Northeast Recycling Coalition Spring Conference
April 12, 2016
Princeton, New Jersey

State of the Markets

Joe Pickard
Chief Economist and Director of Commodities
Institute of Scrap Recycling Industries, Inc.
Overview

• About ISRI
• 2015 in Review: Global and Domestic Headwinds
• Market Trends and Outlook:
  o Ferrous
  o Nonferrous
  o Recovered Paper and Fiber
• U.S. and Global Economic Outlook
• Signs of Life and Opportunities Going Forward
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ISRI: Voice of the Recycling Industry

1,600+
Member companies

7,000+
Recycling facilities worldwide

39
Countries
ISRI Members Process and Broker The Full Range of Scrap Commodities

- Ferrous & non-ferrous metals
- Paper
- Plastics
- Glass
- Rubber
- Textiles
- Electronics
Institute of Scrap Recycling Industries

Our Priorities

Workplace safety

Responsible Recycling

Free & Fair Trade

Scrap ≠ Waste

Market Intelligence

Education, Training & Networking

Awareness
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2015 in Review - Scrap Industry Challenges

- Excess global production across a range of commodity markets, e.g. crude oil, iron ore, etc., weighs on prices as investors turn even more bearish on commodities.

- Stronger dollar hurting competitiveness of U.S. scrap exports/promoting imports.

- Weaker overseas scrap demand amid falling primary prices, slowdown in Chinese economic and manufacturing growth and substitution to ore and refined.

- China contributing to global deflationary pressure.

- Uneven U.S. manufacturing output across various industries and geographic regions.

- Disconnect between mostly positive macroeconomic indicators and difficult scrap market conditions widens.

- Falling commodity prices + soft manufacturing output + strong dollar + logistical & regulatory issues = Margins disappear, scrap industry consolidation.
Main Driver of Globalization: China

Volume of Total U.S. Scrap Exports to Mainland China, 1989 - 2014 (metric tons)

Sources: US Census Bureau/US International Trade Commission

- 2000-2014: 211 million mt
- 1989-1999: 9 million mt
Producer prices for industrial goods in China have been falling for nearly 4 years due in part to excessive Chinese property market investment and subsequent correction.

Source: China National Bureau of Statistics
An on-going concern for the scrap industry has been a stronger dollar, boosted in part by Federal Reserve decisions that led to more attractively priced imports while hurting the competitiveness of U.S. scrap exports.
2015 in Review: U.S. Economy Still Growing

Annual U.S. Real GDP Growth, 1970-2015 (%)

Source: Bureau of Economic Analysis
But U.S. Manufacturers Not Adding Jobs

BLS reports that employment increased in retail trade and health care in March while job losses occurred in manufacturing and mining. Construction sector employment reportedly rose by 37,000 jobs last month. But following an 18,000 drop in manufacturers’ payrolls in February, the March report shows manufacturers cut another 29,000 jobs in March.
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Ferrous scrap prices declined by 50 percent over the course of 2015 but have picked up in recent months thanks in part to diminished obsolete supply; improving U.S. steel mill capacity utilization; firmer iron ore prices; slowing Chinese output; trade cases; and better demand from steel-intensive sectors.
The American Iron and Steel Institute reports that capacity utilization rates in the U.S. have climbed back up over 70% in recent weeks, although year-to-date U.S. steel production (through March 26) is still down 3.4% as compared to last year to 21.53 million net tons.
Housing Starts Rising

The Census Bureau reports new housing starts in February increased 5.2% month-on-month to a seasonally adjusted annual rate of 1.178 million units. That is nearly 31% higher than housing starts in February 2015 while building permits posted a 6.3% year-on-year gain.
Solid Light Vehicle Sales

- **U.S. light vehicle sales** were at a seasonally adjusted annual rate (SAAR) of 17.54 million units in February versus a SAAR of 16.40 million units a year ago. Sales were down slightly from the SAAR of 17.58 million units for January.

- **Key Factors**
  - General Motors sales were down 1.5% year-over-year.
  - Ford sales were up 20.2% year-over-year.
  - Fiat Chrysler sales were up 11.9% year-over-year.
  - BMW Group sales were down 12.3% year-over-year.
  - Toyota sales were up 4.1% year-over-year.
  - American Honda Motor sales were up 12.8% year-over-year.
  - Nissan North America sales were up 10.5% year-over-year.
  - Hyundai-Kia sales were up 6.4% year-over-year.
  - Subaru sales were up 1.6% year-over-year.
  - Volkswagen Group of America saw its sales decline 7.1% year-over-year, hurt by the lingering cloud of its emissions testing scandal.

*Source: Briefing.com*
“The premium spread of the U.S. hot-rolled coil (HRC) price over the Chinese export price has narrowed to the lowest level in three years to $54/ton – down from its recent high of $233/ton in May 2014. During the prior four periods since 2009 when the spread has also narrowed substantially, U.S. HRC prices have rebounded sharply thereafter. We believe steel sheet prices will continue to rise this year due to domestic supply cuts and import reductions. The main drivers of the narrowing are higher Chinese steel prices, which reflect a pickup in demand and lower supply with low steel output and inventory levels.

The Shanghai export price for China hot-rolled steel jumped to $400/mt from $300/mt just a week ago. Higher Chinese steel prices are an important positive trend since they represent 50% of world production but are not critical for our positive thesis on domestic steel sheet stocks. U.S. supply cuts from domestic capacity curtailments as well as positive sheet trade case rulings should continue to support the recovery in domestic steel prices and stocks. Domestic mills have announced two $30/ton price increases to $460/ton in a matter of weeks, and the U.S. HRC price has moved up from the bottom at $364/ton to $417/ton currently. We believe there is still more room to run for steel prices and steel stocks and reiterate our top picks U.S. Steel, AK Steel, Steel Dynamics, and Nucor.”
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2015 in Review - Refined Copper and Copper Scrap Prices

Average COMEX Copper and Refiners No. 2 Copper Prices,
Jan - Dec 2015 ($/lb.)
Sources: Fastmarkets and AMM
According to U.S. Geological Survey estimates, reported consumption of refined copper in the U.S. increased 2.9% in 2015 to 1.8 million metric tons while recovery of old + new copper scrap edged up 1.2% to around 830,000 metric tons.
2015 in Review - U.S. Copper Scrap Exports

Volume and Value of Annual U.S. Copper Scrap Exports, 2006-2015
Sources: U.S. Census Bureau/U.S. International Trade Commission

2015 Cu Scrap Exports by Grade (metric tons)

<table>
<thead>
<tr>
<th>Grade</th>
<th>JAN-DEC ’15</th>
<th>% CHG.</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. 1 Copper (Bare Bright)</td>
<td>28,973</td>
<td>34%</td>
</tr>
<tr>
<td>No. 1 Copper (Ex Bare Bright)</td>
<td>141,108</td>
<td>8%</td>
</tr>
<tr>
<td>No. 2 Copper</td>
<td>110,993</td>
<td>-13%</td>
</tr>
<tr>
<td>Other Copper/Brass Scrap</td>
<td>673,416</td>
<td>-12%</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>954,489</strong></td>
<td><strong>-9%</strong></td>
</tr>
</tbody>
</table>
## 2015 in Review - U.S. Copper Scrap Export Gains and Losses

<table>
<thead>
<tr>
<th>Country</th>
<th>2014</th>
<th>2015</th>
<th>Percent Change</th>
<th>Volume Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>China</td>
<td>725,036</td>
<td>659,660</td>
<td>-9%</td>
<td>-65,376</td>
</tr>
<tr>
<td>Germany</td>
<td>56,696</td>
<td>44,228</td>
<td>-22%</td>
<td>-12,468</td>
</tr>
<tr>
<td>Hong Kong</td>
<td>34,068</td>
<td>22,662</td>
<td>-34%</td>
<td>-11,406</td>
</tr>
<tr>
<td>Netherlands</td>
<td>14,786</td>
<td>12,050</td>
<td>-19%</td>
<td>-2,736</td>
</tr>
<tr>
<td>Thailand</td>
<td>5,187</td>
<td>2,539</td>
<td>-51%</td>
<td>-2,648</td>
</tr>
<tr>
<td>Korea</td>
<td>30,722</td>
<td>28,247</td>
<td>-8%</td>
<td>-2,475</td>
</tr>
<tr>
<td>Spain</td>
<td>13,313</td>
<td>10,883</td>
<td>-18%</td>
<td>-2,430</td>
</tr>
<tr>
<td>United Arab Em</td>
<td>3,999</td>
<td>2,163</td>
<td>-46%</td>
<td>-1,836</td>
</tr>
<tr>
<td>Japan</td>
<td>19,765</td>
<td>18,148</td>
<td>-8%</td>
<td>-1,617</td>
</tr>
<tr>
<td>Greece</td>
<td>4,819</td>
<td>3,282</td>
<td>-32%</td>
<td>-1,537</td>
</tr>
</tbody>
</table>
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<thead>
<tr>
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<th>2014</th>
<th>2015</th>
<th>Percent Change</th>
<th>Volume Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Slovak Republic</td>
<td>3,726</td>
<td>7,553</td>
<td>103%</td>
<td>3,827</td>
</tr>
<tr>
<td>Canada</td>
<td>64,430</td>
<td>67,177</td>
<td>4%</td>
<td>2,747</td>
</tr>
<tr>
<td>Austria</td>
<td>4,025</td>
<td>6,261</td>
<td>56%</td>
<td>2,236</td>
</tr>
<tr>
<td>Belgium</td>
<td>21,303</td>
<td>23,448</td>
<td>10%</td>
<td>2,145</td>
</tr>
<tr>
<td>India</td>
<td>20,122</td>
<td>21,498</td>
<td>7%</td>
<td>1,376</td>
</tr>
<tr>
<td>Vietnam</td>
<td>96</td>
<td>1,353</td>
<td>1,302%</td>
<td>1,257</td>
</tr>
<tr>
<td>Peru</td>
<td>179</td>
<td>1,274</td>
<td>611%</td>
<td>1,095</td>
</tr>
<tr>
<td>Italy</td>
<td>217</td>
<td>1,093</td>
<td>403%</td>
<td>876</td>
</tr>
<tr>
<td>Malaysia</td>
<td>115</td>
<td>611</td>
<td>432%</td>
<td>496</td>
</tr>
<tr>
<td>France</td>
<td>296</td>
<td>641</td>
<td>116%</td>
<td>345</td>
</tr>
</tbody>
</table>
“With prices rising significantly, and with the structural case for base metals remaining very poor we recommend producers and investors with longer-term horizons begin implementing hedging strategies and consider short positions in copper and aluminium over the coming month,” Goldman Sachs analysts wrote in a recent report.

“In Goldman’s 12-month view, copper may drop to $4,000 a ton and aluminum will probably slide to $1,350. Deleveraging in China and emerging markets, further dollar strength, mining cost deflation and strong supply growth, particularly in copper because of a prior boom in capital expenditure, are set to keep “capex-heavy” metals prices under pressure over the coming year, the bank said.

“Overall we find that the likelihood of a sustained improvement in Chinese demand during 2016/17 is low,” Goldman said.”

Source: Bloomberg
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2015 in Review: Recovered Paper Exports

U.S. exports of recovered paper and fiber were up around 2% by volume in 2015 to approach 21.6 million short tons, the highest volume since 2012.

China was again the largest overseas customer by far last year, accounting for 14.9 million short tons or nearly 70% of total U.S. recovered paper and fiber exports. By grade and volume:

- Corrugated exports increased 9% to 10.6 million short tons.
- Mixed paper shipments edged up 1% to 4.7 million short tons.
- But overseas demand decreased for pulp substitutes (-22%), high grade deinking (-16%) and printed news (-8%).
RP Prices More Resilient than Other Commodities

($/short ton)

Source: Paper Stock Report

*Composite National Average of OCC (11), ONP (8), and Mixed Paper (1).
## U.S. Paper and Board Production Down 1%

### PAPER & PAPERBOARD PRODUCTION

<table>
<thead>
<tr>
<th></th>
<th>Current Month</th>
<th>same month year ago</th>
<th>% chg. 2015/14</th>
<th>YTD 2015</th>
<th>YTD 2014</th>
<th>% chg. 2015/14</th>
</tr>
</thead>
<tbody>
<tr>
<td>Newsprint</td>
<td>Dec. 150</td>
<td>156</td>
<td>-3.8%</td>
<td>1,828</td>
<td>2,118</td>
<td>-13.7%</td>
</tr>
<tr>
<td>Uncoated mechanical</td>
<td>Dec. 122</td>
<td>132</td>
<td>-7.6%</td>
<td>1,500</td>
<td>1,617</td>
<td>-7.2%</td>
</tr>
<tr>
<td>Coated paper</td>
<td>Dec. 469</td>
<td>537</td>
<td>-12.7%</td>
<td>5,892</td>
<td>6,560</td>
<td>-10.2%</td>
</tr>
<tr>
<td>Uncoated freesheet</td>
<td>Dec. 669</td>
<td>665</td>
<td>0.6%</td>
<td>7,924</td>
<td>8,002</td>
<td>-1.0%</td>
</tr>
<tr>
<td>Tissue</td>
<td>Dec. 629</td>
<td>638</td>
<td>-1.4%</td>
<td>7,498</td>
<td>7,438</td>
<td>0.8%</td>
</tr>
<tr>
<td>Unbleached kraft papers</td>
<td>Dec. 122</td>
<td>131</td>
<td>-6.9%</td>
<td>1,581</td>
<td>1,547</td>
<td>2.2%</td>
</tr>
<tr>
<td>Total paper</td>
<td>Dec. 2,446</td>
<td>2,553</td>
<td>-4.2%</td>
<td>29,634</td>
<td>30,742</td>
<td>-3.6%</td>
</tr>
<tr>
<td>Linerboard</td>
<td>Dec. 2,088</td>
<td>2,171</td>
<td>-3.8%</td>
<td>26,215</td>
<td>25,341</td>
<td>0.8%</td>
</tr>
<tr>
<td>Corrugating medium</td>
<td>Dec. 853</td>
<td>865</td>
<td>-1.4%</td>
<td>10,299</td>
<td>10,037</td>
<td>2.6%</td>
</tr>
<tr>
<td>SBS boxboard</td>
<td>Dec. 162</td>
<td>170</td>
<td>-4.7%</td>
<td>2,110</td>
<td>2,146</td>
<td>-1.7%</td>
</tr>
<tr>
<td>Unbleached kraft boxboard</td>
<td>Dec. 217</td>
<td>211</td>
<td>2.8%</td>
<td>2,560</td>
<td>2,529</td>
<td>1.2%</td>
</tr>
<tr>
<td>Liquid packaging/food service board</td>
<td>Dec. 266</td>
<td>263</td>
<td>1.1%</td>
<td>3,057</td>
<td>3,144</td>
<td>-2.8%</td>
</tr>
<tr>
<td>Recycled boxboard</td>
<td>Dec. 172</td>
<td>169</td>
<td>1.8%</td>
<td>2,189</td>
<td>2,236</td>
<td>-2.1%</td>
</tr>
<tr>
<td>Total paper</td>
<td>Dec. 4,054</td>
<td>4,131</td>
<td>-1.9%</td>
<td>49,369</td>
<td>49,040</td>
<td>0.7%</td>
</tr>
<tr>
<td>Total paper and paperboard</td>
<td>Dec. 6,500</td>
<td>6,683</td>
<td>-2.7%</td>
<td>79,003</td>
<td>79,782</td>
<td>-1.0%</td>
</tr>
</tbody>
</table>

n.a. = not available. SBS: solid bleached sulfate. Linerboard and medium totals are for both virgin and recycled contents.

Note: Figures in 000 short tons unless otherwise listed. n.a.=not available. Source: American Forest & Paper Association.
According to a recent report by RISI, “Chinese recovered paper consumption expanded by about 1.4 million tons in 2015, with most of the demand growth being met by imports. Chinese domestic recovered paper collection volume, however, was estimated to have shown no increase in 2015 after growing by about 10% or 2.7 million tons per year on average in 2002-2014.”

But don’t get used to rising Chinese import demand, according to RISI analysts: “…we think the Chinese import rebound that began in 2015 will not last long. Suppliers in the exporting regions should probably not get their hopes up for a continuation over the next five years of the strong Chinese demand that they saw in 2015. China will certainly continue to buy a huge amount of recovered paper overseas, but the net import volume is predicted to decline gradually together with the nation’s slowing recovered paper demand growth and the improvement of its domestic collection.”
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“Caution is appropriate.” So says Fed Chairwoman Janet Yellen and investors welcomed last week’s statements regarding the on-going pause in Fed rate hikes and slower projected path of rate hikes later this year. The Fed’s announcement indicated “…economic activity has been expanding at a moderate pace despite the global economic and financial developments of recent months… however, business fixed investment and net exports have been soft” while inflation expectations remain muted.
**IMF Global Growth Forecasts**

**WORLD ECONOMIC OUTLOOK UPDATE • JANUARY 2016**

**FUTURE GROWTH RATES**

Growth will pick up more gradually than projected in fall 2015, especially in emerging market and developing economies.

**Global Economy**

Global demand and activity remain subdued, as three key transitions continue to influence the global outlook (see transitions below).

**Advanced Economies**

A continued modest recovery should gradually close the output gap between real vs. potential GDP.

- 1.9% in 2015
- 2.1% in 2016
- 2.1% in 2017

**Emerging Market & Developing Economies**

China’s slowdown and rebalancing, lower commodity prices, and other strains in some larger emerging market economies are likely to weigh down growth prospects.

- 4.0% in 2015
- 4.3% in 2016
- 4.7% in 2017

**Estimates**

<table>
<thead>
<tr>
<th></th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>World Output</td>
<td>3.4</td>
<td>3.1</td>
<td>3.4</td>
<td>3.6</td>
</tr>
<tr>
<td>United States</td>
<td>2.4</td>
<td>2.5</td>
<td>2.6</td>
<td>2.6</td>
</tr>
<tr>
<td>Euro Area</td>
<td>0.9</td>
<td>1.5</td>
<td>1.7</td>
<td>1.7</td>
</tr>
<tr>
<td>Russia</td>
<td>0.6</td>
<td>-3.7</td>
<td>-1</td>
<td>1</td>
</tr>
<tr>
<td>China</td>
<td>7.3</td>
<td>6.9</td>
<td>6.3</td>
<td>6</td>
</tr>
<tr>
<td>India</td>
<td>7.3</td>
<td>7.3</td>
<td>7.5</td>
<td>7.5</td>
</tr>
<tr>
<td>ASEAN-5</td>
<td>4.6</td>
<td>4.7</td>
<td>4.8</td>
<td>5.1</td>
</tr>
<tr>
<td>Brazil</td>
<td>0.1</td>
<td>-3.8</td>
<td>-3.5</td>
<td>0</td>
</tr>
<tr>
<td>Mexico</td>
<td>2.3</td>
<td>2.5</td>
<td>2.6</td>
<td>2.9</td>
</tr>
<tr>
<td>MENA</td>
<td>2.8</td>
<td>2.5</td>
<td>3.6</td>
<td>3.6</td>
</tr>
<tr>
<td>Sub-Saharan Africa</td>
<td>5</td>
<td>3.5</td>
<td>4</td>
<td>4.7</td>
</tr>
</tbody>
</table>

**World Trade Volume (goods and services)**

<table>
<thead>
<tr>
<th></th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3.4</td>
<td>2.6</td>
<td>3.4</td>
<td>4.1</td>
</tr>
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Searching for Signs of Life…

• Few expecting a V-shaped recovery, but soft prices have impacts for supply (e.g. obsolete scrap supply)

• Sentiment recently better towards commodities, but most analysts still expect prices to remain lower for longer

• Need for cutbacks in excess global primary commodity capacity and production in order to rebalance commodity markets

• Need to develop new markets

• Focus on safety, operational efficiency, quality and product diversification

• Targeted investment

• Cyclical, evolving industry with longer term positive trends

• Opportunities for ISRI and the industry to educate policymakers and the public

• Scrap recyclers are resilient!
Thank You!!