American Iron and Steel Institute

Commodity Spotlight:
North American Steel Industry

Gregory L. Crawford

NDIA 2009 Munitions Executive Summit

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The New Steel

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North American Steel Industry

- Globally Competitive
- Strategically Aligned: Defense, Economy
- Leader in Technology Deployment
- Investment in Market Development
- Sustainable/Environmentally Responsible

North American Steel Industry

<u>Integrated Mills</u>

- Basic Oxygen Furnace
- Iron Ore-Based
- Centralized
- Flat-Rolled Sheet

<u>Mini-Mills</u>

- Electric Arc Furnace
- Scrap-Based
- Regional
- Long, Heavy Shapes

AISI's member companies represent 75% of U.S. raw steel production.

North American Steel Mills

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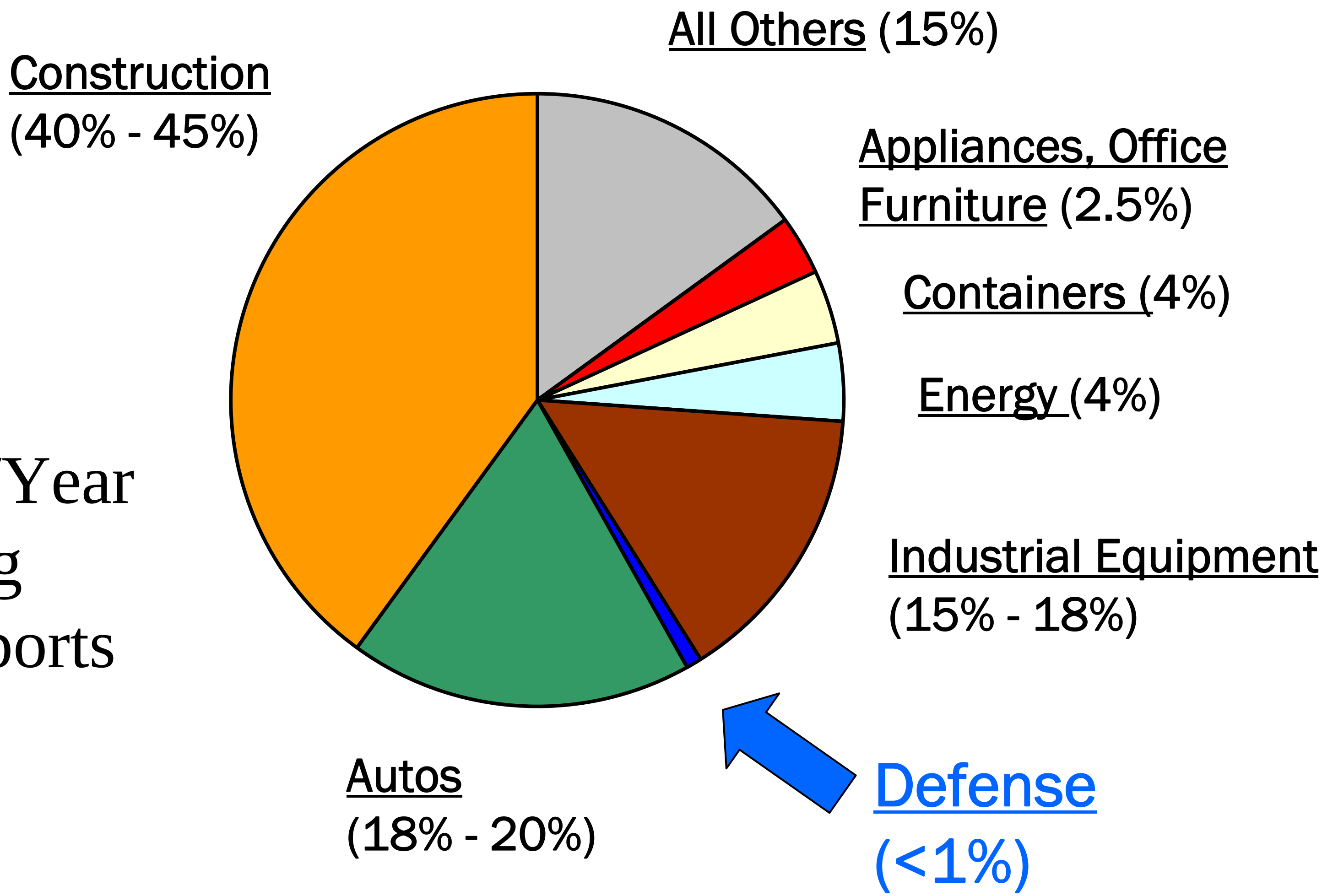
Steel-Consuming Markets



122 MT/Year Including 20% Imports

Source: C. Plummer, Metals Strategies Inc.

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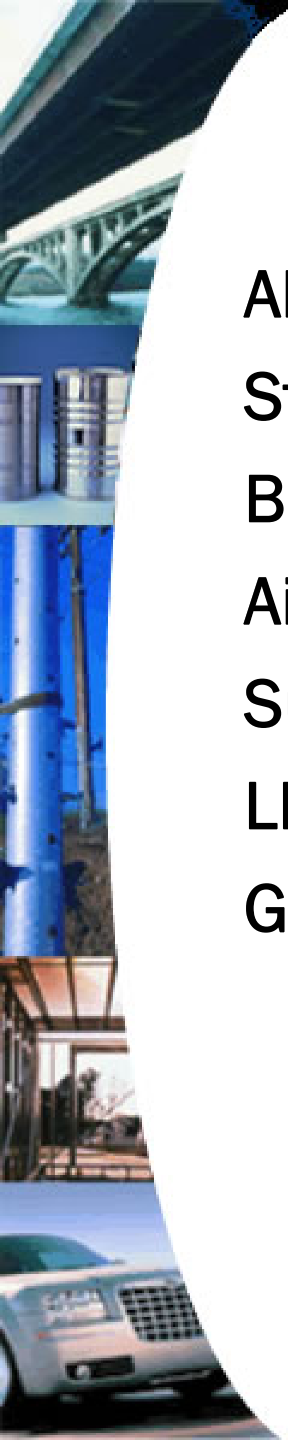
Steel Applications: National Security

I. Homeland Security

- Transportation (Bridges, Roads, Airports, Rail)
- Energy Distribution
- Water Distribution
- Public Health/Safety
- Commerce

II. Military

- Armored Vehicles
- Ships/Aircraft
- Weaponry/Projectiles and Other Ordnance
- Logistical Support



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Steel Applications: Major Defense Procurement

Abrams Tanks (M1)	22 tons each
Stryker Light Armored Vehicle	8 tons each
Bradley (M2)	6 tons each
Aircraft Carrier	50,000 tons each
Submarine (Trident)	10,000 tons each
LPD Amphibious Force Ship	12,000 tons each
Guided Missile Destroyers (DDG)	500 tons each

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Steel Demand: Munitions

- Capabilities of Steel Producers in the U.S.
  - Rounds (≤ 9”), RCS (≤ 8”)
- Grades:
  - Mild Steel Grades: 1046, 1045
  - Alloy Grades: 4130, 4140, 4340, 4135
  - High Carbon Grades: HF-1, 52100
- Processing:
  - Tighter Tolerances
  - Improved Surface Qualities
  - Hot Forging
  - Spherodizing

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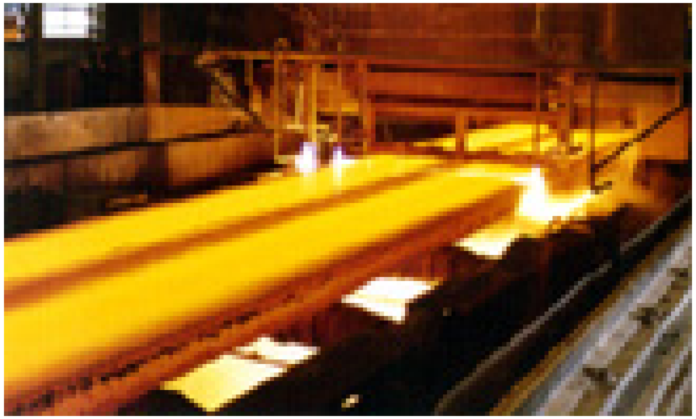
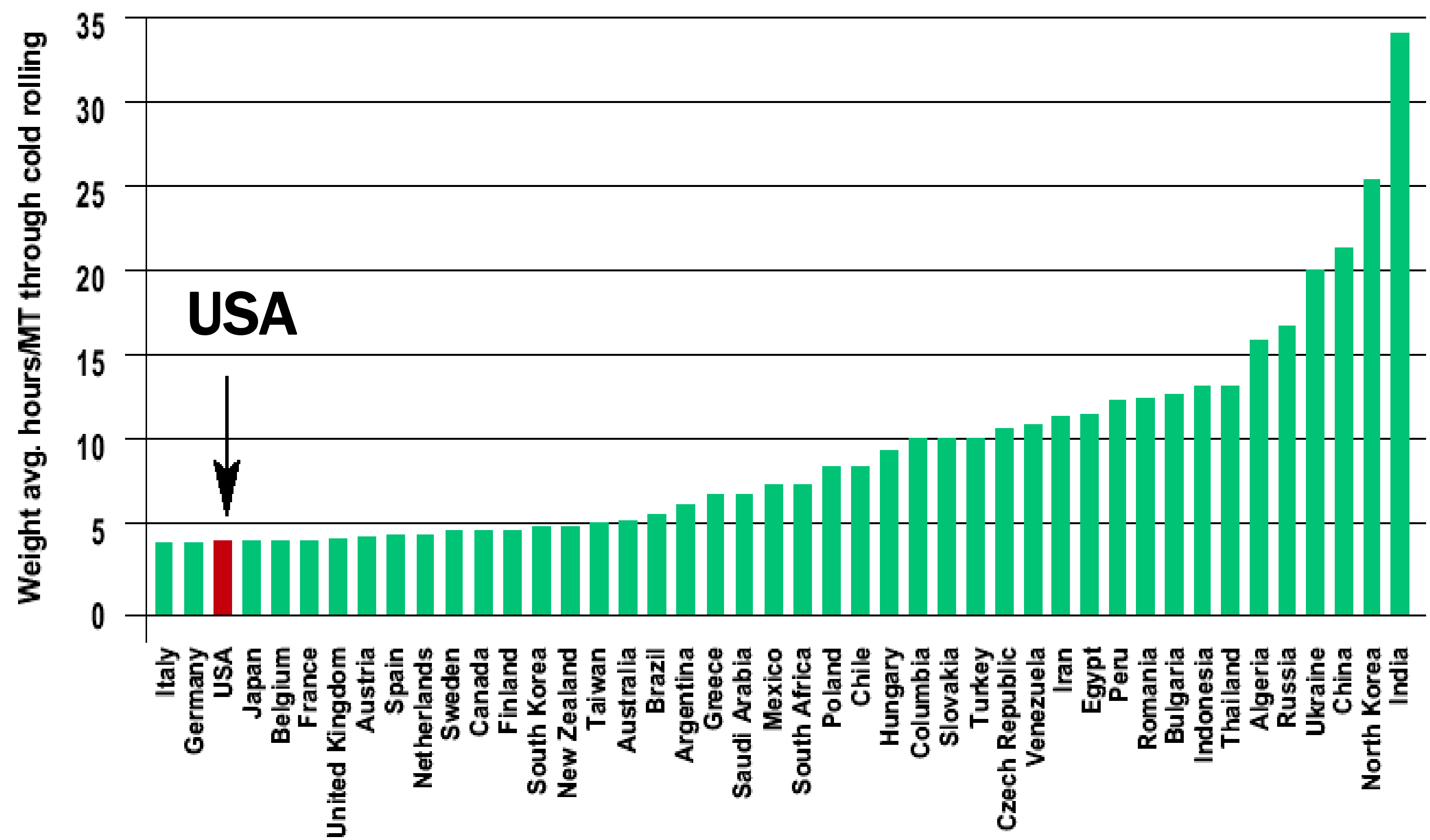
Steel Investment: >$60 Billion since 1990



- Quality
- Productivity
- Cost
- Energy/Environment

Productivity: More Than Tripled Since 1980s

USA Steel Industry Labor Efficiency



Source: World Steel Dynamics 2000 Cost Curve.

USA Steel Mill Employment: 125,000

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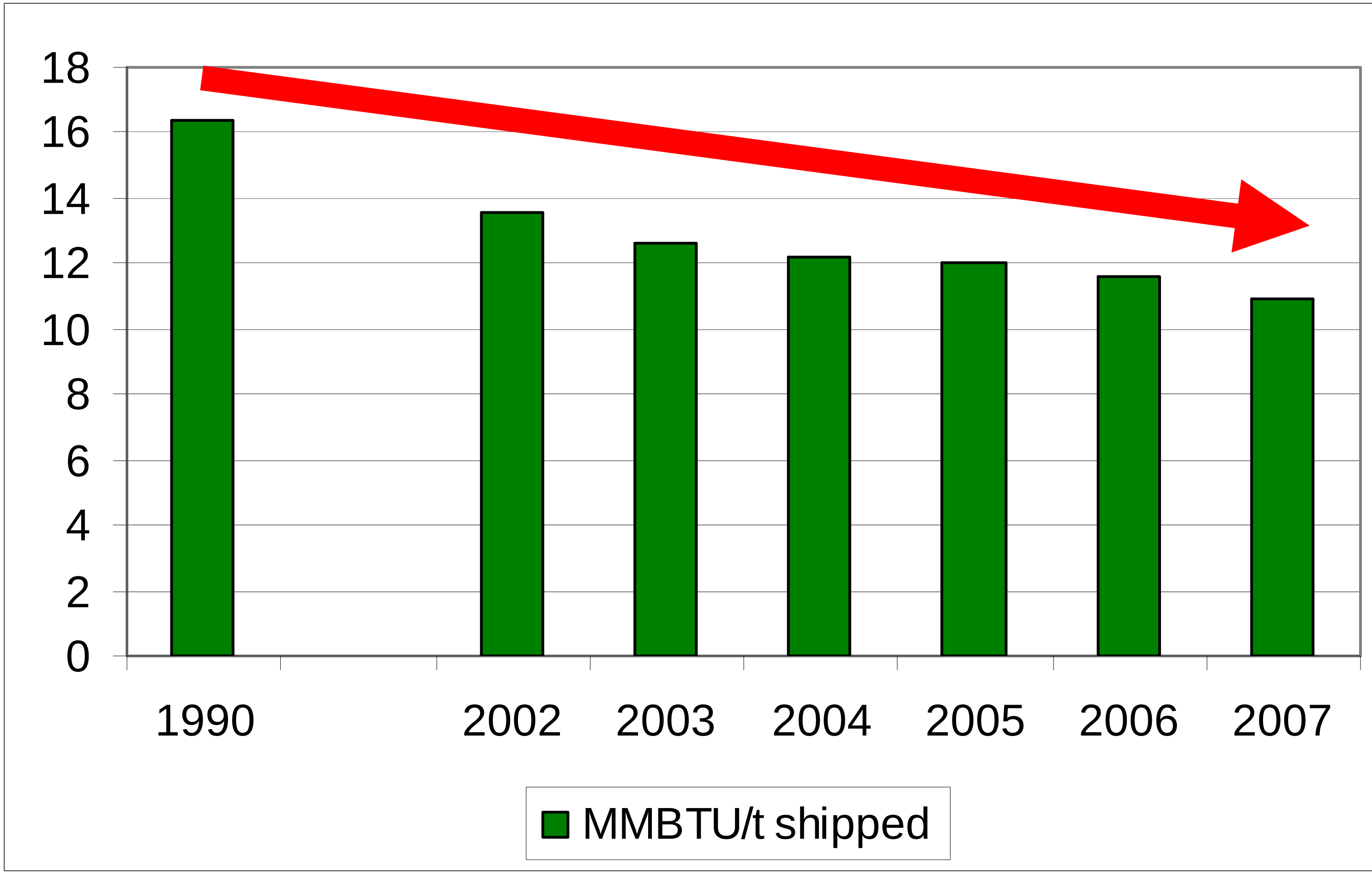
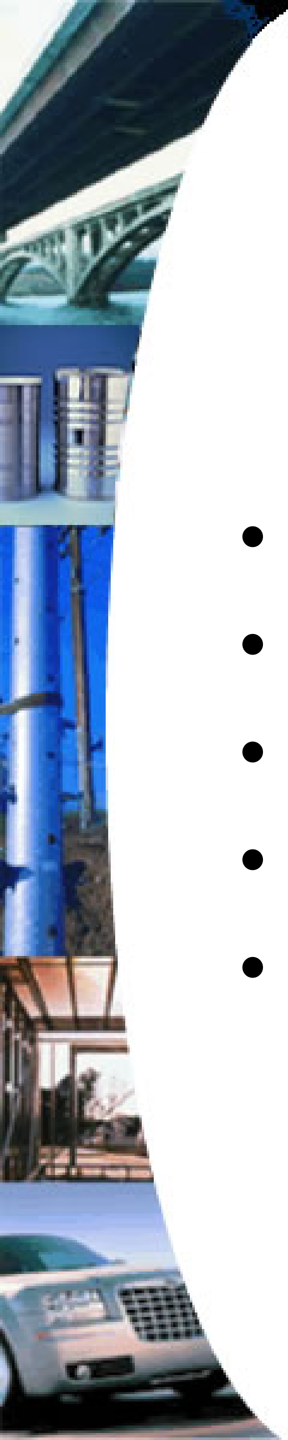
Steel Industry: Reduction in Energy Use



- 33% Less Energy Use Since 1990
- 19% Less Energy Use Since 2002

Steel Industry: Environmentally Responsible

- Air and Water Emissions: 90% Reduction
- Kyoto Target: >7% GHG Reduction, 1990-2012
- Steel Scrap Recycled in U.S. in 2007: 78.2% (over 82 million tons, highest ever)
- www.sustainable-steel.org



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Steel Technology And Manufacturing

- DoE R&D “Roadmaps”
- Material Properties (AHSS)
- Third-Generation Steels
- Coatings Technologies
- Competing Materials

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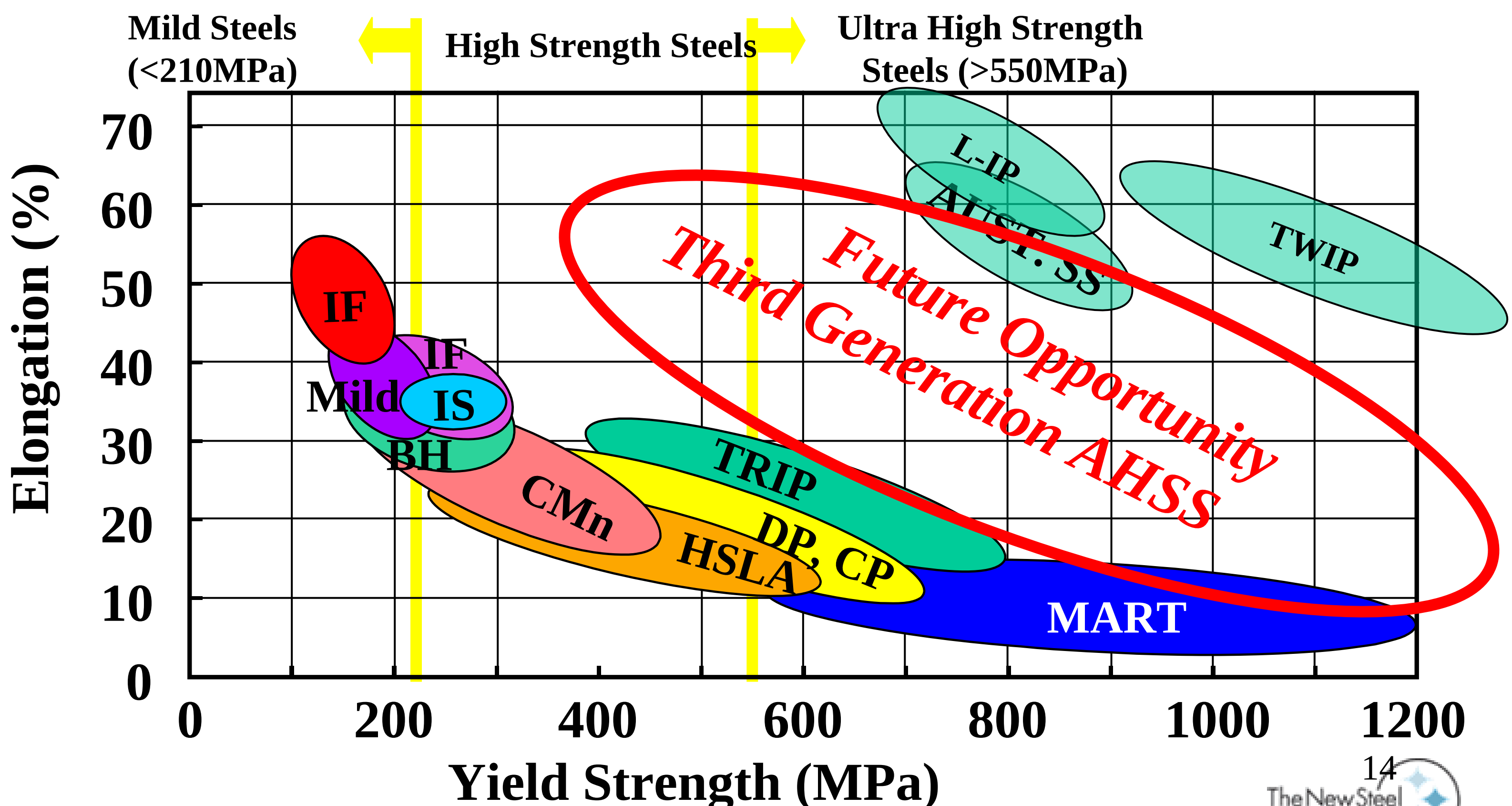
Today's Steel Products

- Durability, Strength, Composites
- Over 2,000 Steel Specifications
- Automotive = 50% New Products



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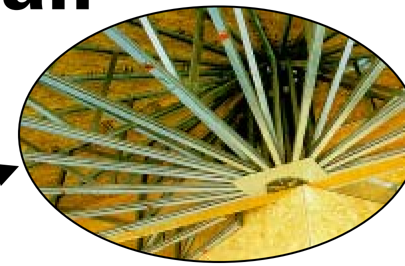
Steel Market Development Strategic Plan



- Competing Materials
- Protecting Investment

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Steel and Defense Industries Collaboration – Tactical Vehicle

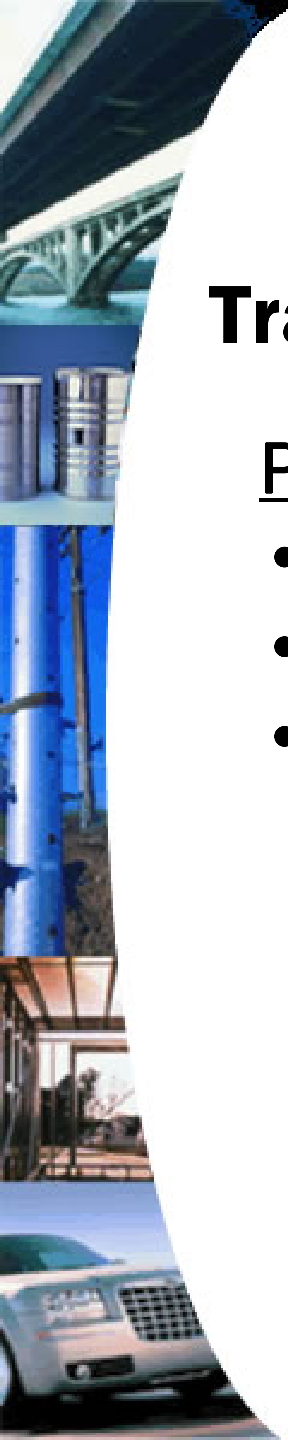
IMPACT – U.S. Army (TACOM)

IMPACT

Objectives:

- Commercial-Based Tactical Truck
- Develop Near-Term, Low-Cost Fuel Economy/Environmental Technologies
- Achieve 25% Weight Reduction

U.S. Army/Ford/AISI



Steel and Defense Industries Collaboration – High-Performance Steels

Transportation Infrastructure

<u>Partnership - HPS for Bridges</u>

- U.S. Navy
- FHWA
- AISI

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Major Challenges Facing Steel Industry and DOD

- Cost of Raw Materials
- Access to Capital
- Mergers/Acquisitions
- Import Share/Surges
- Impact of China et al.
- Global Demand
- Exchange Rates
- Mil Specs/Technology/Procurement

Trade

Climate Change

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Globalization of Steel Industry

- Foreign Investment/Ownership
- USA Mergers and Acquisitions
  - ArcelorMittal (Luxembourg)
  - Severstal (Russia)
  - Evraz (Russia)
  - SSAB (Sweden)
  - Gerdau Ameristeel (Brazil)
- Domestically Incorporated
- Regional Market Priority

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Global Demand: Raw Materials

Cost Drivers Impacting Steel Prices

- Scrap (300%, China Demand)
- Coke (Import, W.V. Coal Mine)
- Iron Ore (China Demand)
- Energy Costs (78% Increase Since 2002)

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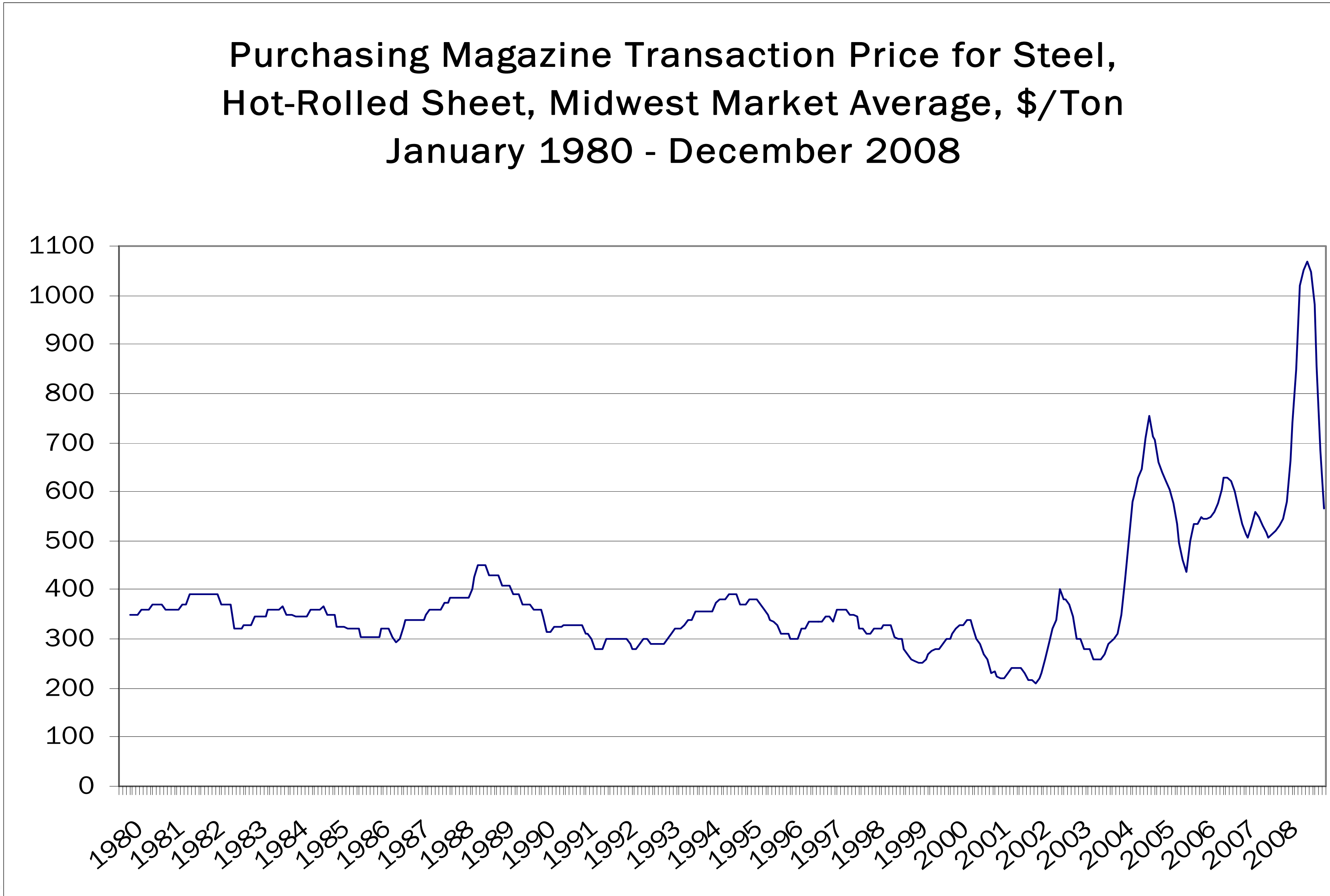

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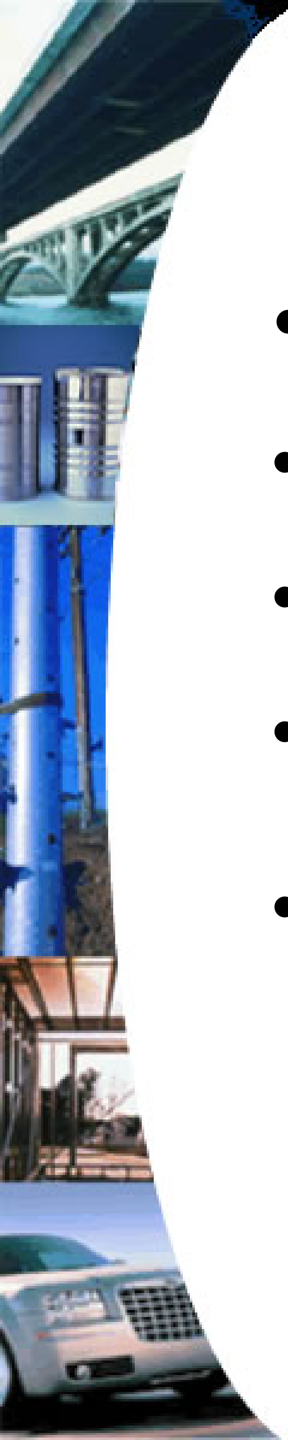

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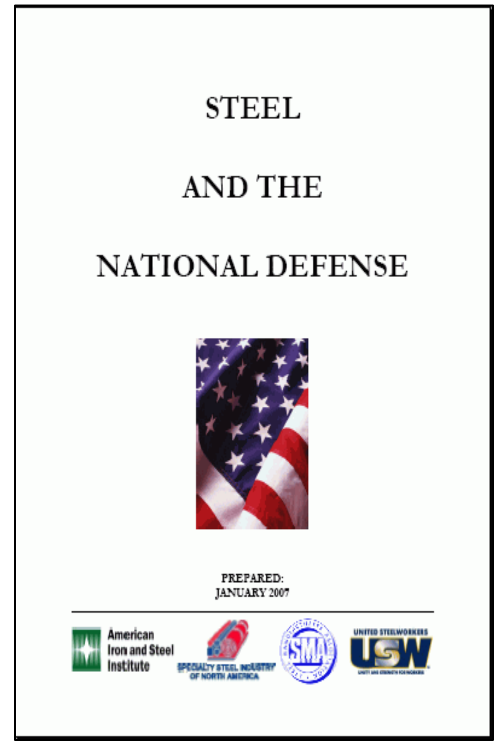
Steel and Defense Industries: Working Together

- National Defense
- Economic Stability
- Homeland Security
- Domestic Preference
- <u>Buy American</u>
  - Domestic Incentive
  - Production Disruption
  - Availability/“Kick Out Clause”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