robotics League because its “wow” factor helps to overcome two of the industry’s greatest challenges – to attract the best and brightest into a variety of manufacturing careers and to align public perception of manufacturing with today’s clean, high-tech, advanced facilities. The technical and soft skills students learn can directly lead to broad career options – direct to industry, technical school certificates, associate’s or bachelor’s degrees, and a career track with family-wage earnings.

“The NRL is the only combat robotics league that formalizes ties with middle to post-secondary school teams, teachers and manufacturing partners, introducing them to real-world manufacturing experiences,” said Bill Padnos, NTMA Director of Youth Engagement.

For additional information about the NRL, industry sponsorships, and participation in 2016 regional and national competitions, contact Bill Padnos, 412-258-6629, bpadnos@ntma.org, or visit www.gonrl.org.



“THE COMPETITION WAS A GREAT SUCCESS FOR THE UTAH TEAM – ESPECIALLY SINCE IT WAS OUR FIRST YEAR. WATCHING THE PARTICIPANTS ENGAGE IN BUILDING THEIR ROBOT AND GET EXCITED ABOUT MANUFACTURING PRACTICES WAS PRICELESS. WE’RE ALREADY LOOKING FORWARD TO NEXT YEAR!”

Matt Wardle, Utah Chapter President

NRL Volunteers Bill Padnos, Tim Wetzel (from Homeyer Precision Mfg.), Julie Murphy (from Okuma), Herb Homeyer and Steve Tamasi



“I WALKED AWAY FROM THE NATIONAL COMPETITION FEELING INSPIRED AND HOPEFUL. INSPIRED BY THE HARD WORK AND INGENUITY OF THE TEAMS COMPETING AND HOPEFUL FOR THE SENSE OF COMMUNITY BEING BUILT AMONGST THE STUDENTS, TEACHERS, PARENTS AND REPRESENTATIVES FROM INDUSTRY. WE ARE ALL FORTUNATE TO HAVE EXPERIENCED SUCH A WONDERFUL EVENT, AND I LOOK FORWARD TO EXPANDING THE COMMUNITY AND EXPOSING MORE AND MORE STUDENTS TO THE EXCITING WORLD OF ROBOTICS.”

Steve Tamasi, NRL Commissioner



MANY THANKS TO INDUSTRY SPONSORS SUPPORTING THE NRL COMPETITION

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Other company sponsors – **Homeyer Precision Manufacturing, Grainger** and **Gears**

NEXT STEP: CALL FOR NTMA MEMBERS TO CLOSE THE LOOP!

BILL PADNOS, NTMA DIRECTOR OF YOUTH ENGAGEMENT

While a competition determines winners and losers, everyone involved in the NRL wins. Students begin to learn technical and critical thinking skills needed for a STEM career while gaining an understanding of the benefits of working in advanced manufacturing. Manufacturing companies are able to change the perception of working in industry and create valuable talent supply pipelines with the schools. Teachers are able to implement a job-driven, project-based STEM program that is fun and engaging for students.

This year’s competition may be over, but NTMA members need to continue the momentum. Take on the personal responsibility to CLOSE THE LOOP and talk to the students involved in the program. See what they are planning to

do this summer. Do not allow them to work at a fast-food counter. Hire them as summer interns to design your newest component, to program your CNC machines, to manage quality control and to learn how to weld.

This is your opportunity to recruit and develop your future workforce – right now while these students are excited about the manufacturing process. Let’s work together to ensure that the 300 students who participated in the NRL become the next generation of manufacturing workers.

For more information contact Bill (bpadnos@ntma.org) or NRL Program Manager Sarah Brooks (sbrooks@ntma.org).

BEAUMONSTERS ATTRACT ATTENTION OF CNN.COM

The “Beaumonters” of Beaumont School were back in full force for the 2015 National Robotics League championship May 15-16 at Baldwin Wallace University (Berea, OH). But it wasn’t their competitive prowess that captured the attention of CNN.com reporter Parija Bhatnagar. It was the fact that they are two all-girl teams in a field of 65 – and in an industry for that matter – dominated by men. As high as 98 percent of manufacturing personnel are male, according to some estimates.

“We are going to change all that,” said Sister Gretchen Rodenfels, Beaumont president. “The NRL empowered these girls and gave them the courage to try something new and challenging,” she added.

The girls recount the first year of competition when they encountered sniggers from male teams, some of whom were soon to be foiled by Beaumont’s capabilities. These girls are driven! They spend countless Saturday mornings at Christopher Tool, their industry sponsor, working on Bridgeport milling machines, researching risk factors of their designs, and acing the NRL’s documentation requirement – taking honors in last year’s competition.

Their cool under pressure is not limited to time in the competition’s polycarbonate arena. They represented NTMA at the 2015 International Manufacturing Technology Show (IMTS), spoke before Ohio Lt. Governor Mary Taylor in September, and accompanied NRL Commissioner Steve Tamasi to the May 15 meeting of Creative Morning Cleveland, an eclectic group of professionals representing careers from arts to business. One of their bots “Joan of Arc” prowled among the more than 50 attendees as the girls fielded their questions.

“The Beaumont teams are indicative of the opportunities for all talent in manufacturing,” said Tamasi. He noted that as he travels he is seeing an increase in women in the manufacturing workforce – both as workers and as managers.

Engaging youth is a key goal of NTMA and NRL. Another major role for women



Team Beaumonters as Best Engineered Bot (tie) award is announced. Left/right: Julie Schiffer, Alyssa Muttillio, Ana Maria Vargas, Molly Cogan (Christopher Tool industry advisor in red baseball cap.)
Photo credits: Margaret Schiffer

was offered by NTMA President Dave Tilstone. “Mothers are career influencers and we are exploring ways we can involve them in recruiting,” he said.

While the Beaumont teams are fierce competitors at regionals and nationals, they manage to weave in designing their team logo, two proms, graduation rehearsals, a lacrosse game and student service projects. Ana Maria Vargas, who will attend MIT in the fall, credits her NRL ex-

The Beaumonters working as a team to prepare for competition. Photo credits: Margaret Schiffer



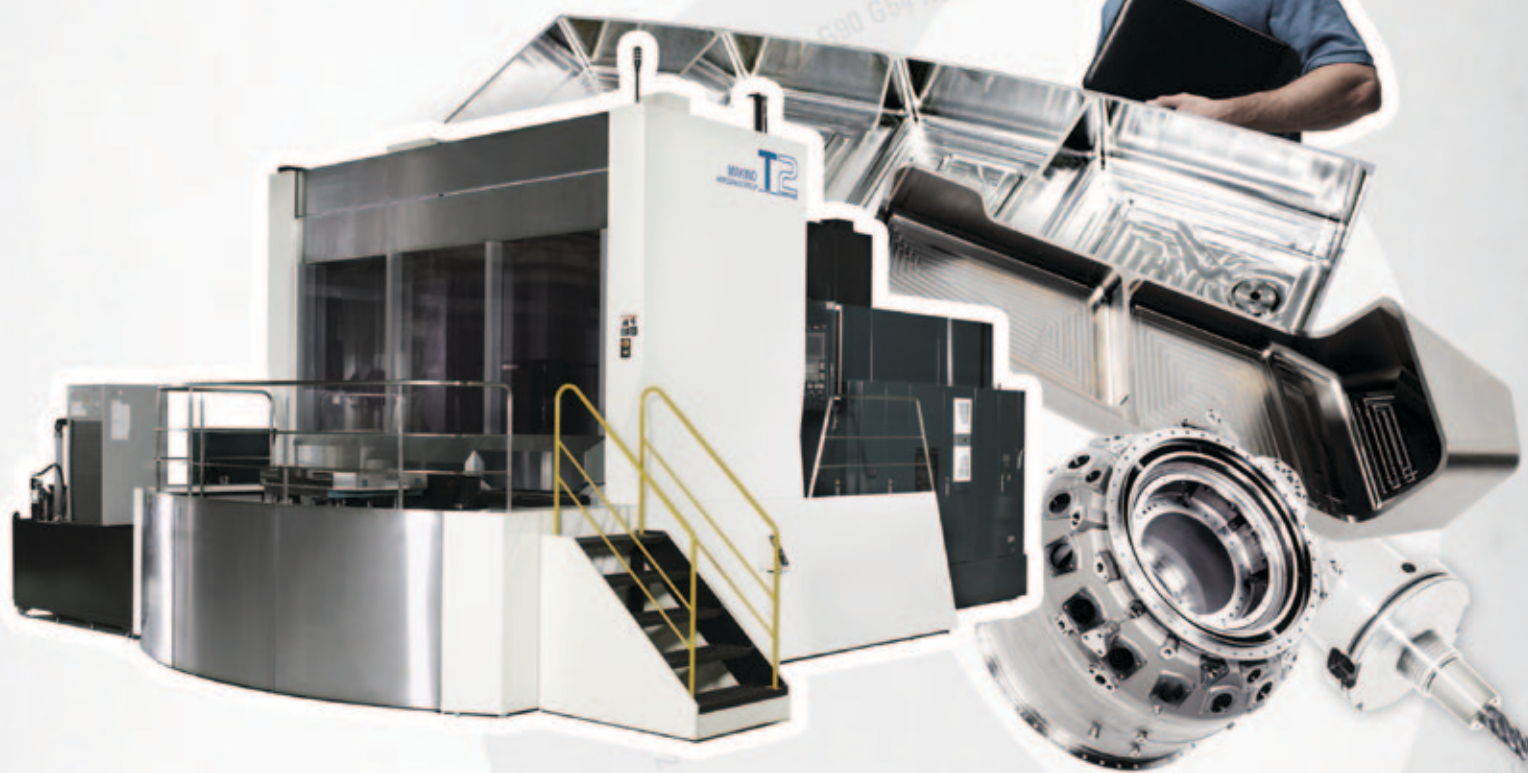
perience for her acceptance for admission. “It gave me an edge.”

The team didn’t leave this year’s NRL competition empty handed: they shared “Best Engineered Bot” in a tie with a team from Dunwoody College of Technology (Minneapolis, MN). Julie Schiffer commented, “I am proud to have won the Best Engineering Award for the second year in a row because other teams and the officials have frequently underestimated us. Winning this award helps us to prove them wrong. I have learned about being confident in my work and standing up for myself and my teammates because of this.”

Reflecting further on her NRL experience, Schiffer noted, “In my experience with the NRL competition, I have learned the valuable skills of teamwork and working under pressure. When we have our weekly meetings, we learn about working together, and this skill becomes even more important when we are working on repairing or assessing the bot after a battle. In our future careers, it is very likely that we will have to work with others and that we might have to work under pressure or a quick deadline. I feel extremely prepared to enter an engineering or manufacturing field because of the practical skills I have learned and knowledge I have gained from my participation in both the NRL and AWT Robobots competitions.”



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WHEN YOU **MAKE WHAT MATTERS**



MA SKILLSUSA STATE COMPETITIONS



On Friday, May 1st, the top machining tech students from across Massachusetts met to compete in the state's SkillsUSA Competition at the Blackstone Valley Regional Technical High School. The Boston NTMA Chapter (BTMA) is pleased to recognize the following high school students who took home gold medals in their respective competitions:

CNC Technician: Justin Costa (Diman Regional Vocational Technical High School)

CNC Milling: Levi Strzpek (Whittier Regional Vocational Technical High School)

CNC Turning: Jeffrey Harris (Diman Regional Vocational Technical High School)

Also placing in the three contests were:

CNC Technician: Cristopher Mason, South Shore VTHS (Silver Medal) and Kaitlyn Fricke, Pathfinder RVTHS (Bronze Medal)

CNC Milling: Michael Hayes, South Shore RVTHS (Silver Medal) and Brandon Antone, Diman RVTHS (Bronze Medal)

CNC Turning: Nicholas Desmarais, Diman RVTHS (Silver) and Daniel Erickson, Diman RVTHS (Bronze)

Congratulations to all of the students. You and your schools should be very proud of your accomplishments!

Donations from BTMA members will help to cover the registration and travel costs for the winners. This year BTMA volunteers coordinated and judged the CNC Technician Contest and BTMA members donated almost \$4000 in prizes, giveaways, National SkillsUSA Conference registrations and travel scholarships for the gold medal winners. BTMA has been assisting the MA SkillsUSA competition for over

nine years. They want to acknowledge the following companies that donated to this year's effort:

Custom Machine, LLC
Tucker Engineering
Mitutoyo
O-D Tool & Cutter, Inc.
Seabrook International

Boston Centerless Inc.
Aerodyne Alloys
M&H Engineering Co.
Salem Five Insurance Services
Magellan Aerospace
Robert E. Morris Co.

Thanks to BTMA's Day-of-Competition Volunteer Team: Michael

Pasciuto (Custom Machine, LLC), Andy Gross (FH Peterson Machine Corp.), John Ricardi (Robert E. Morris), Kevin O'Donnell (O-D Tool & Cutter Inc.), Corey Hartwell (AccuRounds Inc.), Sabrina Pasciuto (Wentworth Institute of Technology & Custom Machine, LLC) and Aisha Elfiki (Wentworth Institute of Technology). A very special "Thank You" goes to Michael

Pasciuto of Custom Machine, LLC, who helped the state Metal Trades Series Directors to coordinate and create the competition format for the new CNC Technician Competition in 2015.

Students from across the country will gather at the National SkillsUSA Leadership and Skills

Conference on June 22 – 26, 2015 in Louisville, KY. SkillsUSA is a nation-wide organization that prepares America's high performance workers (www.skillsusa.org). Participation in these competitions is an extraordinary opportunity for the teens who compete, as well as for the industry

volunteers/supporters who assist with the events and donations.



Massachusetts Skills USA competition

Photo credits: Corey Hartwell

FH Peterson Machine Corp.
Machine Incorporated
AccuRounds Inc.
North Easton Machine Co.
Howard Tool Co., Inc.
Pell Engineering & Mfg. Co.
Methods Machine Tool Co.

Success Story: Boers & Co FineMetalworking Group

Boers delivers fine mechanical parts, high precision assembly and sheet metal products to the medical appliances, flow-control, automotive and petro-chemical industries.

Challenge

Facing increasing market demands and limited resources, Boers sought an ERP solution designed specifically for the manufacturing industry that would enable them to increase efficiency in their operations.

Solution

After successfully streamlining their supply chain with Epicor ERP version 9 software, Epicor ERP version 10 software became available and Boers quickly upgraded. With Epicor ERP 10, Boers was able to:

- Improve the customer experience through enhanced scheduling and increased collaboration among customers and suppliers
- Maximize employee productivity with expanded deployment options and touch-enabled, intuitive user interfaces that work with smart devices
- Support and clearly measure their faster operation

Results

With Epicor ERP 10 software, Boers has cut indirect labor costs by 15 percent and amplified their competitive advantage through improved service offerings and significant efficiency gains, positioning Boers for its next stage of growth.

Manufacturing ERP that adapts to **your changing business needs**

"By supporting a wide range of Quick Response Manufacturing processes Epicor® ERP 10 software provides greater flexibility which has helped us to significantly reduce our lead-times.

Through being able to react much faster than ever before we have cut the time it takes us to deliver parts from eight weeks down to just three weeks."

Ronald Koot, CEO, Boers & Co FineMetalworking Group

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EMERGING LEADERS CONFERENCE: BUILDING A COMMUNITY OF PEERS

The building blocks were laid for a community of sorts within NTMA – a community made up of tomorrow’s industry leaders. Tomorrow’s NTMA leaders. Leaders who stepped to the plate to be part of the inaugural conference on May 15-16 in Cleveland, Ohio.

This was a diverse group – 41 people from 32 companies and 13 states. Roles within companies varied, as did the size of the companies they represented. In the end, takeaways also varied, but the common observation was that the time was well-spent, empowering and inspiring. They look forward to continued networking within the group and to taking new ideas and inspiration back to their companies.

They shared the common vision that this community of peers will be the “go to” place for any emerging leader in the manufacturing industry who is moving into any higher level position.

“I have a renewed outlook on manufacturing after attending the Emerging Leaders Conference 2015. Powerful speakers discussing great topics. What a way of networking with others in your position from all over the country!” reflected Andy Jordan, Director of Operations, Exacto-Inc. of South Bend.

A planning group headed up by Emerging Leader Team Leader, Zac Overton and NTMA Staff Liaison, Kelly Kasner delivered a powerful schedule, starting with a welcome reception and dinner sponsored by DMG MORI and an opening address by DMG MORI President and CEO, Mark Mohr.

CONTINUED ON NEXT PAGE

Below: Erik Skie leading an inspiring roundtable discussion, as the group considered how they move to the next level of leadership.



Above: Dan Bagley helped the group consider “Am I the rainmaker or should I hire one?” – developing sales leadership.



Zac Overton welcomed Emerging Leaders to Friday night's dinner at the Music Box Supper Club.



Left: Erik Skie and Brent Terhaar (both with CliftonLarsonAllen) with Herb Homeyer

Below: Erik Skie (CliftonLarsonAllen), Dan Bagley (NTMA), Zac Overton (Overton Industries), Brent Terhaar (CliftonLarsonAllen) and Ron Kaminski (CultureShoc)



Below: Emerging Leaders Mario Skandul (Skamar Machine) and Nick Mosey (Mosey's Production Machinists) participated in some energizers during Ron Kaminski's teambuilding session.



Emerging Leaders are building community thru networking. Shown here: BJ Bonin (Bertrand Products), Shane Hammond (J & S Tool, Inc.) and Jonathon Jenks (Penco Precision)



"(THE EMERGING LEADERS CONFERENCE) WAS DEFINITELY AN EMPOWERING EVENT THAT HAS INSPIRED ME TO BE MORE THAN THE ROLE I AM WITHIN MY COMPANY AND HAS MADE A HUGE IMPRESSION ON HOW I PLAN ON MOVING FORWARD....I LOOK FORWARD TO THE NEXT OPPORTUNITY TO JOIN SUCH A GREAT GROUP OF PEOPLE!"

Samantha West, Customer Service Manager, The Lloyd Company

Below: Playing *Rock. Paper. Scissors* was part of teambuilding, encouraged Ron Kaminski. Zac Overton and Jerry Flohr (Flohr Machine) tried it out.



More networking. How many new contacts and relationships did the Emerging Leaders establish in one short day?



Saturday's slate included:

- **FINANCIAL MANAGEMENT FOR NON-FINANCIAL MANAGERS (BRENT TERHAAR, CLIFTONLARSONALLEN)**

Attendees discovered how simplifying the financial business model leads to better decision making, resulting in improved profitability and growth. Brent offered simple, practical and timely tools to measure, manage and drive significant profitability improvements in organizations, all accomplished without asking the customer for more money.

- **SALES & MARKETING – FINDING YOUR STRENGTHS (DAN BAGLEY, NTMA)**

Dan asked each emerging leader "Are you the rainmaker or should you hire one?" "How do you manage sales as a function of your business?" Attendees discussed the competencies for a sales leader, its motivations and the development plan and processes of 'sales' work, regardless of title or position within the company.

- **TABLETOP NETWORKING AND LUNCH (SPONSORED BY +GF+)**

- **BUILDING A STRONGER, COHESIVE TEAM (RON KAMINSKI, CULTURESHOC)**

In his energizing and highly interactive workshop, Ron provided a roadmap for setting a team up to win. Using emotional engagement, trust and accountability as a foundation, Ron dove into what makes teams perform at a high level and how emerging leaders can build a team that outperforms the competition, where unique ability is celebrated and leveraged. "Be a buffalo!"

- **PREPARING FOR THE NEXT LEVEL OF LEADERSHIP (ERIK SKIE, CLIFTONLARSONALLEN)**

How can emerging leaders move from a 'management' to a 'leadership' role and hone leadership skills? The group concluded that they are already leaders and defined leadership as "to positively influence." Erik's premise: "Sometimes being a great leader is being a great follower."

Jerry Flohr, President of Flohr Machine



Above: Mark Mohr, President/CEO of DMG MORI set the tone of the conference with opening remarks Friday night, encouraging all with thoughts about his successful career.

Left: Emerging Leader Tanya DiSalvo on camera. A partnership of NTMA and CliftonLarsonAllen is creating a unique video that will promote emerging leaders' and NTMA's role in the future of manufacturing. Watch for the video debut at Fall Conference!

Relationships were formed and deepened at this inaugural Emerging Leaders Conference.



Company noted, "I left the Emerging Leaders conference with valuable information both personally and for my company. We are all struggling to improve our work force. I came back to my shop with many new ideas on how to get and keep our existing work force engaged and have them buy in to the company goals and values. There were also

many ways for me to improve and to develop the skills necessary to lead effectively."

Stay tuned for more to come from the Emerging Leaders Team – this is only the beginning!



THE NTMA CHAPTER EXECUTIVE TEAM

Some NTMA leadership happens at the Team level, as member volunteers drive many of the projects and events that happen each year. Throughout 2015 The Record will feature overviews of the various NTMA Teams.

Torree Pederson, (Chapter Executive of the Kansas City Chapter) is the team leader for the Chapter Executive Team, a sub-team under the Membership Value Leadership Team.

MISSION:

The mission of the CE Team is to build strong chapters by enhancing communication with the NTMA headquarters, providing networking with other NTMA chapters, establishing professional development for Chapter Executives and facilitating Chapters' Board development.

The Chapter Executives Team works on behalf of Chapter Executives from all NTMA chapters. The Team meets monthly by conference call to coordinate activities. They recommend content for both Fall Conference and the annual Leadership Summit, with the goal of providing both chapter and professional development for Chapter Executives.

The Team is engaged throughout the

year, developing and refining the Chapter Organization Questionnaire. This questionnaire is the assessment vehicle through which chapters can achieve Star Chapter status. Star Chapters are recognized annually at Fall Conference as having achieved best practices standards in operation and organization.

Mentorship relationships are suggested among Chapter Executives to help engage newer Chapter Executives and those chapters looking for resources to achieve best practices or to further develop particular aspects of their operations. Many Chapter Executives and Chapter Board Members have noted that networking among the Chapter Executives and at Chapter Executives programs at national events are useful and valuable resources.

Working with NTMA staff, the Team also recommends resources to enhance the NTMA website, with the goal of aligning content with the Star Chapter Questionnaire Survey and providing a Chapter

Organizational Manual. A newer project is to evaluate best practices of Chapter/National Associate Member relationships.

CHAPTER EXECUTIVE TEAM:

Torree Pederson: CE Team Leader

Tami Adams

Northwestern Pennsylvania Chapter

Nils Kjell

San Francisco Bay Area Chapter

Michelle Martin

Philadelphia Delaware Chapter

Maegan Rozinsk

Rock River Valley Chapter

Sally Safranski

St. Louis Chapter

Ken Seilkop

Executive Team Liaison

Kelly LaMarca

NTMA Staff Representative



COURTNEY WAGNER DANNEMILLER GRADUATES FROM THE JO ANN DAVIDSON OHIO LEADERSHIP INSTITUTE

The Jo Ann Davidson Ohio Leadership Institute has announced that Courtney Wagner-Dannemiller of Wayne County, Ohio graduated from the Institute at a recent ceremony that took place in Washington, D.C. Courtney is CFO at Wagner Machine in Norton, Ohio. She is Vice President of the Akron Chapter and is a member of NTMA's Budget and Finance Team.

"These outstanding women leaders are dedicated to applying their experience and skills to community and public service," Institute Chair Betty Montgomery said. "It is inspiring to watch their growth and commitment to a better future for our state and our communities."

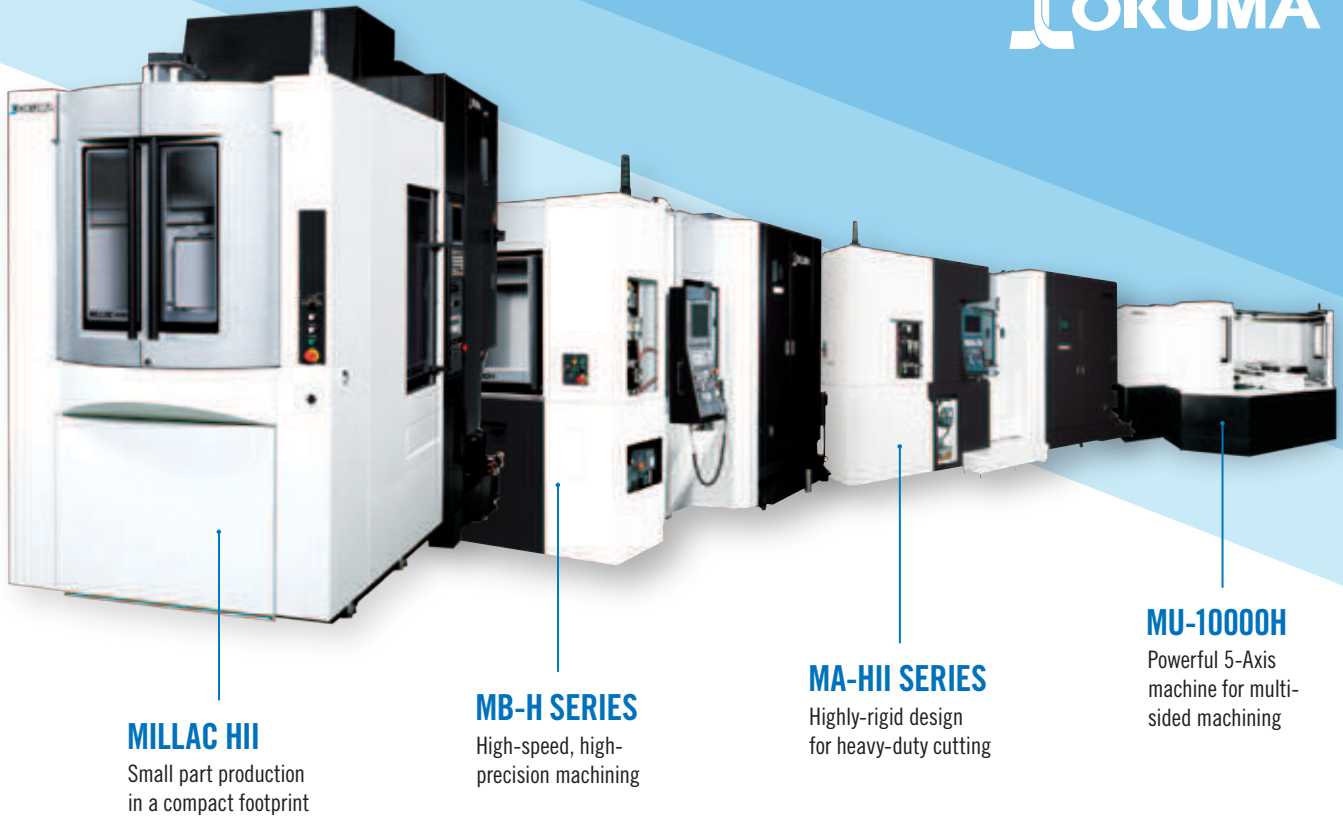
The Institute's nine-month leadership

training provides professional training for women aspiring to become leaders in public and community service. Extensive studies are offered in local, state and federal governments, as well as public policy, public speaking, politics and the organization of political parties. This year, the final week of training took place in Washington, D.C. where national congressional leaders and representatives from national corporations addressed the Institute.

Since its first class in 2001, 291 Ohio women from 57 counties have completed the leadership course. In the fall, the Institute will begin its 16th class.



Institute Chair Betty Montgomery (right) is shown with Courtney Wagner-Dannemiller (left) at the Institute's graduation ceremony on May 13 in Washington, D.C.



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in a compact footprint

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MA-HII SERIES

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for heavy-duty cutting

MU-10000H

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Stability. Accuracy. Variety.

Handling a variety of workpiece sizes ranging from 12.6" to 78.74", and with spindle speeds from 4.5k to 20k providing torque output up to 1920 Nm, the Okuma line-up of horizontal machining centers includes a machine configuration to cut nearly any type of metal — aluminum, hardened steel, titanium and other exotics. Built on Okuma's exclusive Thermo-Friendly Concept, these machines manage thermal deformation to maintain accuracy and repeatability over long continuous cuts. Okuma's open-architecture OSP-P control allows the use of machine tool apps for enhanced functionality, productivity and communication. And with a variety of functional options — Super NURBS and Turn-Cut, for example — and the ability to connect pallet pools and flexible manufacturing systems, the possibilities are endless.

Contact your local
Okuma distributor for
more information, or visit
okuma.com/americas

Arizona CNC Equipment
www.arizonacnc.com

EMEC Machine Tools, Inc.
www.emecmt.com

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www.hartwiginc.com

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www.morrisgroupinc.com

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www.thomasskinner.com

The dictionary defines residue as “something that is left behind.” In the application of metalworking fluids, two basic kinds of residue can develop—which we refer to as “insoluble deposits” and “product residues.”

If a metalworking fluid undergoes chemical changes or picks up contaminants, insoluble deposits are likely to occur. Such deposits can plate out on hard surfaces in direct contact with the circulating fluid. The presence of tramp oil, rust preventatives, and insoluble soaps due to water hardness or dissolved metals (such as iron or aluminum) lead to this type of residue, which may contain or attract very fine metal or graphite particles. These deposits, sometimes referred to as “varnish” because of their appearance and texture, can interfere with production if they are allowed to build up on tools, chucks, fixtures, gauges and transfer equipment. They also contribute to “dirty” machine tools.

However, not all residues are insoluble. If any fluid splashes on hot motor housings, flat surfaces or guard shields, the water can evaporate and leave concentrated metalworking fluid. Although the amount of product residue formed by evaporation should be a direct function of product concentration, this amount is significantly affected by the type of fluid, the presence of additives and contaminants, the machine tool design and shielding, the amount of fluid spray generated, and the “housekeeping” practices employed.

Product concentration, oil contamination, water hardness and relative humidity are key factors in defining the nature and amount of residue obtained when metalworking fluid evaporates. In addition to this, used mixes can be expected to contain a significant buildup of salts introduced from the water used for makeup.

Wintertime introduces two additional factors that promote residue problems as well. Cold-process water generates more hard water soap scum formation. Low relative humidity promotes more rapid evaporation of water, causing mixes to become richer and making evaporated residues drier. Thus, conditions such as decreased humidity, increased water hard-

ness or higher inorganic salt content will transform a semi-liquid residue to a sticky residue, or a sticky residue to a dry residue.

Since deposits in the fluid flow area or the splash area contain metal chips, it is probable that there are two separate problems to deal with. This may require different approaches to resolve inadequate “washing” action by the flowing liquid or tackiness of the evaporated residue, which attracts the chips to the splash area.

Another situation that arises is extended sump life. New technology in metalworking fluids often results in longer sump life (to the benefit of the end user). Longer sump life, while conducive to good economy, also allows fluids to become more contaminated with hard water minerals as well as other contaminants. A fluid that lasts for 30 days before being discarded will carry less contaminant than a fluid lasting for 60 to 90 days. These longer-lasting fluids can now become problematic with regard to cleanliness, because even good quality water will begin to create hard water conditions over time. For this reason, the end user may consider using deionized (D.I.) or reverse osmosis treated (R.O.) water to minimize the buildup of mineral salts that contribute significantly to resi-


due. Another alternative is to use dilute premix daily to top machines. Premix adds many of the components that are depleted through normal aging. Components such as water conditioners and detergents added in small amounts through premix can minimize the problem of dirty residues left on parts and equipment.

A final note on residue is its contribution to skin irritation. Because residue consists of highly concentrated fluid and contaminants, handling parts or fixtures with these residues can contribute to dermatitis (skin irritation). For this reason, we encourage regular flushing of machines with used coolant to wash off any residues. This minimizes the amount of residue that can accumulate.

In most cases, following the above corrective actions can control residue, but we also encourage you to contact your local fluid supplier to help determine the specific cause of residues and any other fluid-related issues.

This Tech Tip offered by Cimcool Fluid Technology. For more information on Cimcool go to www.cimcool.com.





**SALES & MARKETING
WORKSHOP**

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DATE

NTMA SALES & MARKETING WORKSHOP

WEDNESDAY JULY 29, 2015

Hosted by Mazak


MAZAK-NORTHEAST TECHNOLOGY CENTER
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8:00AM - 4:30PM

Continental Breakfast and Lunch included

Welcome Reception & Dinner on Tuesday July 28th

Sponsored by:



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Registration Rates

Members- Early Bird: \$500

Members- Regular: \$575

To register or for more information contact Kristen Hrusch • 216-264-2845 • khrusch@ntma.org

THE RESHORING TREND

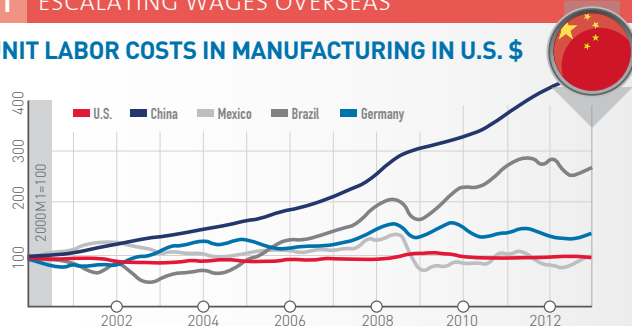
A growing number of companies across the country are bringing their manufacturing efforts back from overseas.

Reshoring Initiative
Bringing Manufacturing Back Home

Please refer to the accompanying press release to see how we can customize the infographic for your state or industry.

1 ESCALATING WAGES OVERSEAS

UNIT LABOR COSTS IN MANUFACTURING IN U.S. \$



As wages continue to increase overseas, particularly in China, it's becoming less cost effective to manufacture outside the United States.

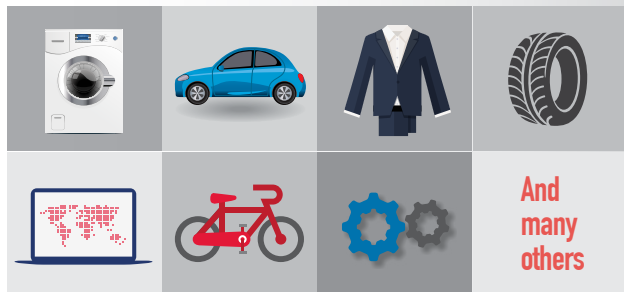
Source: Oxford Economics/Haver Analytics

3 INCLUDING LOW U.S. NATURAL GAS PRICES



Source: Federal Energy Regulatory Commission
<http://www.aei.org/publication/chart-of-the-day-world-natural-gas-prices>

5 INCLUDING THESE TOP RESHORING INDUSTRIES



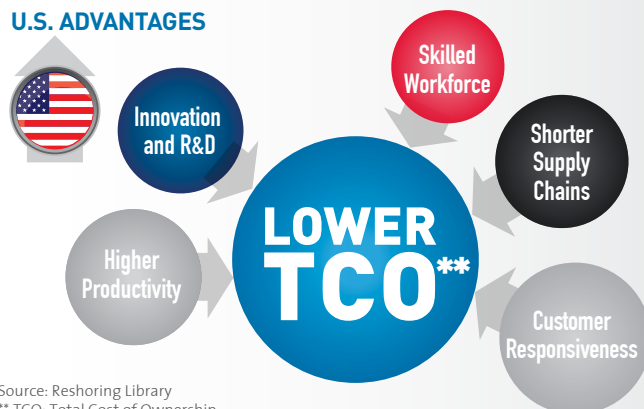
Creating, with FDI, about 170,000 U.S. manufacturing jobs since February 2010*

**About 20% of the 870,000 increase in U.S. manufacturing jobs since the recession low in February 2010.*

Source: Reshoring Initiative Library, March 2014.

2 CAUSE COMPANIES TO REEVALUATE TOTAL COSTS

U.S. ADVANTAGES

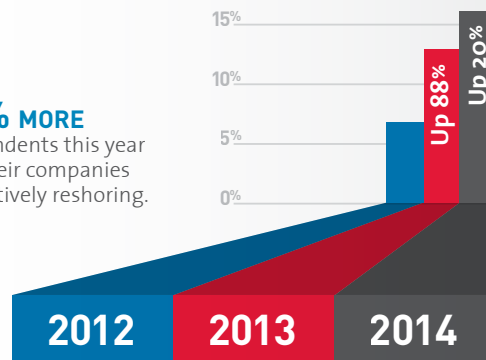


Source: Reshoring Library

** TCO: Total Cost of Ownership

4 THEREFORE, MORE COMPANIES ARE RESHORING

20% MORE respondents this year say their companies are actively reshoring.



Source: Boston Consulting Group Survey 2012, 2013, 2014 — <http://www.slideshare.net/TheBostonConsultingGroup/bcg-mfg-survey-key-findings-slideshare-deckoctober-2014f3>

6 TOP RESHORING CASES IN THE U.S.

Company	Total Jobs	Reshored From	State	Product Reshored
Walmart	4,444	Various	Various	Consumer goods
Ford	3,250	Mexico	OH, MI	F-650, F-750, Ford Fusion, EcoBoost Engine
Caterpillar	1,900	Japan	GA, TX	Construction equipment
GE	1,900	China, Mexico	KY, NY, OH	Appliances, industrial batteries, light bulbs
GM	1,800	Mexico	TN	Small gas engine (Ecotec), SRX
Flextronics (Apple)	1,700	Abroad	TX	Mac Pro
Farouk Systems	1,200	China, South Korea	TX	Ceramic hairstyling irons
NCR	870	Brazil, China, India, Hungary	GA	ATMs, self-service checkouts
Boeing	700	Abroad	MO	Parts for the 777X
Made in America Seating	510	China	TN	Ergonomic office chairs

Source: Reshoring Initiative Library, March 2014.



ONE VOICE MEMBERS MAKE ADVOCACY TRIP TO CAPITOL HILL, REMIND LAWMAKERS THAT MANUFACTURING MATTERS

Nearly 70 NTMA and PMA members participated in the seventh-annual One Voice Legislative Conference in Washington, DC in April. They visited 150 congressional offices over the course of two days, sharing the industry's views on issues like tax reform, workforce development and regulations. Participants also enjoyed sitting down to lunch with members of Congress to talk in more informal settings.

The trip, a highlight of the One Voice advocacy efforts in Washington, is a unique opportunity to meet with the elected officials and integral staff members whose decisions impact NTMA member businesses. In the meetings this year, NTMA members offered insight into the issues most important to the industry and, even more importantly, shared their own stories. They reminded Washington of the real-world consequences of legislation and regulation that are felt in facilities across the country.

This year's visit to the Hill was especially important as Congress is expected to tackle some tough issues in 2015. One such issue is tax reform. According to the 2015 One Voice survey, the majority of members – 61% – are pass-through businesses, paying over 40% in total federal taxes. Under some plans being discussed, policymakers would not include these companies in tax relief. In addition, many of the tax incentives manufacturers depend on for certainty in planning and investment in growth – from the R&D tax credit to bonus/accelerated depreciation and Section 179 expensing – will once again be on the chopping block in 2015.

And tax reform is not the only beltway decision that is anticipated to impact NTMA businesses in the coming year and beyond. In 2014, federal government agencies issued 3,541 final regulations and proposed 2,375. With that background, One Voice members discussed the impact of regulation and reported additional challenges posed by rising energy costs during

this year's meetings. According to the 2015 survey, approximately 65% of One Voice members expect their energy costs to rise in the next year.

Finally, during the Hill meetings, NTMA members shared the struggle of manufacturers trying to recruit new employees. Right now, 84% of One Voice members have skilled position job openings. In addition, 95% of One Voice members rank the difficulty they are experiencing in recruiting qualified employees as “moder-



Left: Florida One Voice delegates with Congressman Webster (R-FL)
Below: Missouri One Voice delegates with Congressman Long (R-MO)

ate” or “severe.” During meetings, One Voice members asked lawmakers to help raise awareness about the opportunities available in manufacturing careers and to support industry credentialing and training programs.



This year's Legislative Conference was an important event and planning is already underway to ensure that next year's gathering keeps up the message to Washington that manufacturing matters. Remember that NTMA members can give unlimited corporate or individual contributions to the NTMA Government Affairs Administrative Fund which supports the work done by The Franklin Partnership and Policy Resolution Group at Bracewell & Giuliani LLP. Additionally, NTMA mem-

bers can make limited personal donations to the Committee for a Strong Economy (CFASE) PAC, which supports pro-manufacturing Congressional candidates.

Manufacturers have a lot at stake, and to make a difference in Washington, those who know the industry best have to participate in the process. Keep up with One Voice advocacy efforts and find ways to get involved on the One Voice website -

www.metalworkingadvocate.com - and by following @onevoiceformfg on Twitter.



SMALL BUSINESSES HIRING MILITARY: A WIN-WIN



In late May, the Center for America and the American Jobs for America's Heroes military hiring campaign released its groundbreaking “Best Practices Guide for Employers in Recruiting and Hiring National Guard Members and Veterans,” which is free for download at www.CenterforAmerica.org.

Ron Overton, President of Overton Industries in Franklin, Indiana, is the former Chairman of the National Tooling & Machining Association and has written the Guide's foreword to encourage small

CONTINUED ON NEXT PAGE

businesses to adopt practices developed by employers across America that will help them hire veterans more efficiently.



Following is an excerpt from Overton's Foreword:

"If you're in a small business like Overton Industries, you know that success often depends on finding and training employees that can work as part of a team to get the job done properly . . . we have always been eager to hire veterans because they bring commitment, attention to detail and great teamwork to our company. Drawing on their military training and experiences, those who served their country in the military have helped us with creative ways to solve problems and improving our operations . . .

The time and effort invested in finding and recruiting veterans and National Guard members with the right qualifications can be challenging for small businesses. Like most small businesses, we don't maintain a large human resources department to search for qualified candidates. However, we know that finding the right veteran candidate can provide a big pay-off for our company.

The Guide, which is tailored for small businesses, is full of good ideas and insights about how to bring veterans and Guard members into your company efficiently and successfully. Many of the ideas in this Guide come from the 1,600 employers participating in the American Jobs for America's Heroes campaign."



Register Now!

CFO ROUNDTABLE

CLEVELAND

Date: Wednesday, June 24
Welcome Reception & Dinner: Tuesday, June 23 - 6:00pm

Where: CBIZ Corporate Headquarters
6050 Oak Tree Blvd. Suite 500
Cleveland, OH 44131

Cost: NTMA MEMBERS
\$400 - Early Bird Member Rate
Deadline 6/3/15
\$475 - Regular Member Rate

NON-MEMBERS
\$525 - Non-Member Rate

Continental Breakfast & Lunch Included

There is no cancellation fee prior to 10 days before event.
If cancelled less than 10 days prior, it is non-refundable.
For more information regarding our cancellation policy, event registration refunds or other concerns, please contact the NTMA office at 216-264-2822.

**CFO Roundtables
Sponsored by:**

CPE Information:

At this conference, participants will learn about:

- ERP systems
- Affordable Care Act
- Tax Landscape
- 401K

Speakers from the industry and the profession will present new ideas and valuable information on financial management. With session on ERP systems, tax landscape, 401k and the Affordable Care Act, your organization will want to be represented as participants deal with the current issues facing financial managers in manufacturing.

CPE Credits Available

* 1.5 hours – Tax

* Additional CPE Credits TBA

Additional Information:

Who Should Attend: CFOs/Controller of Manufacturing Companies

Delivery Method: Group Live

Prerequisites: None

Advanced Preparation: None

Program Level: Intermediate

About CBIZ: CBIZ, Inc. is registered with the National Association of State Boards of Accountancy (NASBA) as a sponsor of continuing professional education on the National Registry of CPE Sponsors. State boards of accountancy have the final authority on the acceptance of individual courses for CPE credit. Complaints regarding registered sponsors may be submitted to the National Registry of CPE Sponsors through its website: www.learningmarket.org.

For more information or to register contact:
Brittany Belko (bbelko@ntma.org) or phone 216-264-2848

THE RECORD — JUNE 2015 / P25

PALLET CHANGE SYSTEMS

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NTMA AFFINITY PROGRAM SPOTLIGHT

AFFINITY PROGRAMS - A SIMPLE DEFINITION

NTMA is able to save members significant amounts of money on products and services they are already using. These cost-savings programs are what we call "Affinity" programs and they are among the most tangible benefits of NTMA membership. Over the course of 2015 we are going to highlight the companies and their products and services so members better understand the benefits our Affinity Partners offer.

NTMA is proud to be able to help our members save millions of dollars each year on products and services essential to the operation of their business. Who isn't looking to save money, right? Look right here each month.

HEARTLAND OVATION PAYROLL

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Sarah Shoaff,

NTMA Director of Membership and Business Development

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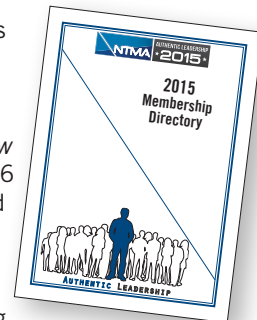


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FLEXIBLE MANUFACTURING SYSTEMS FOR GROWTH AT STEELVILLE MANUFACTURING

BY ALAN RICHTER

Job shops generally tackle numerous low-volume part runs and often feel that automated manufacturing systems are not suitable for their operations. Steelville (MO) Manufacturing Company begs to differ.

The family-owned and -operated company handled about 10,500 part numbers last year, predominantly defense-related aerospace components, and used two flexible manufacturing systems to produce a vast majority of them, noted John Bell, vice president – engineering



A Steelville Mfg. worker loads parts into a tombstone for machining in the Fastems cell.

for SMC. “We’ve done as many as 13,800 part numbers in a year,” he said, adding that the shop produces an average of 30 pieces of each part number annually.

About 15 years ago, SMC installed a Makino A55E 4-axis, 400mm (15.75 “) horizontal machining center as a stand-alone machine and added two Makino A51 HMCs about eight years ago. The shop then combined the three machines to create an MMC (Makino Machining Complex) automated pallet-delivery work cell. “We can put two more machines on it if we get enough business to fill it up,” Bell said.

Realizing the shop was going down the right automation path while understanding it needed to perform simultaneous 5-axis machining, in 2009 SMC added a Fastems pallet-delivery work cell that marries two Okuma Millac 800HV 5-axis, 800mm vertical machining centers and two Okuma MA600HB 4-axis, 630mm (24.8 “) VMCs. The Fastems/Okuma FMS also includes two tombstone-changing stations and two material-handling stations, one between two machines and the other at the end of the cell.

When installed, the FMS was Fastems’ longest in North America at 167’ (50.9m), according to the company, and still remains one of the longest. When installing the MMC, Bell

said SMC planned on adding a second cell at a later date as well, so the company added about 17,000 sq. ft. (5,182 sq. m) to its facility to accommodate both. The addition brought the building to 50,000 sq. ft. (15,240 sq. m).

As with the Makino cell, the second cell has space for up to two more machines. Bell noted adding machines to the Fastems cell is basically a plug-and-play procedure that doesn’t involve adding to payroll. “We can simply add two machines,” he said. “It’s nice to know that I don’t have to bring in more employees [to operate them]. It’s just a matter of capital expenditure.”

Although both cells function in a similar manner while processing information a bit differently, the MMC communicates only with Makino machines while the Fastems FMS works with CNC machines from various builders. On the Fastems system at SMC, the shop can add any modern machine tool, according to Michael Bell, director of operations for Fastems LLC, West Chester, Ohio, who’s not related to John. “We have integrated 72 different machine tool manufacturers’ equipment into our systems to date,” he said. “Pallet size is irrelevant as is machine tool type (VMC or HMC).”

Bell added that lathes and mills can even be positioned in a progressive line, if needed. In addition to scheduling jobs, the cells use a track-based, pick-and-place robot to gather workpiece materials and tombstones from multiple-level racks and return them.

Bell emphasized that any mix of parts can justify an FMS, but a shop must have work it can schedule for the system to function properly. This sometimes requires a shift in a company’s mindset. “So many machinists have never really had to do scheduling,” he said. That differs from the typical scenario in which a machinist receives a job from his foreman, completes it, then receives another job.

HARD AND SOFT CELLS

SMC machines a host of workpiece materials, including titanium, Inconel, stainless steel, aluminum, phenolic, plastics and some composite materials. In the Fastems system, Bell said two machines – a 4-axis machine for roughing and a 5-axis one for finishing – are more or less dedicated to cut relatively soft metals and two are dedicated to the more challenging ones.

The arrangement functions fairly well, but Bell conceded it is not ideal, because it limits SMC’s ability to run any part on any machine.

“If the whole cell ran one or the other, we could greatly increase our efficiencies,” he said.

Nonetheless, Bell noted the two 5-axis machines in the cell achieve at least 80 percent spindle utilization and frequently hit 90 percent, while the 4-axis machines have a spindle utilization from 40 to 60 percent. Achieving higher spindle utilization is easier to achieve when the need to write part programs, which is done offline, is not as demanding.

“Last year, we did a little over 2,000 first articles,” Bell said. “We will likely do about 1,500 to 1,800 first articles this year, but we still are getting 100 to 150 new parts each month.”

The shop runs three shifts five days a week, with the day shift being the most manned. It uses that shift to produce first articles and other critical components. During the first shift, two people run each cell, whereas only one person runs each cell during the second shift and one person runs both cells during the midnight shift.

Prior to adding the Fastems system, SMC employed slightly fewer than 50 people, Bell said. Some of those workers were concerned that more automation would jeopardize their jobs. “Their automatic response was that ‘you’re not going to need us,’ but we’ve done nothing but hire more people since putting it in,” he said, adding that SMC employs 138 workers. Those additional hires are not necessarily tending machine tools; the automation created positions in shipping and receiving, inspection, quality and programming.

“The cells have actually decreased our need for skilled machinists,” Bell said. However, he added that the cells make the production process more difficult because SMC needs programmers with significantly higher skill levels to keep everything moving, especially with the volume it has. “We’ve had as many as seven programmers operating at one time, and we could always use two or three more.” The shop didn’t have 5-axis programming capability when it installed the Fastems system.

TRACKING DOWN TALENT

Finding the required talent to grow can be a challenge for any manufacturer, and particularly for one located in a town with some 1,600 residents and 90 miles from the nearest city. “Being out here in the middle of the country, we don’t have a deep bench of talent to draw from,” Bell said.

Therefore, SMC provides in-house training and taps into online resources, such as the



SMC's MMC automated pallet-delivery work cell has three workstations

National Tooling & Machining Association's NTMA-U program and Tooling University LLC's Tooling U-SME curricula. Bell noted the company is also looking at the possibility of creating an apprenticeship program to replenish skills as its workforce ages.

"My brothers and I are all in our early to mid-50s," he said. "We were all young when we started, and we still have 25 of our first employees with us, but they're just a little younger than we are. So 15 years from now we are going to need a lot of new workers."

In addition to continual training, Steelville Manufacturing also promotes continuous improvement in connection with its lean initiative. As part of that effort, the company seeks to overcome issues created by outsourcing parts for processing, such as painting, heat treating, anodizing and conversion coating. "Besides programming, outside processing has been our biggest bottleneck," Bell said.

He noted customers want 8- to 12-week lead times for their parts, but outside processing alone can consume 6 to 12 weeks. For example, parts may require an initial outsourced process before returning to SMC for assembly and then are shipped again after assembly for an additional process, such as top coating. "That takes 12 weeks," Bell said. "We're just at the mercy of our suppliers."

In addition, SMC can't control the quality of its suppliers, such as when they mask the wrong side of a part or chemically etch too much material for holes with tolerances as tight as 0.0005 " (0.0127mm). "They should remove no more than 0.0001 " or 0.0002 " in the process," Bell said, "but it always seems like when our parts go into the tank, the workers take a smoke break and, when they come back, our holes are 0.0006 " or 0.0007 " bigger."

Each month, workers at SMC submit ideas for continual improvement and the worker with the best idea, as determined by company managers, gets to spin the continual-improvement wheel and win a cash prize.

Bell added that SMC might be able to

salvage parts with secondary, corrective operations or an outside processor might redo a batch of parts – or not. "One time they scrapped \$8,000 worth of parts; I don't even think they said they were sorry."

To bring the work in-house and avoid lead-time and part-quality problems, SMC built a new 16,000-sq.-ft. (4,877-sq.-m) facility to house equipment for painting, heat treating and chemical processing. The facility is expected to begin operating in the fall. Not only will doing those processes internally solve the quality problems, it will also ensure that SMC can meet its delivery times if a supplier is unable to accommodate SMC because the supplier no longer has the capacity, Bell added. "We're trying to get ahead of that curve."

After installing the equipment and obtaining the required Nadcap certifications, such as for heat treating and chemically processing, Bell said the shop plans to start heat treating parts in six months and perform chemical

processing by the end of 2016. (Nadcap is an aerospace-industry-managed conformity assessment.)

With about 25 acres of land to expand on out of the 400 acres the company owns, SMC has room to grow. Bell indicated that the company is considering adding another building, possibly to house a flexible manufacturing work cell dedicated to machining hard metals and one dedicated to machining soft metals.

The growth would certainly generate more jobs at SMC while making its customers happier by meeting their lead time requirements. "I can show them that these systems make my machines more productive," Bell said. For more information about Steelville Manufacturing, call (573) 775-2977 or visit www.steelvillemfg.com.

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10 TIPS TO REDUCE ENERGY COSTS



NTMA members can take steps to reduce a major operating expense—energy. Read on for 10 easy, fast, and permanent ways to reduce electricity costs.

1. Lighting. Replace outdated incandescent light bulbs with light-emitting diodes (LEDs) or compact florescent light bulbs. Install occupancy sensors so lights will only operate when motion is detected.

2. Heating/Cooling. Adjusting the temperature in your facility by only a few degrees can significantly lower energy costs. Many electricity utility companies offer financial incentives for upgrading HVAC systems.

3. Demand Response Program. Receive payments for voluntarily reducing electricity usage during peak demand times. This also benefits the grid system and the environment.

4. Efficiency project. Upgrade your facility and equipment. Install energy efficient appliances and machines. Many state governments and electricity utility companies offer financial incentives for manufacturers to save energy.

5. Reduce consumption. Schedule operations for off-peak hours. Use an onsite generator. Shut down equipment whenever possible.

6. Energy audit. An efficiency expert can evaluate your facility and operating procedures, and identify ways to increase efficiencies, including variable frequency drives and advanced metering technology.

7. Energy Data Tracking. Online energy management systems track and report energy costs and consumption. Benchmarking tools measure efficiency projects. Manufacturing facilities can be compared to similar locations to identify ways to cut costs.

8. Review your energy bill. Ensure you pay the correct price per kilowatt hour. Look for added costs and line items.

9. Fixed Price. Mitigate risk exposure to volatile energy prices by using a fixed-price electricity supply contract.

10. NTMA member benefit. NTMA endorses APPI Energy to provide data-driven procurement and consulting solutions to members. APPI Energy reviews thousands of supplier prices every day to deliver true apples-to-apples comparisons. For a courtesy evaluation, contact 800-520-6685 or info@appienergy.com.



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Upcoming NTMA 2015 Events

June 11-12, 2015

Chapter Leadership Summit
Cleveland, OH

June 24, 2015

CFO Roundtable
Cleveland, OH

July 29, 2015

Sales & Marketing Workshop
Hartford, CT

September 15, 2015*

Sales & Marketing Workshop
Indianapolis, IN

September 16, 2015*

Supply Chain Network
Indianapolis, IN

September 30, 2015

CFO Roundtable
Los Angeles, CA

October 4-11, 2015

EMO Milano 2015
Milan, Italy

October 20, 2015

Plant Managers Roundtable
St. Louis, MO

October 21-24, 2015

NTMA Fall Conference
St. Louis, MO

November 11, 2015

CFO Roundtable
Kansas City, MO

November 18, 2015

Human Resources Roundtable
Boston, MA

* Discounted rate available for those who register for both the Sales & Marketing Workshop and the Supply Chain Network

2015											
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