

***“WELDING FOR  
THE STRENGTH  
OF AMERICA”***

Presented By:



**American Welding Society**

# Overview

- **AWS**
- **Challenge**
- **Importance**
- **Status**
- **Future**
- **Solutions**
- **Summary**



# AWS



# AWS: Mission

**“Our mission is to advance the science, technology and application of welding and allied joining and cutting processes, including brazing, soldering and thermal spraying.”**



# AWS: Who We Are



- Founded in 1919
- AWS is the largest organization in the world dedicated to the welding industry
- AWS serves more than 50,000 members worldwide
- We are:
  - Business and Industry
  - Engineers
  - Welders
  - Educators

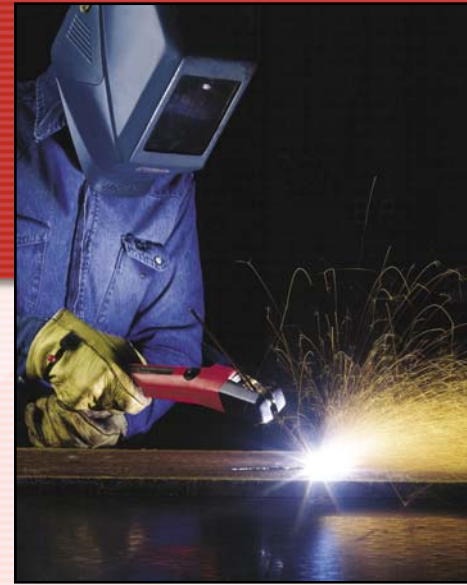
# AWS: Who We Are

- A standards-developing organization, facilitating the production of AWS practices, standards, product specifications, and guidelines.
- A volunteer-led organization governed by an enthusiastic, committed board of directors that oversees the activities of nearly 200 local Sections around the world; more than 200 technical committees; and an expert staff of about 100 at AWS headquarters.
- An advocate for American methods and practices in the development of critical international standards through the International Standardization Organization (ISO).



# AWS: What We Do

- AWS' strategic goal is to support the manufacturing sector by providing:
  - Membership
  - Certification
  - Codes and Standards/Technical Documents
  - Periodicals
  - Education
  - Conference/Seminars
  - Show
  - Foundation and Scholarships





# AWS: What We Do

- We are your information source – a clearinghouse of expert welding knowledge you can't get anywhere else. Our core competency is gathering and disseminating information on welding and allied processes.
- We publish more than 230 technical documents for the welding industry, including one of the world's most widely used standards, D1.1/D1.1M, *Structural Welding Code—Steel*, which is updated every two years.

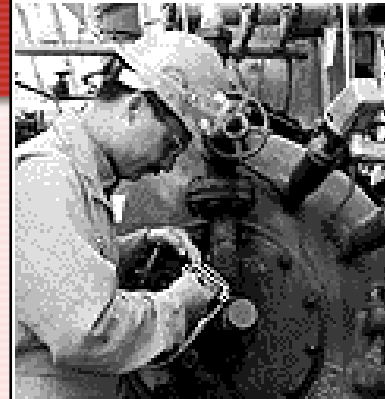




# AWS: What We Do

- Certification - The best means an individual has to establish and maintain professional credibility. It brings value and can mean better pay, more job security, and recognition as one of the industry's elite.
- AWS conducts preparatory seminars throughout the U.S. and around the world. AWS has certified more than 52,000 CWI's since the program's launch in 1976
- AWS offers certification in the following categories:
  - **Certified Welding Inspector (CWI)**
  - **Certified Welder**
  - **Certified Radiographic Interpreter (RI)**
  - **Certified Welding Educator (CWE)**
  - **Certified Welding Engineer (CWEng)**
  - **Certified Welding Supervisor (CWS)**
  - **Certified Robotic Arc Welder** (Coming in late 2007)

If every employee came with a stamp of approval...



**AWS CERTIFICATION**

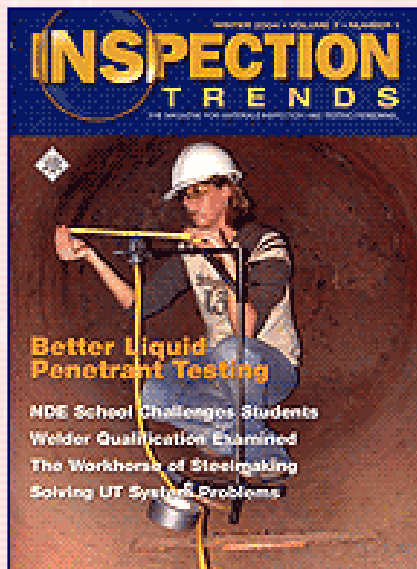
*Improve quality,  
increase production  
and gain a unique  
advantage.*



[aws.org/certification](http://aws.org/certification)

# AWS: What We Do

The *Welding Journal*, the official voice of AWS, received by all members. Published monthly, it contains feature articles on practical and applied welding technology, peer-reviewed welding research, new products, industry news, developing technologies, safety, and AWS activities and programs.



*Inspection Trends*, a quarterly magazine serving the nondestructive examination industry, including more than 22,500 active Certified Welding Inspectors.

# AWS: What We Do

We partner with the Society of Manufacturing Engineers and the Fabricators and Manufacturers Association to host the *FABTECH International and AWS Welding Show*, the leading trade show for welding and cutting, forming and fabricating, and tubing and piping.



The event showcases new products and technological advances, accompanied by an extensive array of AWS conferences, seminars, workshops, and governance meetings.



# CHALLENGE



# Challenge: Manufacturing

**“America’s future depends on a skilled, productive & tech. trained workforce.”**

*John Engler, President, NAM*

**“Manufacturers will need as many as 10 million new skilled workers by 2020 to replace aging boomers who make up a large part of manufacturing jobs.”**

*Wall Street Journal*

**“The most recent data show 15.1% of the work force is below the age of 24. That will shrink to 13.7%”** (As reported in Atlanta Journal Constitution)

*Michael Wald, Regional Economist for the Bureau of Labor Statistics*

**“If we don’t address the skills issue, our economy will face a serious decline.”**

*Jerry Jasinowski, President, The Manufacturing Institute*

**“81% of manufacturers polled by NAM/Deloitte report they can’t find the skilled workers to keep their businesses competitive in a global 21<sup>st</sup> century economy.”**

*Phyllis Eisen, Vice President, The Manufacturing Institute*



**American Welding Society**

# Challenge: Welding Industry

- Manufacturing, Construction and Mining is a \$3 trill. industry -- That is 1/3 of the US GDP.
- Welding is a \$34.1 billion industry.
- Labor represented more than 70% of welding-related expenditures, \$22.4 billion in 2000.
- There are more than 500,000 welders working in US.
- The average age of welders in today's workforce is 54.



- It is estimated that there will be a **shortage** of more than **200,000** welders by **2010**.
- This year, **50,000** welders will **leave** the industry while only **25,000** students **begin** their welding education.



# IMPORTANCE



# Importance: To Manufacturing

- Welding plays a key role in the manufacturing challenge
- Welding is a key contributor to:
  - Heavy Manufacturing
  - Light Manufacturing
  - Construction
  - Transportation
  - Electronic/Medical
  - Maintenance & Repair
  - Energy



# Importance: Acknowledged

**“Companies are looking for skilled welders... It is known across the nation and in political circles that there is an increasing shortage of skilled labor. Our job placement rate has been running over 90% and was 100% last year.”**

*(Hobart Institute of Welding Technology)*

**“The ranks of skilled tradesmen who helped build the American dream are thinning steadily... with baby boomers now hitting retirement age.”**

*(Lockport Union Sun & Journal)*

**“40% of member companies are turning away business due to lack of welders.”**

*(National Tooling and Machining Association)*

**“While skill-strapped companies often blame schools for not providing skills, some executives say outsourcing jobs abroad and eliminating training programs to cut costs exacerbated the problem... companies ‘shot themselves in the foot,’ says Tony Raimondo, CEO, Behlen Manufacturing.”**

*(Wall Street Journal)*



**American Welding Society**



# STATUS



# Status: Welding Industry

- Welding is viewed as “dark & dirty” – *Not the case anymore.*
- The critical role of welding is not fully appreciated in all corporate and government offices.
- High schools phasing out welding programs and discouraging careers despite annual earnings potential of \$30,000 - \$60,000.
- 1/2 of US industries report difficulties locating qualified welders.
- The US infrastructure is aging.
- Shortage “barrier” resulting in fewer competitive welding techniques, less productivity and outsourcing to foreign markets.
- Natural disaster prone areas have immediate need for welders to quickly rebuild homes and cities.



# Status: Income

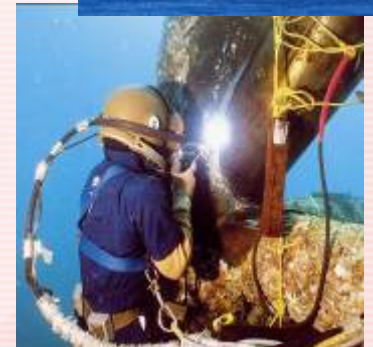


- The typical salary for a Boilermaker in **Los Angeles** is **\$50,866**.
- The typical salary for a Pipe Fitter in **New York City** is **\$55,027**.
- The typical salary for a Senior Structural Assembler in **Chicago** is **\$60,270**.

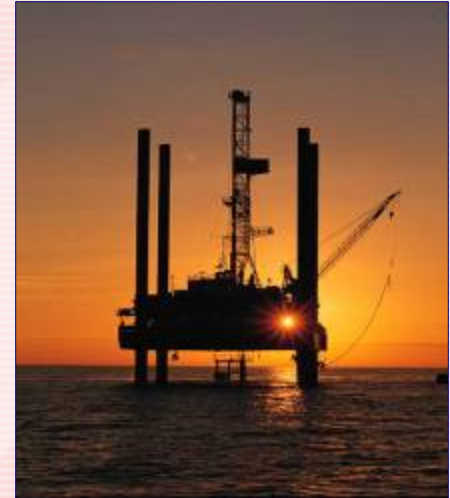


# Status: Career Paths

- Welder
  - Extensive and growing job variety
- Engineers
- Researchers
- Business Owner
- Teachers
- Salesperson
- Machine Operator
- Underwater Welder
- Brazer
- Robotic Arc Welding Technician/Operator
- Radiographic Interpreter
- Inspector
- Maintenance and Repair Tech.



# Status: Opportunities



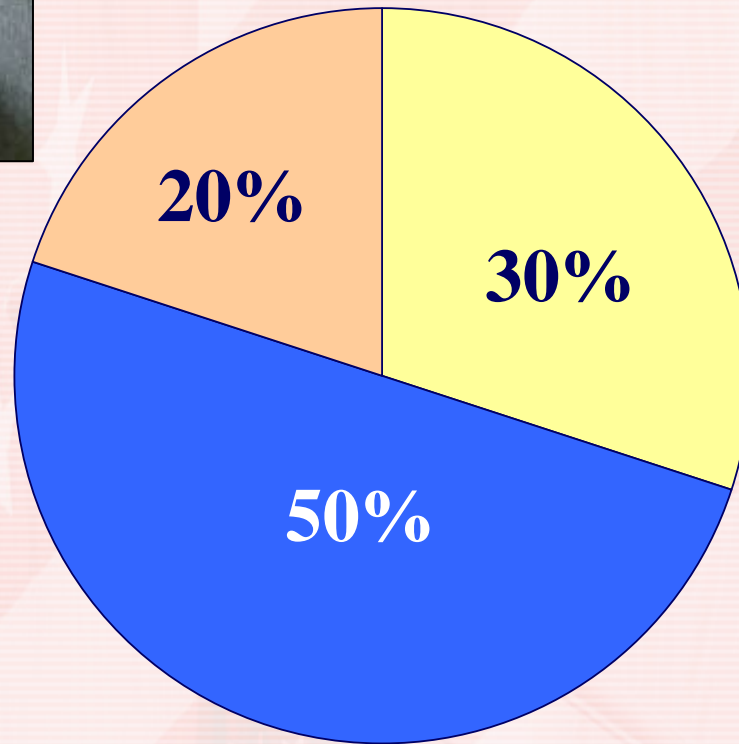





# Status: Where Welders Work

- Military
- Aircraft and Aerospace Industry
- Building Construction
- Automotive Industry
- Bridge/Highway Construction
- Shipbuilding Industry
- Universities and Schools
- Safety Products
- Boiler Industry
- Medical Industry
- Mining Industry
- Robotics and Computer Engineering
- Farming Equipment Manufacturers
- Job Shops
- Specialty Gases
- Consumer Electronics



# Status: Welding Student Profile



-  Recent High School Graduates
-  Career Change
-  Working at Company

# FUTURE



# Future: The Need Grows

- **Advancing manufacturing technology** creates more uses for welding in the workplace and is expanding opportunities.
- Increased emphasis on **certification**, which ensures quality.
- **Computer skills** are required for welding professionals responsible for programming welding robots, lasers, and systems.
- New materials are creating a greater need for a highly educated and **innovative welder workforce**.
- Automation reinforces the **need for skilled machine operators**.
- US industries face **foreign competition** and require competitive welding techniques and skilled operators to **stay viable**.
- Skilled welders are needed to maintain the Country's **aging infrastructure**.



# SOLUTIONS



# Solutions: Image of Welding

- AWS Image of Welding campaign launched in early 1990's
- Engaged Special Task Force reporting to AWS BOD
- Funding supported an Impact of Welding Study (2001)
- Study results implemented by Task Force under PEMCO
- Became “Image of Welding Subcommittee” under WEMCO
- \$50 of every WEMCO member's dues go to Image of Welding campaign

# Solutions: Image of Welding

- **“Welding – So Hot It’s Cool”** video sent to schools
- Focus on Recruiting Women
  - While the numbers of welders in the U.S. are shrinking, the numbers of female welders have increased from 4.9% or 29,000 in 2000 to 5.8% or 33,000 in 2005.
- Image of Welding Annual Awards and Ceremony
  - Chicago, IL – 2007; Atlanta, GA – 2006; Dallas, TX – 2005
- Take up the Torch Campaign: [www.takeupthetorch.org](http://www.takeupthetorch.org)
  - Postcards distributed to sections to disseminate locally
  - Posters distributed to trade shows, schools, teachers and counselors
  - Website Launched - 2,000 average visits per month



# Solutions: Focus On Youth

- Career fairs
- Career days
- Clear career paths
- Salary after training
- School counselor reach-out
- Student Chapters
- SkillsUSA; WorldSkills; BattleBots®; and Other Competitions
- Providing Certifications for more money and advancement
  - *Over 53,000 AWS certified and approximately 25,000 active*



# Solutions: NASCAR

*At the 2005 AWS Welding Show Opening in Dallas*





# Solutions: American Chopper



*Featured at the 2005 AWS Welding Show in Dallas*



# Solutions: Monster Garage

*Featured at the  
2003 AWS Welding  
Show in Detroit*



Host of Discovery Channel's *Monster Garage*, Jesse James, was presented with a golden welding helmet for advancing the image of welding and exhibiting sophisticated welding technology and creative skills on his hit TV show.

# Solutions: AWS Foundation

- Founded in 1989 to promote welding education
- Promote the study of welding and joining with scholarships and fellowships
- Hired Executive Director to lead the Foundation
- Grant \$300K/yr. in scholarships; 6 fellowships/yr. for post graduate work - \$25,000 each
- Work with local training facilities, junior colleges, colleges and universities to provide trained, certified workers to help satisfy local workforce needs
- Work with companies to connect them with end user training institutions, junior colleges, and universities that can provide them with long-term quality employees





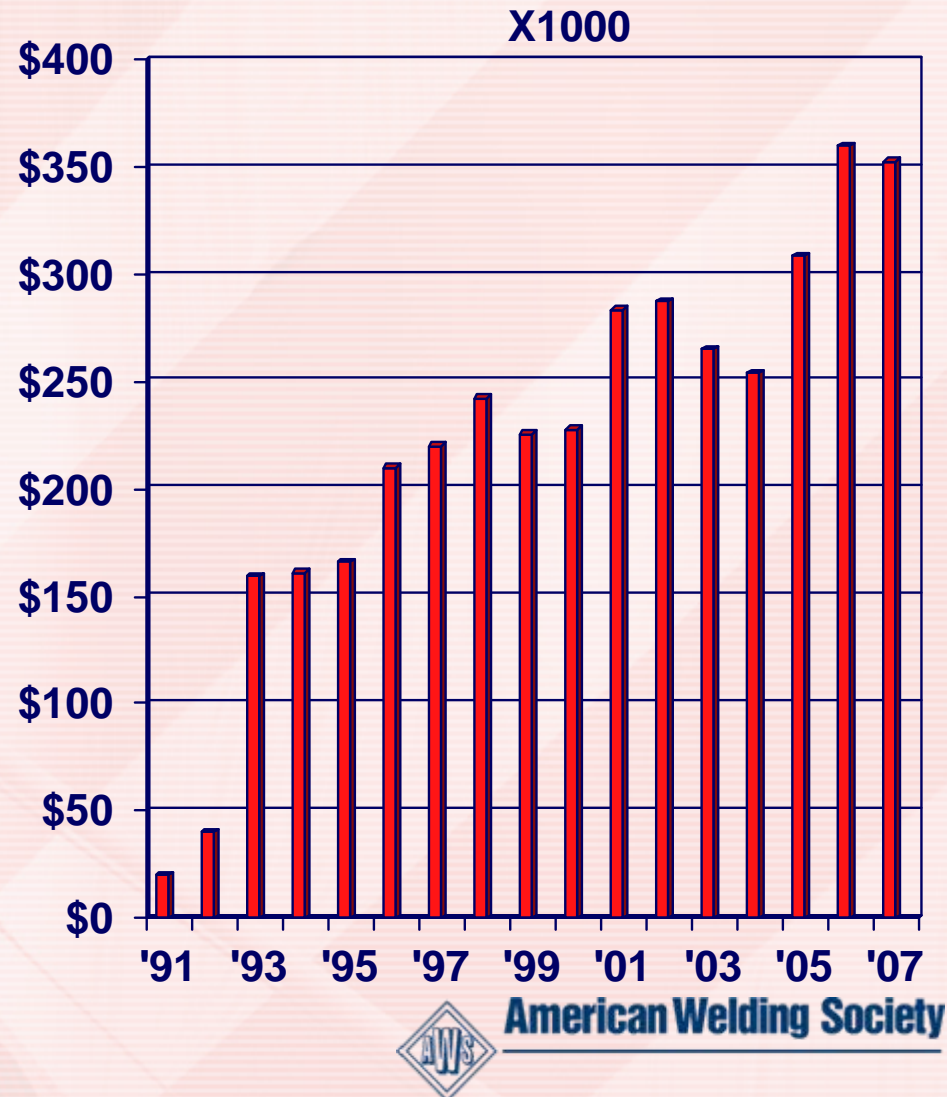
# Solutions: Fund Sources

- Individual contributor – Named scholarship (e.g., Donald F. Hastings scholarship)
- Corporate contributor – Named scholarship (e.g., Hypertherm Scholarship)
- AWS Sections, Individuals and Corporations contribute to the endowment
  - Earnings of the endowment are used to fund students as chosen by the Education Scholarship Committee



# Solutions: From Modest Beginnings

- In 1991, there was one fellowship @ \$20,000
- In 2007, there were a total of 285 recipients, over \$353,000
- Total of 2,537 students, \$3.7 million over 17 years



**\$10 Million  
GOAL!!!**



# Solutions: What Can Be Done With \$10M

	Today (\$2.5M)*	Increase Support	Annual Workforce Impact
<b>Welder Training</b>	<b>49</b>	<b>301</b> <b>\$6.02M</b>	<b>350</b>
<b>Technician Scholarships</b>	<b>96</b>	<b>104</b> <b>\$3.12M</b>	<b>200</b>
<b>Engineering Scholarships</b>	<b>16</b>	<b>14</b> <b>\$700K</b>	<b>30</b>
<b>Advanced Technology Fellowships</b>	<b>6</b>	<b>1</b> <b>\$500K</b>	<b>7</b>

\*These are the number of scholarships awarded in 2005 through the \$2.5M current endowment, other Foundation funds, the annual \$110,000 commitment to the Districts by AWS, and annual corporate support for fellowships.



# Solutions: Other Efforts

- AWS Foundation - \$10 million capital campaign
- AWS Education - S.E.N.S.E. program
- AWS Districts & Sections – Over 22 districts and 200 sections
- AWS Communication – New Interactive/Customizable Website
- AWS Show - FABTECH Int. & AWS Welding Show
- AWS Conferences – Emerging technology and their applications
- AWS Seminars – Professional development
- AWS Certifications – Programs offered in emerging areas
- AWS JobFind – Key resource for finding qualified personnel

# SUMMARY



# Summary

- **The Welding Industry's Response to a Tight Labor Market**
- **AWS – Professional Society for Welding**
- **Welding for the Strength of America**
- **Image of Welding and Other Initiatives**
- **Capital Campaign**