



WORKFORCE CHALLENGES AT ELLWOOD GROUP, INC. (EGI)

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Regional Energy Industry Workforce Summit
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EGI

- Ellwood Group, Inc. (EGI) is a manufacturer of heavy metals for the steel ingot forging industry headquartered in Ellwood City, PA
- EGI = Privately held, \$1 Billion in Sales, 1,750 Employees, business is good
- EGI is a heavy consumer of gas and electricity—your customer
- EGI's major customers include: GE, Caterpillar, U.S. Defense Dept, Rolls Royce Marine, Dresser Rand...
- EGI's products: crankshafts (capital goods mfg & railroad industries), energy & wind turbine components, large parts for the oil & gas and mining industries

EGI Steelmaking

Electric Arc Furnace (EAF)



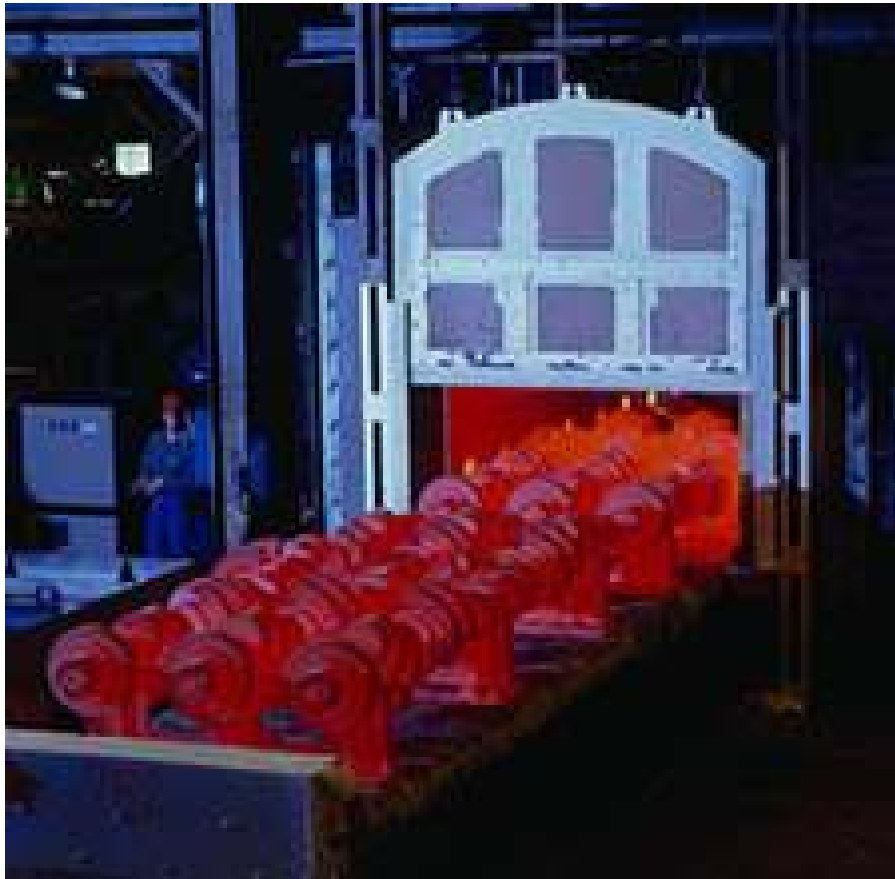
Ingots being slowly cooled in large car-bottom furnace



Ladle Vacuum Degassing



EGL Forging & Heat Treating



6/5/2008

PKV: Regional Energy Industry
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EGI Crankshafts



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ROTOR SHAFT FOR POWER GENERATION



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WORKFORCE CHALLENGES

1. Aging workforce – average age is 43; as high as 50 at some business units
 - Skills not being replenished quickly enough
2. Public Relations/Image Problem – manufacturing, steel industry not a “hot” career choice
3. Workforce Skills Gap – from entry level to the trades to a shortage of engineers

Overcoming Obstacle #1 – AGING

- Encourage 'EEs to work longer
 1. HSAs – no retiree medical
 2. Wellness programs
 3. 401(k) incentives
 4. Exploring part-time schedules
- Cross train – highly skilled utilized to impart knowledge to others
- Engineer out manual labor
- Generate interest of next generations...

Overcoming Obstacle #2

PUBLIC RELATIONS/IMAGE PROBLEM

- How many **parents** want their children to select **MANUFACTURING** as a Career Choice?
- How many **parents** want their children to select **Steelmaking, Forging, or Machining** as a Career Choice?
- How many **young people** select these fields as career choices in high school?
- How many **high school counselors** recommend these careers?

PUBLIC RELATIONS/IMAGE PROBLEM

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- ***So, there is a gap in supply vs. demand for GOOD workers in our industry***
 - *We are all competing for the A and B employees in order to remain competitive. EGI is not looking for average and below (C, D, or F) employees.*
- We MUST reduce this gap and convince our audience that **manufacturing is alive and well** and that our employees are not the laborers of past generations, but SKILLED problem-solvers.
- There are no quick, easy fixes.
- SO, WHAT IS EGI DOING ABOUT THIS IMAGE PROBLEM...

PUBLIC RELATIONS/IMAGE PROBLEM

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- Approaches:
 - Working through the School-to-Work programs to educate students, educators, parents on manufacturing careers
 - Investing in Career & Tech Centers (Votechs)
 - Working with local Economic Development task force
 - Working with local Workforce Investment Board to market manufacturing

PUBLIC RELATIONS/IMAGE PROBLEM

-- continued

- Approaches (continued)
 - Conducting tours of our facilities for students, counselors, teachers, 'EEs family and friends
 - Hosting “Engineering Day” for Lawrence County high school students
 - Recruiting engineering co-ops and interns to perform meaningful work
 - Established a \$25,000 metallurgy scholarship

Overcoming Obstacle #3

Workforce Skills Gap

- **High School skills gap**

- “Roughly a third of all American high school students drop out. Another third graduate but are not prepared for the next stage of life—either productive work or some form of post-secondary education.” -- *Bob Herbert, Pittsburgh-Gazette*
- “We have one of the highest dropout rates in the industrialized world.” –*Allan Golston, President, US Programs for the Bill & Melinda Gates Foundation*
- *Bill Gates, Microsoft Founder*, describes our nation’s high schools as “obsolete”. “By obsolete, I mean our high schools—even when they’re working as designed—cannot teach all our students what they need to know today.”

Workforce Skills Gap

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- **Shortage of skilled, heavy industrial maintenance candidates**
- **Shortage of Engineers in the US** - source MAPI, 5/13/2008
 - % of undergraduate degrees awarded in Engineering in 2004
 - 17.5% in Japan
 - 17.3% in Germany
 - 7.8% in Canada
 - 6.2% in the U.S.
 - % of graduate degrees awarded in math and science in 2004
 - 35.1% in Germany
 - 16.6% in Canada
 - 14.5% in the U.S.

Workforce Skills Gap

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- **Math, Science, and Problem Solving Skills Gap**

- There is a wide disparity in the literacy and math skills of school age and adult populations
- U.S 15-year olds test below Japan, Germany, and Canada in math, science, AND problem solving skills (OECD, 2006)
- This skills gap is likely one cause of the relatively low rate with which we graduate engineers and scientists
- Problem-solving skills are critically important for the manufacturing workforce in the emerging environment of lean supply chains and global teams
- “Over the long term, uncompetitive skills and a weak supply of engineers and scientists threatens U.S. ability to innovate at competitive levels. If not addressed, this will be a deterrent to America’s capacity to produce the new and differentiated products that allow industries to grow market share in a challenging global business environment.” –Cliff Walman, *Economist, Manufacturers Alliance/MAPI, 5/13/2006*

Workforce Skills Gap

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- EGI Approaches

- Discuss curriculum needs with schools for improved math, science, & problem solving skills (via STW program & advisory councils)
- Engineers speak to 7th graders to encourage them to consider engineering as a career choice
- Steelmaking course offered for all EQS employees (including math and chemistry)
- Continuous internal training and cross training (blueprint reading, hydraulics, electronics, lean manufacturing, safety, etc.)
- Development of machining school for employees working in Irvine, PA - EMII



- EMII – Ellwood Metal Working Institute in Irvine
- 3/3/06 – Discussed skills shortages; sense of urgency
- Conducted extensive research and decided in January 2007 to operate our own school
- 4/4/07 – Hired a full-time Training Coordinator
- 8/7/07 – First class began; includes classroom and OJT lab training
- Classes offered: BP Reading, GDT (including use of precision measuring instruments), Shop Math, Basic Machining Fundamentals (3 modules), Basic Milling Principles
- Future classes: Siemens 840D Level I training, electrical maintenance, crankshaft polishing
- To date – 100 employees have received training through EMII complete with graduation ceremonies for employee and spouses

WHAT CAN THE WORKFORCE SYSTEM DO BETTER?

- Understand the skills gap! EGI has completed no less than a dozen workforce surveys—we keep saying the same thing!
- Understand the rigor of applying for grant funding from the EMPLOYERS' perspective (timing of fund availability, fund application deadlines, limited types of training reimbursable, individual training maximums, documentation, etc.)
- Understand that the need for workforce training will only increase as employers needs are not met
- Understand that we must transform or decay—American business and jobs are at stake!

**THANK YOU FOR
LISTENING!**