

The purpose of the information in this presentation is to guide ICA programs and provide members information to make independent business decisions.

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**ANTITRUST GUIDELINES
FOR
COPPER INDUSTRY TRADE ASSOCIATION MEETINGS**

The following guidelines with respect to compliance with antitrust laws of the United States, Japan and European Community¹ are intended to govern the conduct of participants in copper industry trade association meetings, both at the meeting itself and in informal discussions before or after the formal meeting.

Price. Competitors should not discuss future prices (including terms of sale) of their products. There is no blanket prohibition against the mention of or reference to current or past prices but limits must be observed. Such references or mentions should occur only when necessary in connection with the development of association programs. For example, reference to a particular price level in comparing the cost of a copper product to a competing product is permitted. Whenever possible, such references should be discussed in advance with legal counsel.

Competitive Information. Competitors should not discuss the market share of a particular copper producer or copper fabricator's products. Furthermore, nothing should be said at a meeting which could be interpreted as suggesting prearranged market shares for such products or producer production levels. The overall market share of copper products may be discussed with regard to competition with non-copper products and general market acceptance.

New Products. Competitors should not encourage or discourage the introduction of a new product by another competitor or reveal a particular copper company's plans to change the production rate of an existing product or to introduce a new product. No company should disclose to another company whether it is in a position to make or market a new product. New products may be discussed in a technical manner or from the standpoints of competition with non-copper products and general market acceptance. In addition, proposed methods for and results of field and laboratory testing can be considered.

The Role of Legal Counsel. Legal counsel attends association meetings to advise association staff and other meeting attendees regarding the antitrust laws and to see that none of the matters discussed or materials distributed raise even the appearance of antitrust improprieties. During the course of a meeting, if counsel believes that the discussion is turning to a sensitive or inappropriate subject, counsel will express that belief and request that the attendees return the discussion to a less sensitive area.

A paper entitled
"Copper Industry Trade Associations and the Antitrust Laws"
is available upon request.

10/92, 5/93, 10/10

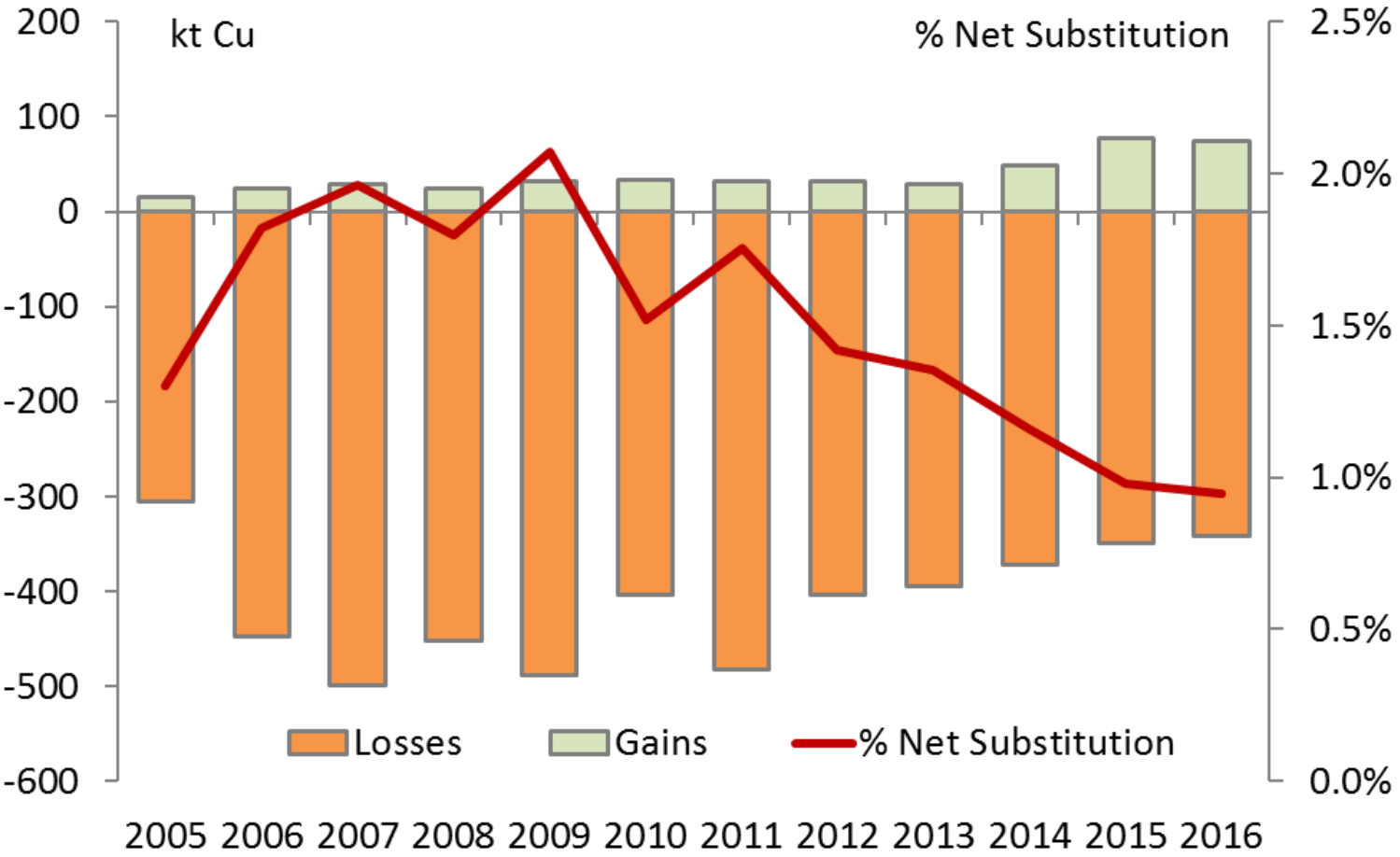
¹ Other foreign competition laws apply to International Copper Association, Ltd. (ICA's activities worldwide.

Realities of Substitution in the Global Copper Market

Paul Dewison, Managing Director, MetalsPlus



Net loss remains at less than 300 kt in 2016



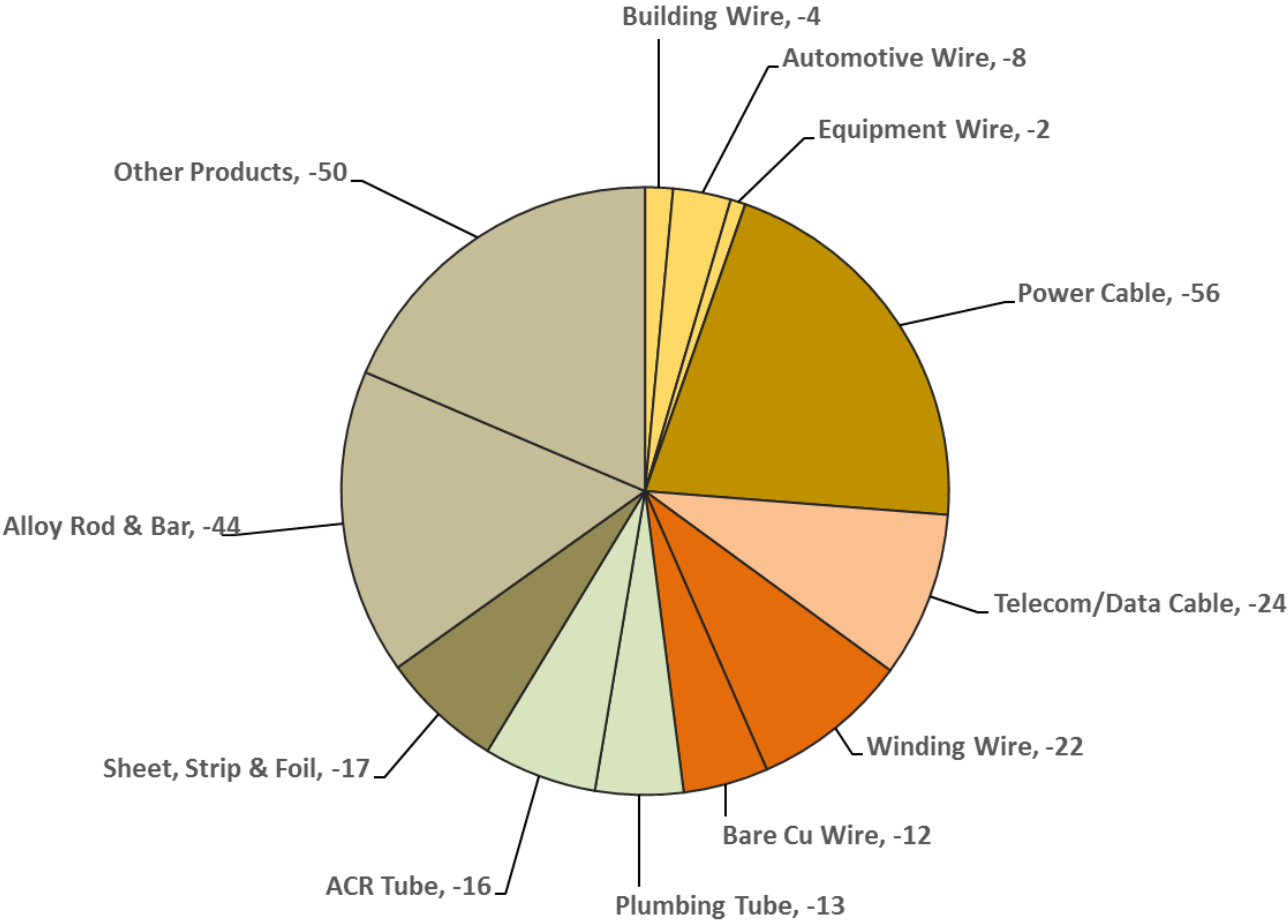
Net Substitution Loss by Product in 2016

Allocation by product group

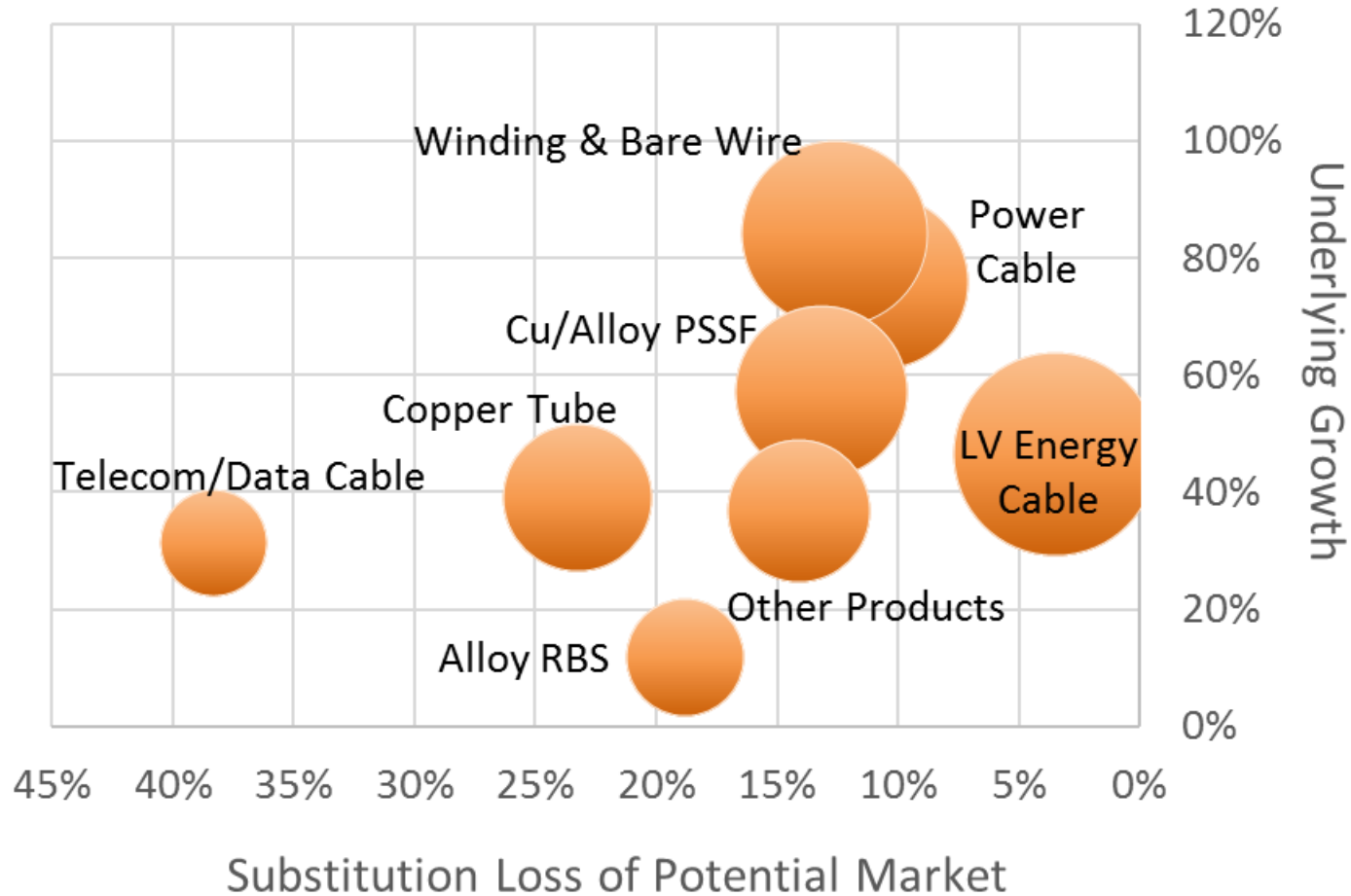
KEY

- LV Energy Cable
- Power Cable
- Telecom/Data Cable
- Winding & Bare Wire
- Cu Tube / Other Extrusions
- Plate, Sheet, Strip & Foil
- Other Alloy Products

Total = 268 kt

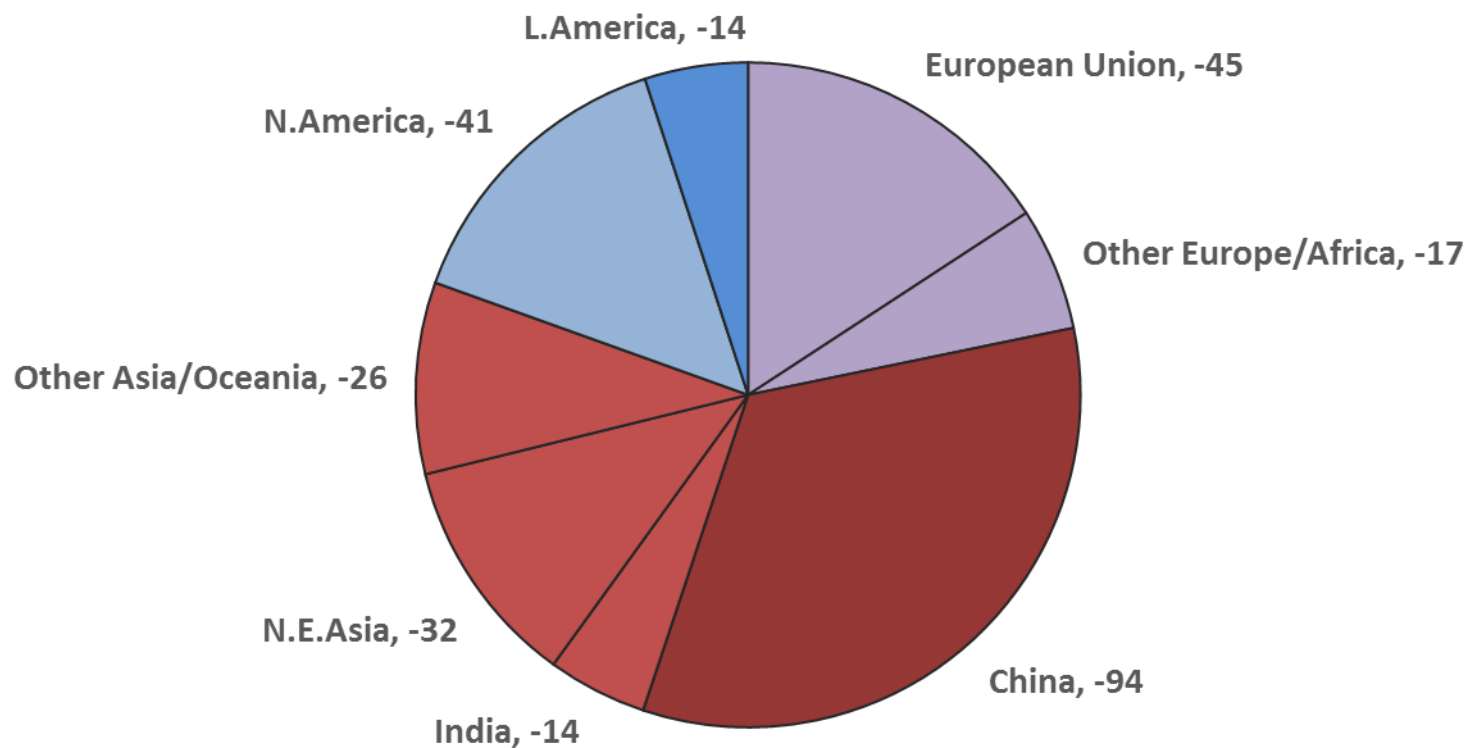


Potential market gain and net substitution loss



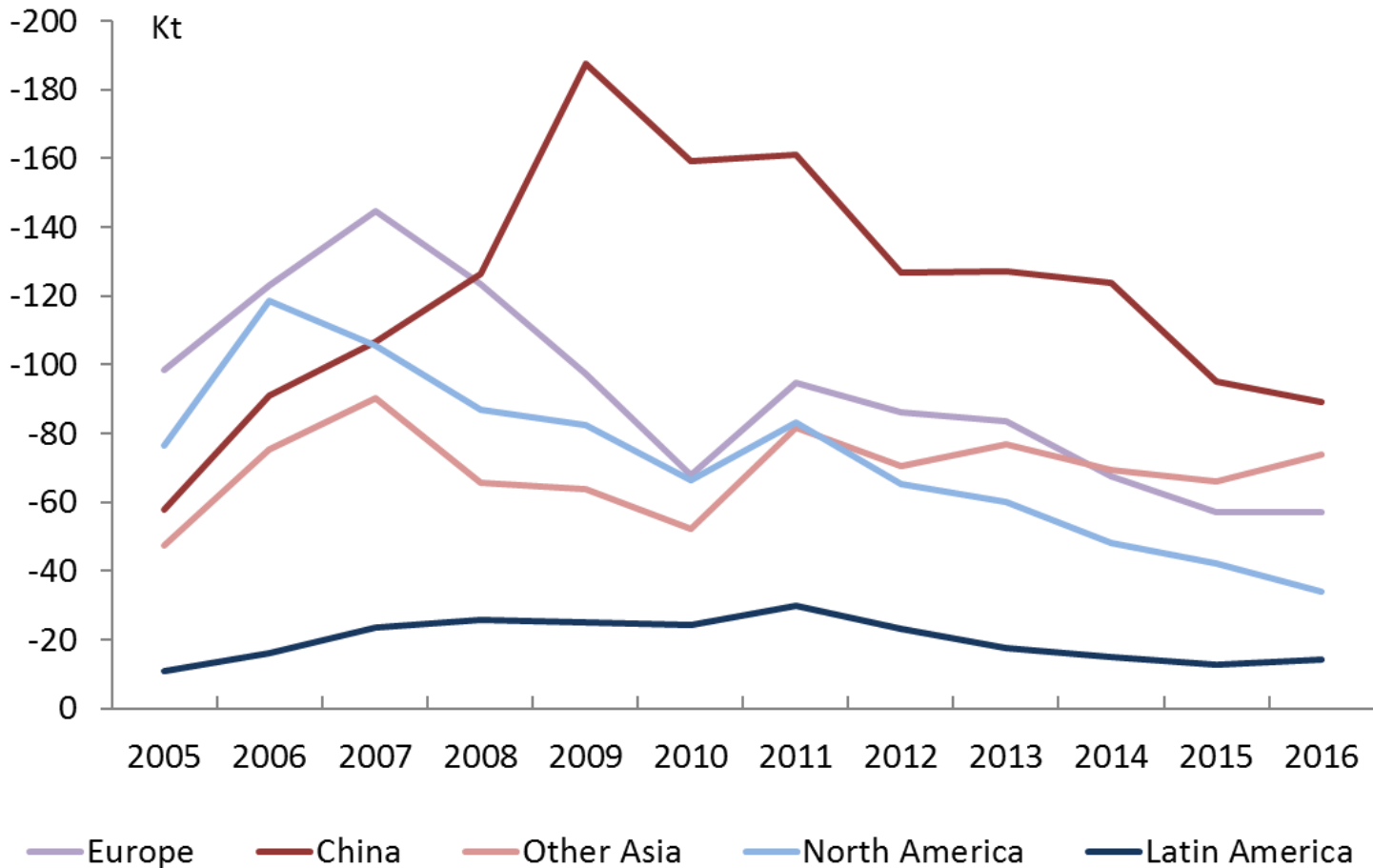
Net Substitution Loss by Region in 2016

Allocation by region and sub-region

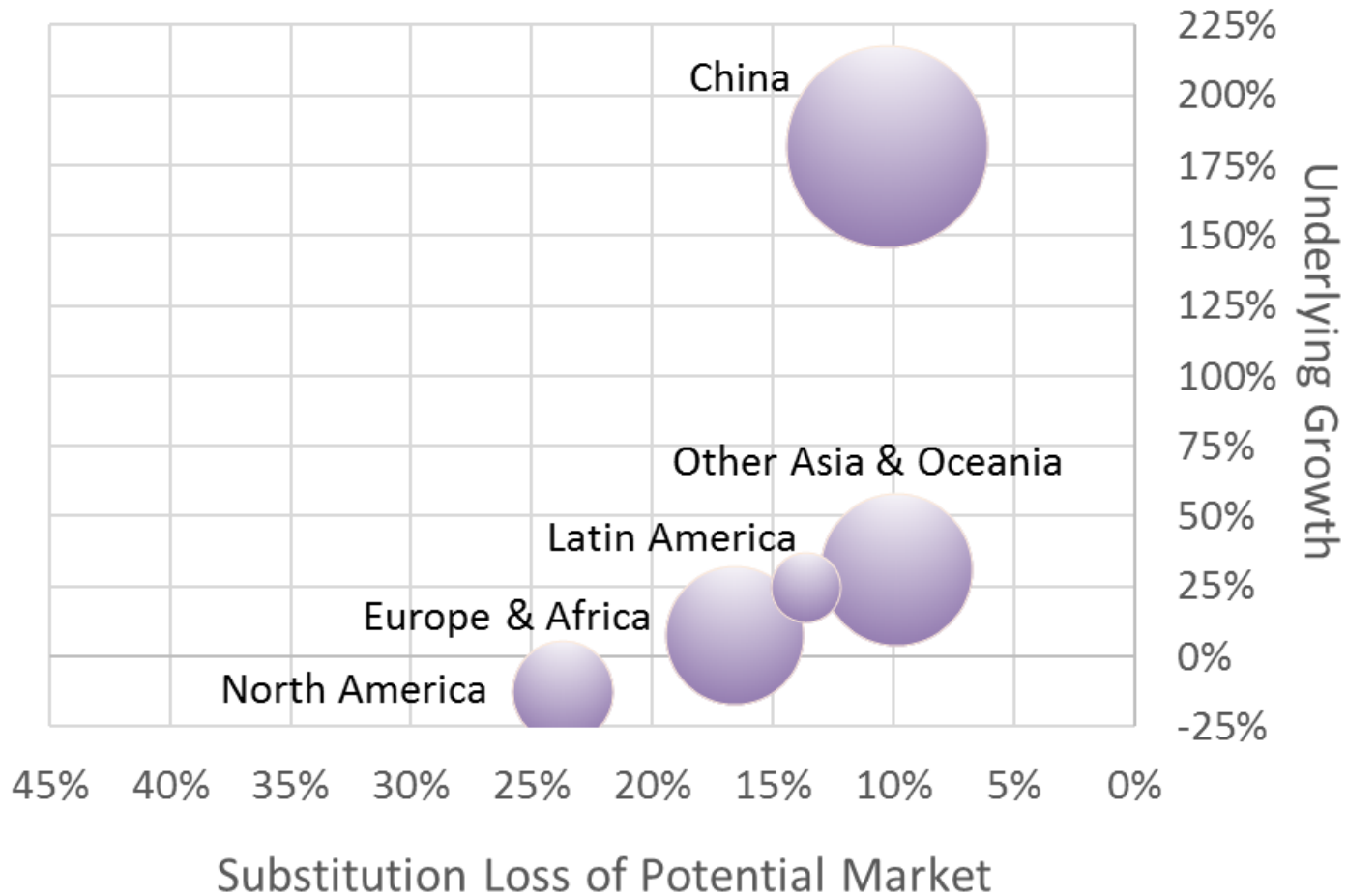


Total = 268 kt

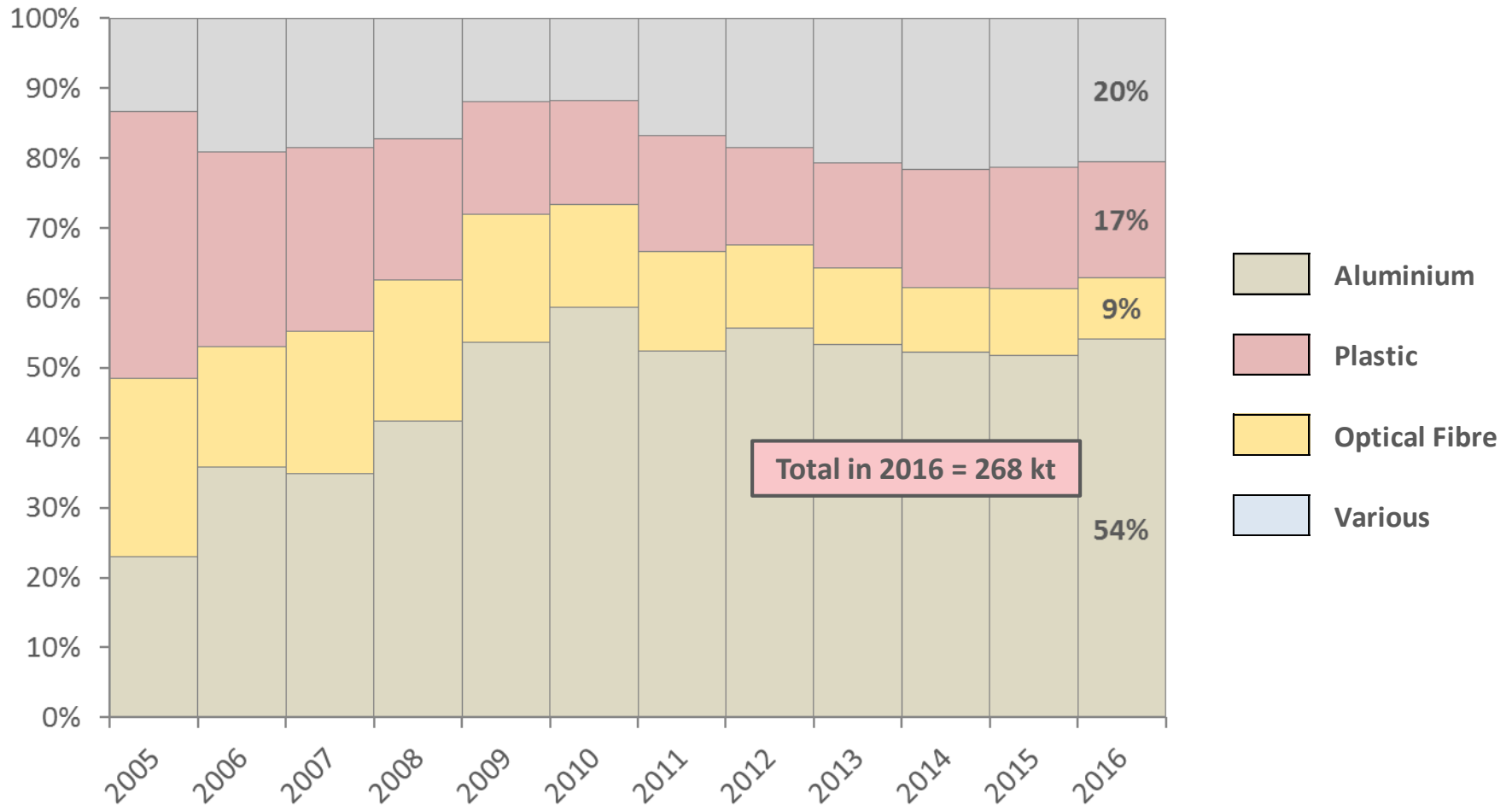
Volume Loss by Region



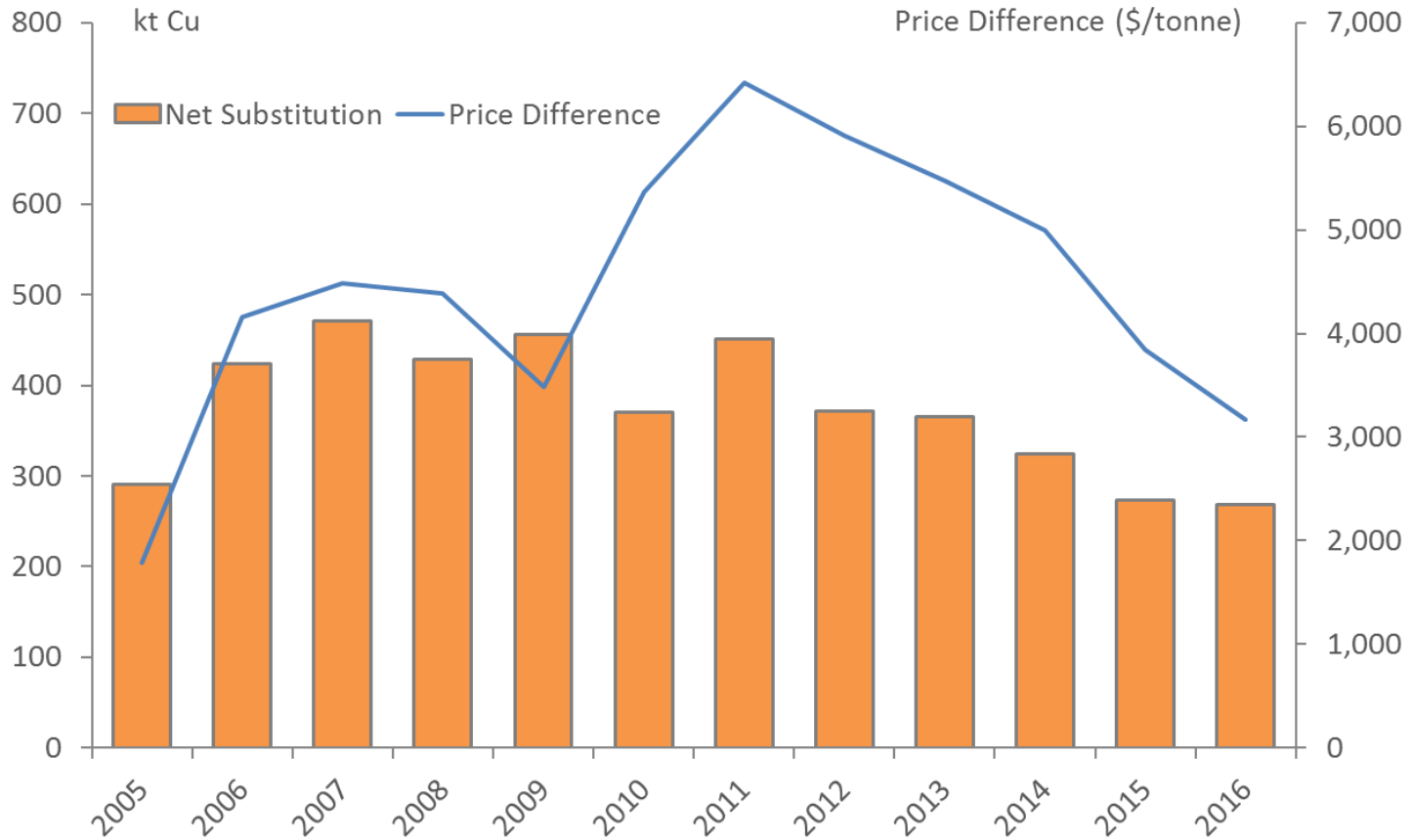
Potential market gain and net substitution loss



Aluminium share of net loss rises from little above 20% to over 50%

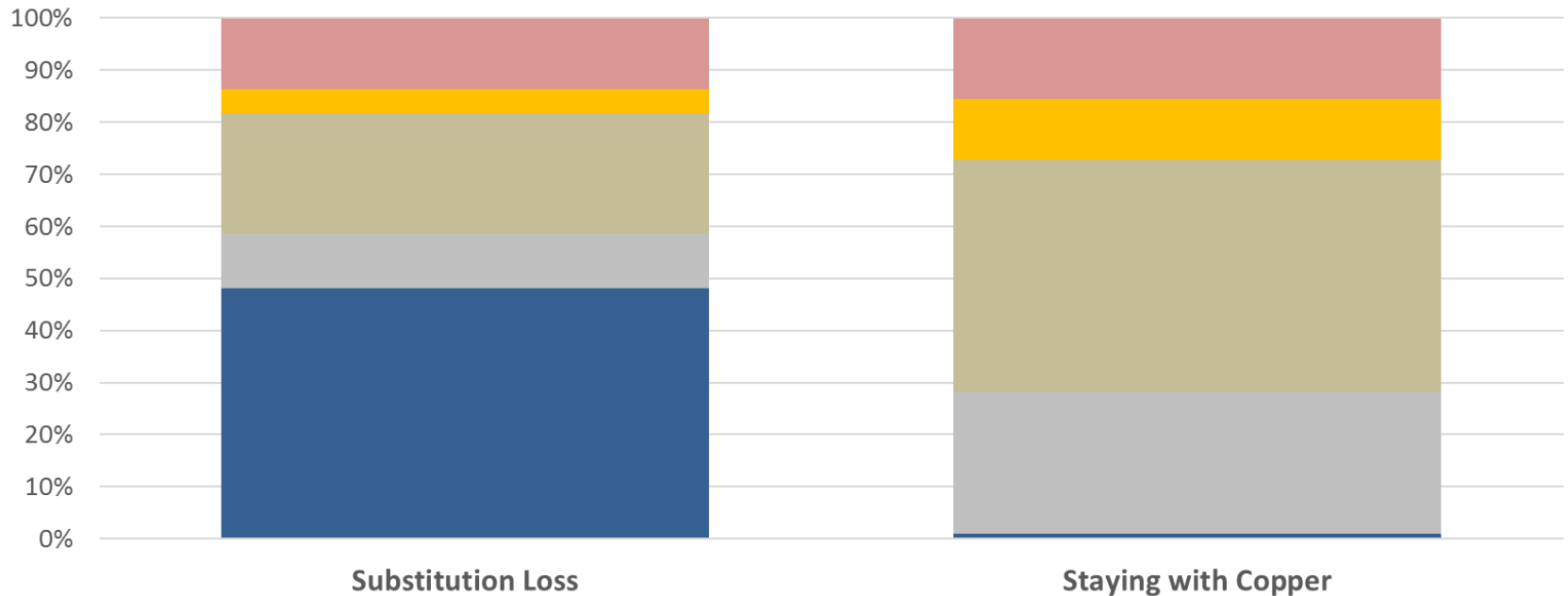


Note: 'Various' substitutes include Other and Unidentified products. Other Metals are the main element within this group, including Carbon Steel and Stainless Steel



➤ The price difference between copper and aluminium peaked in 2011 at over \$6,000/t

There are many factors



COST

Purchase Cost
Cost Volatility

QUASI-COST

Life Cycle Cost
Process / Installed Cost
Switching Cost
Theft Risk
Risk of Failure

PROPERTIES

Energy Efficiency
Thermal Conductivity
Machinability
Size & Weight
Materials Match
Aesthetic Properties

STANDARDS

Standards
Regulations

SUPPLY CHAIN

Supplier Influence
Customer Influence

- Net substitution has fallen to 1% p.a. from nearly 2% p.a. pre-2010
- Reduced cost differentials help copper, especially compared to aluminium
- Challenges remain: Former cost differentials, weight, specific regulations
- Though challenges are important, we should not overstate them as
 - Substitution losses are almost always less than predicted
- Copper has innate advantages that continue to favour its use
 - The benchmark for electrical and thermal conductivity
 - Endlessly recyclable
 - Measures up well in life-time costing