

**NEW TECHNOLOGIES AND ITEMS OF INTEREST
OHIO TECHNOLOGY SHOWCASE
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Fully Deployed (Can be incorporated into recommendations now)

Timken On-Line Laser-Based Ultrasonic Wall Thickness Gauge (Seamless Steel Tubes/Metalworking) [Timken]

- 5% annual fuel savings
- Fewer product rejections and less reprocessing

Rapid Infrared Heating of Forging Dies (Metalworking) [ORNL/Queen City Forging/Edison Materials Technology Center (EMTECH)]

- 66% reduction in energy usage
- Next step is heat treatment of aluminum forgings

Entering or In Demonstration Phase

Advanced Oxy-Fuel-Fired Front-End System (Glass Industry) [DOE]

- Up to 70% reduction in front-end energy usage
- Up to 90% reduction in NO_x emissions
- Up to 70% reduction in CO₂ emissions

Measurement of Molten Glass/Aluminum Batch Oxides [DOE/Energy Research Company (ERCO)]

- Complete elemental analysis while material still molten
- Can adjust material composition before casting
- Offers possibility of continuous melting and measuring

Submerged Combustion Melter [Gas Technology Institute (GTI)]

- Air-fuel or oxygen-fuel is fired directly into a pool of melt
- Direct-contact heat transfer with high thermal efficiency
- Can be used in glass, steel and chemicals industries
- Reduces NO_x and CO emissions
- Greater than 20% energy savings over current melters
- Melter is smaller, more compact; 80% reduction in refractory
- Low capital cost

Starting or In Research and Development

Intensive Quenching Technology for Heat Treating and Forging Industries [DOE/Edison Materials Technology Center (EMTECH)]

- Reduces VOC emissions
- Uses water vice oil or water/polymer solution
- Reduces energy consumption by eliminating carburizing and shot peening

Next Generation Glass Melter [DOE/Gas Technology Institute (GTI)]

Up to 23% energy savings

Significant reduction in capital costs

Up to 50% reduction in NOx emissions

Up to 80% reduction in refractory usage

High-Intensity Plasma Glass Melter [DOE]

Up to 40% energy savings

Reduces VOC emissions

Low capital costs

Reduced refractory usage

For more information on new and emerging technologies visit the EERE website at:
http://www.eere.energy.gov/industry/bestpractices/emerging_technologies.html