



Michigan Recycling Coalition

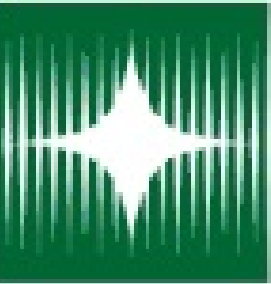


May 18, 2017





Founded in 1988, Now Part of SMDI



**American
Iron and Steel
Institute**



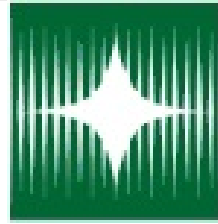
Steel
Market Development
Institute



Steel[®] Recycling Institute



About AISI



American Iron and Steel Institute

- Serves as the voice of the North American steel industry in the areas of public policy, trade, market development and technology innovation.
- 19 member companies, both integrated and electric furnace steelmakers, who represent 75% of steel in North America.
- U.S. steel industry operates more than 100 steelmaking and production facilities, producing 87 million tons in steel shipments valued at \$75 billion in 2014.
- U.S. steel industry directly employs about 142,000 people.
- U.S. steel industry, directly or indirectly, supports almost one million U.S. jobs.
- Labor productivity has seen a five-fold increase since the early 1980s, going from an average of 10.1 man-hours per finished ton to an average of 1.9 man-hours per finished ton of steel in 2015.



Meet SMDI



Steel Market Development Institute

Investor Companies





Meet SMDI Sustainability Group



Steel
Market Development
Institute

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Steel Recycling Institute



Meet the New SRI



The Steel Recycling Institute is an industry association with the mission of promoting and sustaining steel recycling. It is the primary information and technical resource for entities interested in steel recycling and the use of steel in sustainable construction.

The SRI also serves as the clearinghouse for life cycle assessment data for the North American Steel Industry. The SRI documents the environmental performance of steel products through life cycle assessment (LCA) studies and environmental product declarations (EPDs).

-Since 1990, the industry has reduced energy intensity by 31 percent and CO2 emissions by 36 percent per ton of steel shipped. Through recycling, the steel industry saves the energy needed to power 20 million homes for one year.



Steel Plants of North America





Why recycle Steel?

Economics - saves money - substitution cost

Environment - conserves resources

Energy: 5450 BTU saved per lb. Of steel

Saves per ton of steel

Coal - 1,400 lbs

Iron ore - 2,500 lbs

Limestone - 120 lbs

Saves landfill space

1 cubic yard whole steel cans = 150 lbs

1 cubic yard flattened steel cans = 850 lbs



A Partnership in Steel Making

Two Production Methods:

BOF or Integrated Mill

About 40% of overall U.S. production
Uses coke to convert Iron ore to Pig iron
Typically 65-75% molten iron
and 25-35% scrap

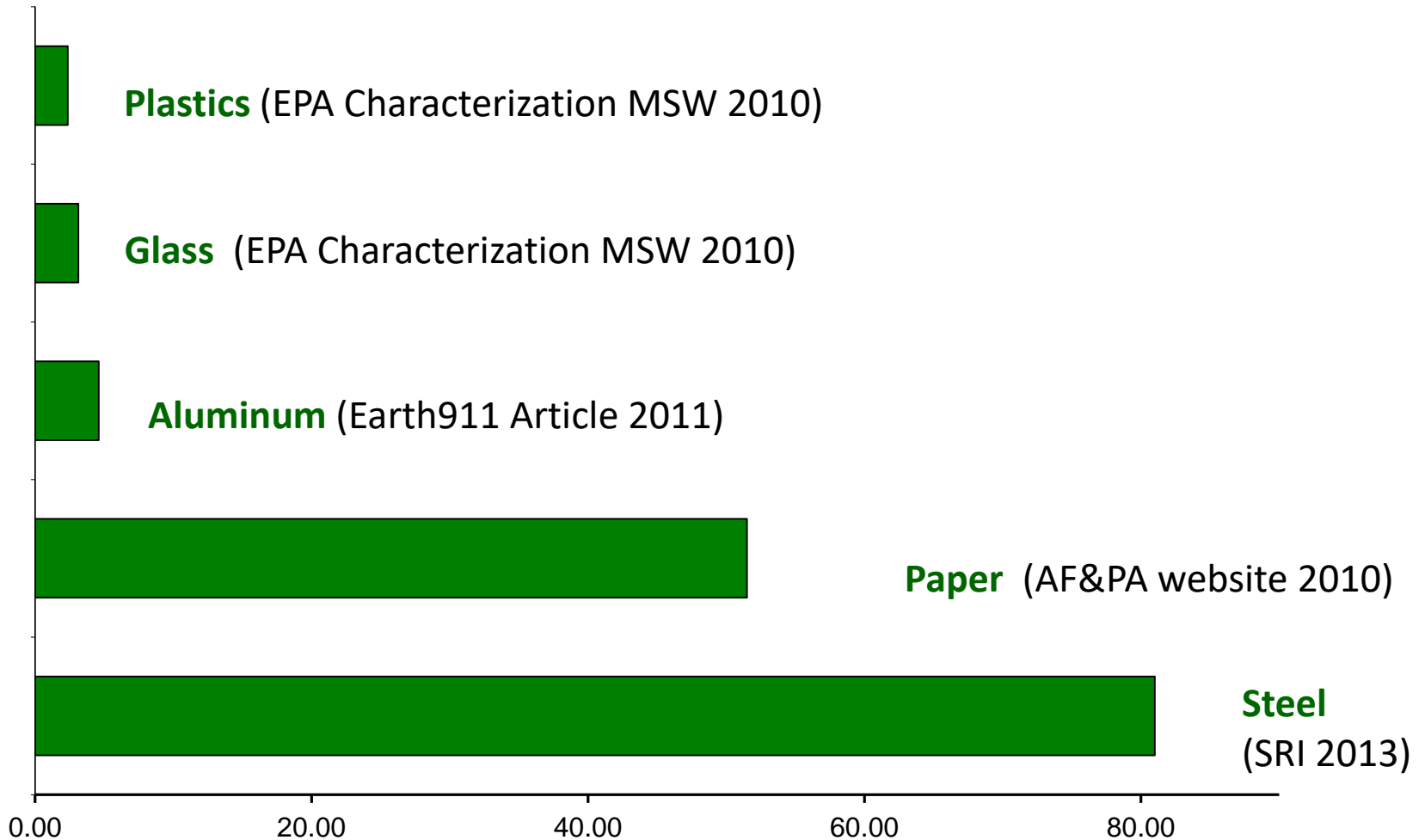
EAF or Mini Mill

About 60% of U.S. production
Uses primarily scrap and
direct-reduced iron (DRI)
Typically 0-25% iron and 75-100% scrap





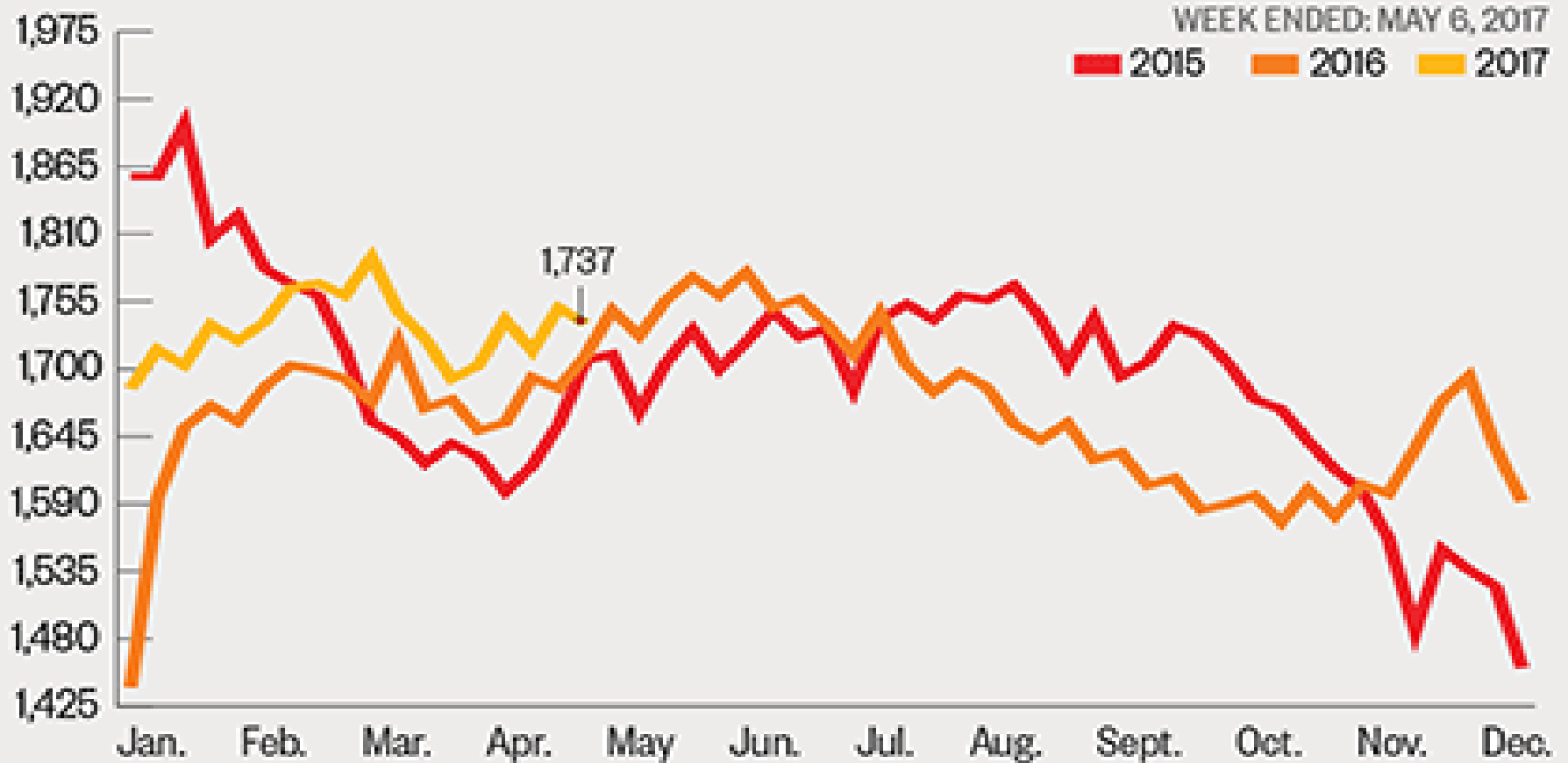
Millions of tons recycled per year





WEEKLY TONNAGE OF RAW STEEL PRODUCTION

(thousands of net tons)



SOURCE: COMPILED BY AMM USING DATA FROM AMERICAN IRON AND STEEL INSTITUTE.



World Steel Market

- World Production = 1,621,000,000 metric tons
- Chinese Production = 825,000,000 metric tons
- US Production = 79,000,000 metric tons

Arcelor Mittal #1 in world

Nucor #14 in world

US Steel #24 in world

China- 825 million metric tonnes

Japan- 105 million metric tonnes

India- 89 million metric tonnes

USA- 79 million metric tonnes

Steel Food Can Facts

Can Manufacturers



Did You Know?



FOOD THAT IS CANNED



IS FOOD THAT ISN'T WASTED
HELPING TO OFFSET THE 34 MILLION TONS OF FOOD WASTED IN THE UNITED STATES

RECYCLING 1 TON OF STEEL CANS



CONSERVES 2,500 LBS OF IRON ORE
1,400 LBS OF COAL
& **120 LBS OF LIME STONE**

CANNED FOOD IS PICKED AT THE PEAK OF RIPENESS & IMMEDIATELY CANNED

LOCKING IN ITS FLAVOR & NUTRITION



NUMBER OF HOURS TO POWER A
60 WATT BULB
FROM RECYCLING
7 STEEL CANS



THE RECYCLING RATE OF

STEEL CANS



STEEL CANS ARE
100% RECYCLABLE
OVER & OVER AGAIN, FOREVER



1810

YEAR THE STEEL CAN WAS INVENTED

TO FEED NAPOLEON'S ARMY



80%-90%

OF ALL STEEL EVER PRODUCED IS STILL IN USE TODAY

LOOKING TRIM CANS TODAY WEIGH
33% LESS

THAN 25 YEARS AGO



ANNUAL COST TO AMERICANS FROM FOODBORNE ILLNESS



\$7.77 BILLION

CANS MAKE FOOD SAFER WITH

100%

CONTAMINATION PROTECTION

FOR MORE INFORMATION VISIT



CANCENTRAL.COM



Steel cans in the marketplace



Steel food cans make up 90% of the steel can marketplace

Steel Aerosol cans are 7% of the steel can marketplace



Steel paint cans are 3% of steel cans in the marketplace



Over 5900 programs collect empty aerosols in their steel can mix

72 OF TOP 100 CURBSIDE PROGRAMS INCLUDE EMPTY STEEL AEROSOL CANS

According to a recent SPC study, over 70% of Americans have access to programs which include empty aerosol cans.



**PLEASE RECYCLE
WHEN EMPTY**



Paint Cans: Empty with Dry Skin!

Approximately 4800 programs include empty steel paint cans



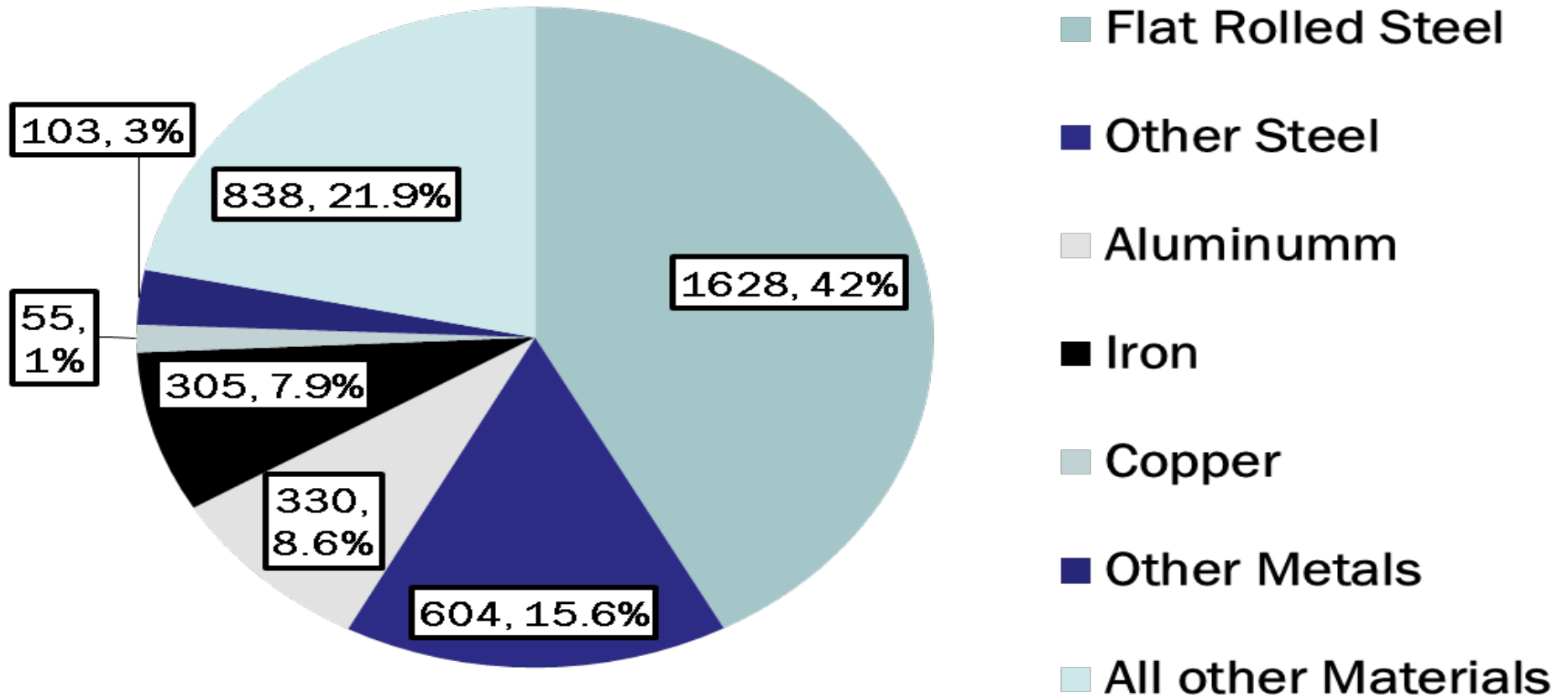
Steel paint cans still have 55% of paint container market





Steel Content in Today's Automobile

2010 Light Vehicle Content Material Content



Total of 3,863 pounds **58% steel**



APPLIANCE RECYCLING

A typical appliance is produced using about 65 percent steel which is the primary reason nearly 90 percent of discarded appliances are recycled each year.

The steel content drives the recycling of appliances!



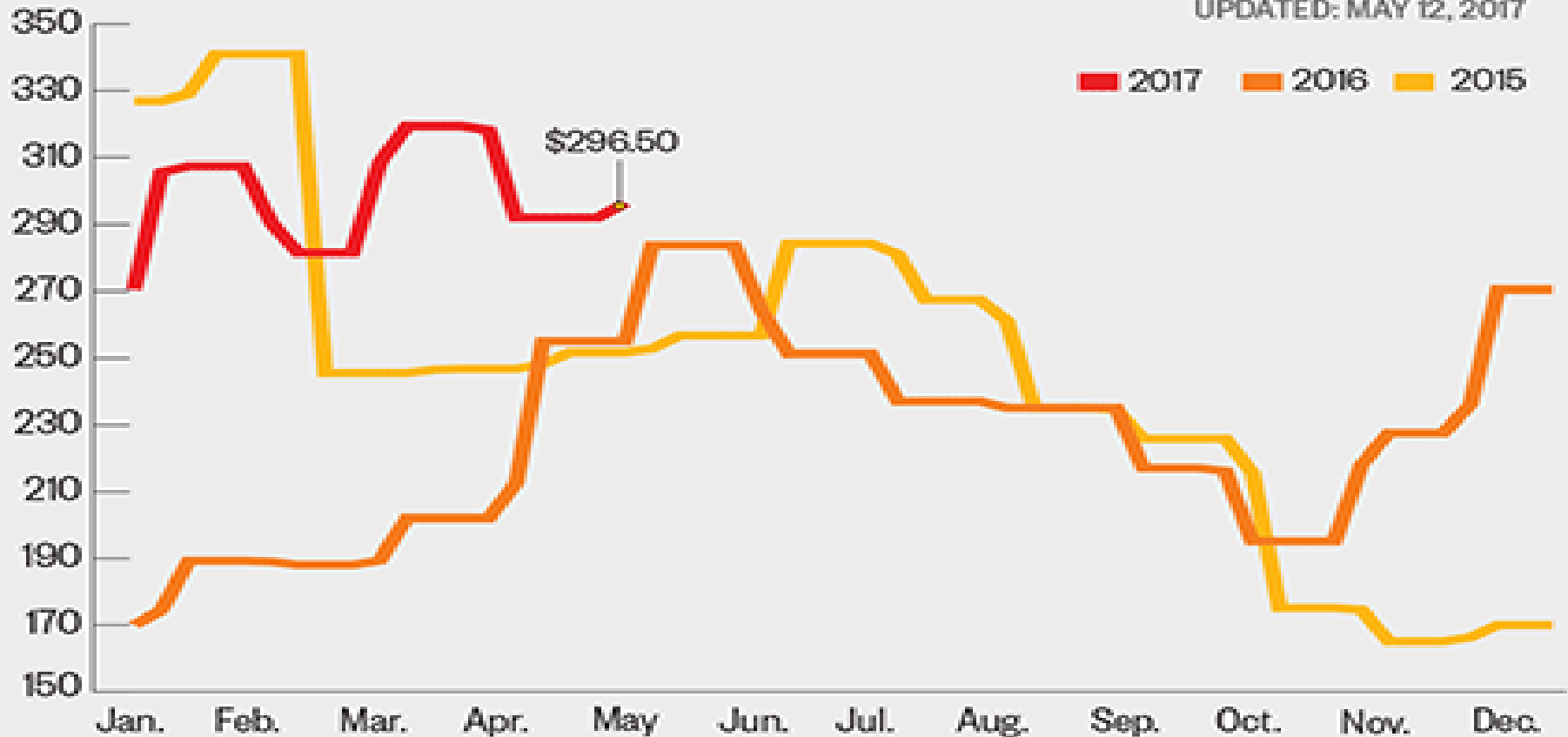


American Metal Market

AMM WEEKLY SHREDDED SCRAP PRICE COMPOSITE

(price per gross ton)

UPDATED: MAY 12, 2017



BASED ON MARKETS IN ALABAMA, PITTSBURGH, CHICAGO, AND PHILADELPHIA. EFFECTIVE MARCH 1, 2014, AMM'S WEEKLY COMPOSITE PRICE FOR SHREDDED SCRAP NO LONGER INCLUDES BIRMINGHAM AND HOUSTON. THE NEW COMPOSITE PRICE INCLUDES CONSUMER BUYING PRICES FOR THESE CITIES: ALABAMA, CHICAGO, PITTSBURGH AND PHILADELPHIA. SOURCE: AMM.

Structural recycling rate steady for last 10 years!



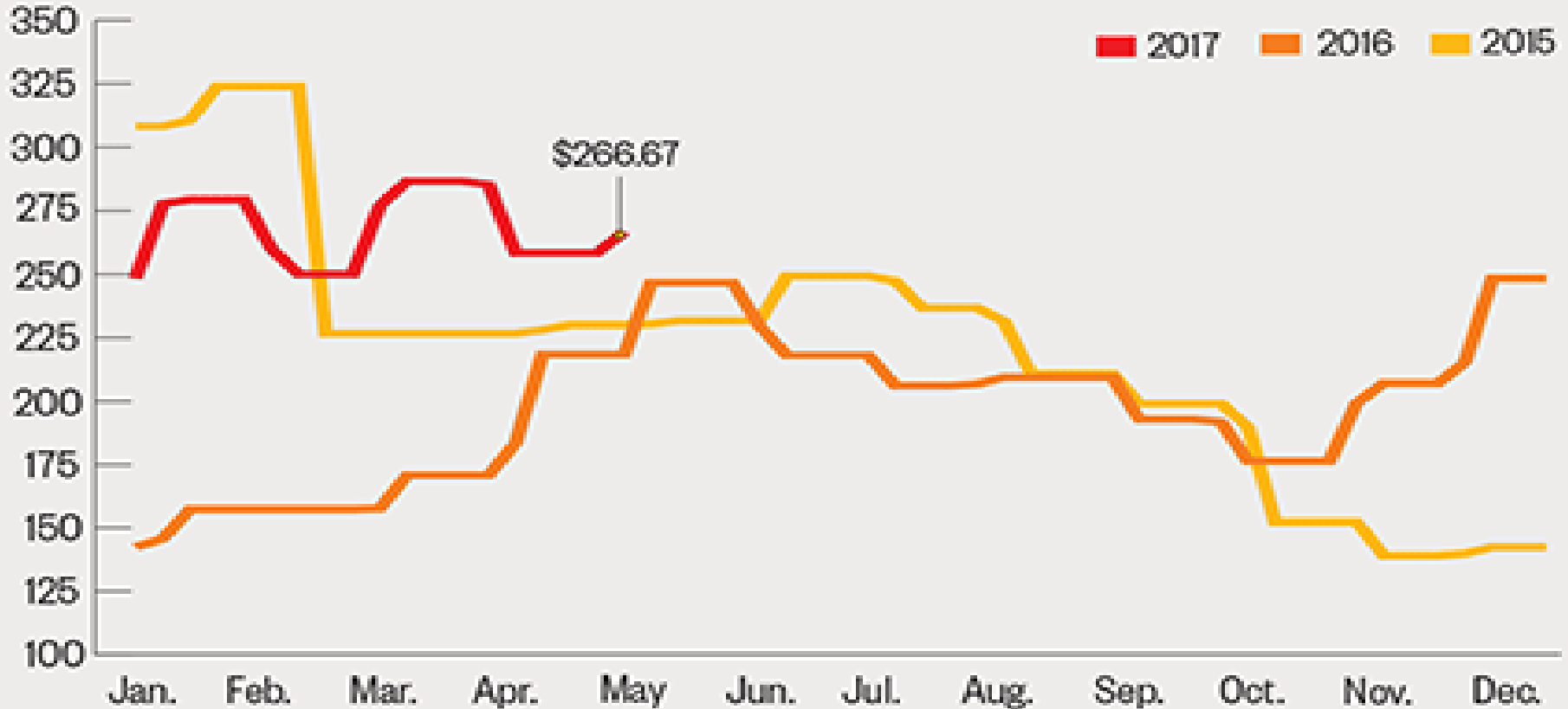


American Metal Market

AMM WEEKLY NO. 1 HEAVY MELT PRICE COMPOSITE

(price per gross ton)

UPDATED: MAY 12, 2017



BASED ON NO. 1 HEAVY MELTING STEEL AT PITTSBURGH, CHICAGO AND PHILADELPHIA.

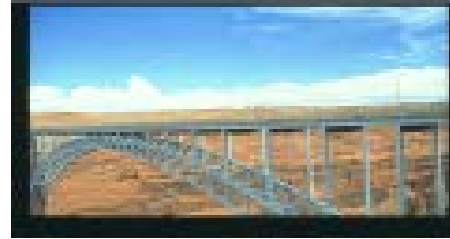
SOURCE: AMM.



• Ultra light Steel Auto Body



• Steel Bridges



• Steel Utility Poles



• Residential Steel Framing





The Strength and Sustainability of Today's Steel

Willis Tower, Chicago, IL



Then (1972)

- Sears Tower
- 76,000 tons of steel
- 20% recycled content (est)

Now (2013)

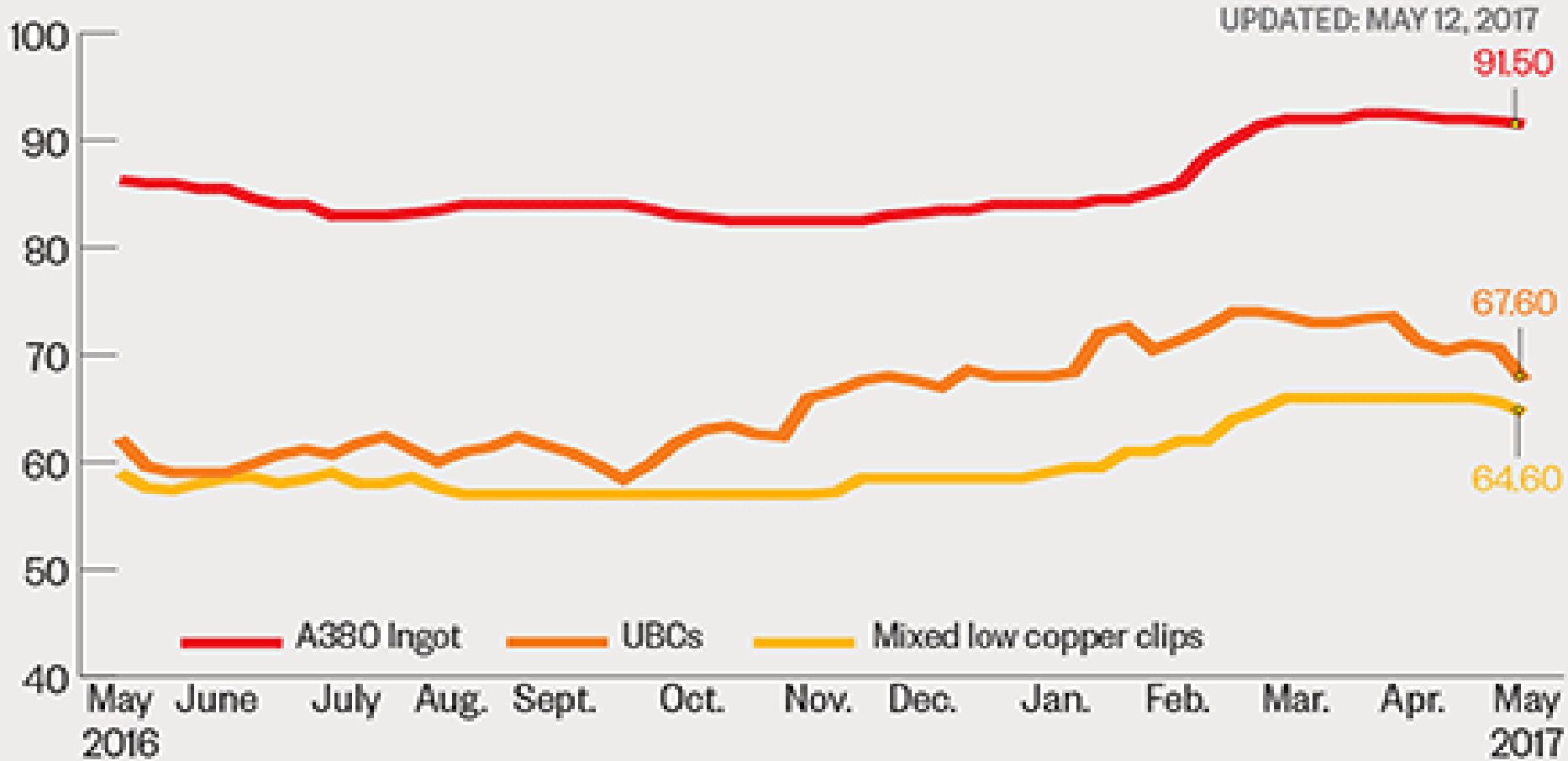
- Willis Tower (second tallest in hemisphere)
- 60,000 tons of steel (strength)
- 90% recycled content (for structural steel)
- 43,000 automobiles
- 7,000 tons of steel cans from curbside-drop off
- 10,000 tons of industrial scrap
- 876,000 fewer man-hours
- 58% smaller carbon footprint
- 74% less embodied energy



Aluminum and Copper have seen recent uptick

AMM A380 INGOT/SCRAP ALUMINUM PRICES

(cents per pound)

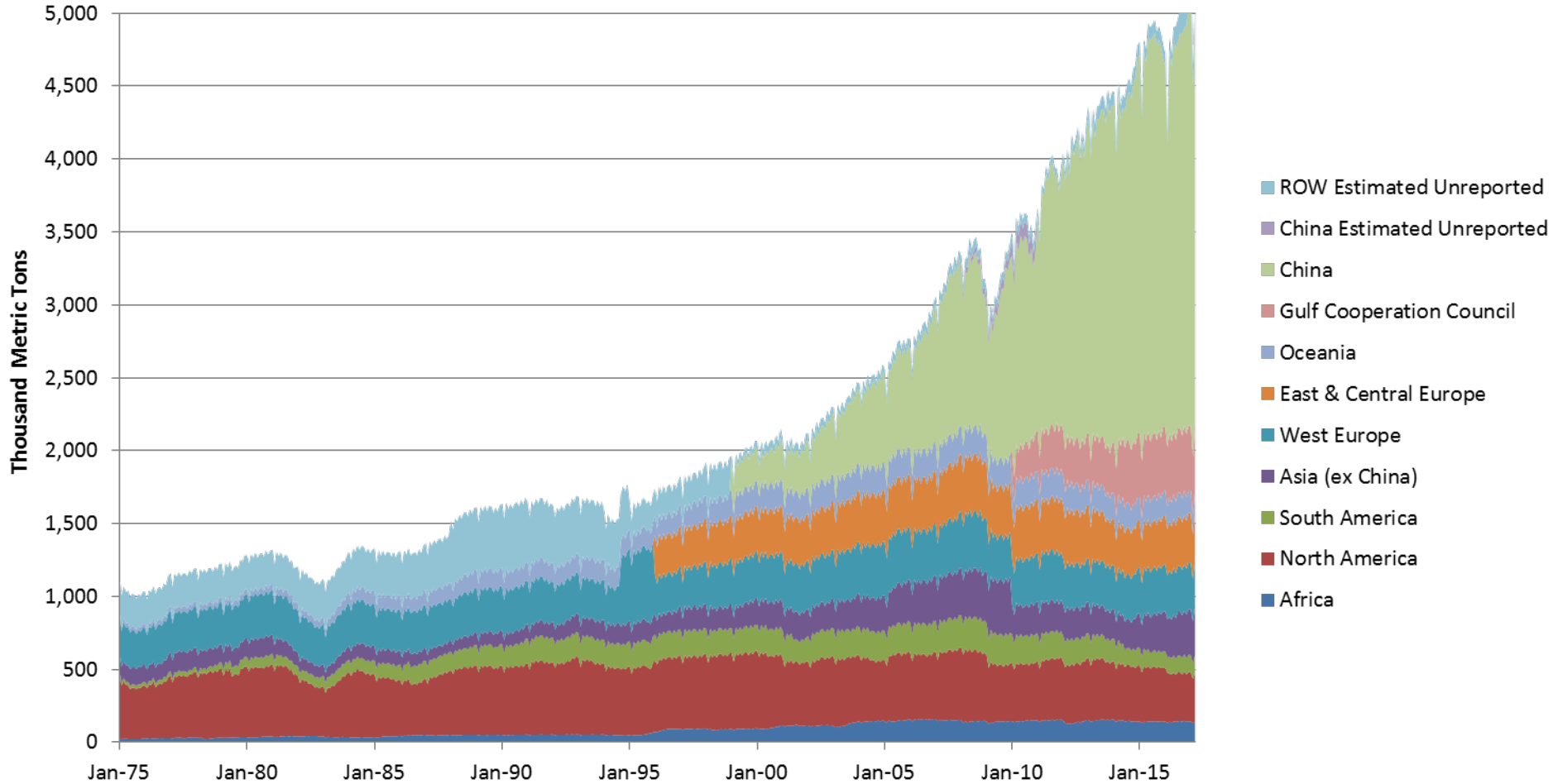


SOURCE: AMM



Aluminum production moving elsewhere

World Primary Aluminum Production





Vehicle Life Cycle Assessment Study

- Purpose
 - How important are material production emissions?
 - Are there unintended GHG consequences due to lightweighting vehicles when focusing only on the use phase?
- Two-part approach
 - Attributional LCA: Vehicle-to-vehicle comparisons
 - Consequential LCA: Large-scale shift or decision



Attributional LCA Preliminary Findings

Lightweighting with aluminum over AHSS:

- Significantly increased production emissions (~30-60%) for all vehicle types
- Increased total life cycle GHG emissions in roughly 50% of the cases tested...but only when using the most favorable recycling methodology assumptions
- ...In all other cases, the aluminum vehicles resulted in a net increase in emissions vs. the AHSS vehicles



Attributional LCA study preliminary conclusion

There is no certainty tailpipe-only regulations will result in a decrease in emissions from lighter vehicles ... and an increase is likely.



Summary-Consequential Life Cycle GHG study

- Fuel economy targets becoming increasingly stringent
- Use of GHG-intensive lightweighting materials to help meet these targets will:
 - Always lead to higher GHG emissions initially
 - Can result in higher total vehicle life cycle emissions
- Changes in aluminum import levels and increasing demand point to even greater GHG consequences in the future
- Ensuring improvements in production phase emissions while reducing driving phase emissions avoids unintended consequences



Ferrous Scrap Dealers

Years of steel recycling experience

Convenient locations

Container and transportation capabilities

Complete processing equipment

Strong relationships with end markets

Look for additional consolidation/vertical integration



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